1934.

NEW ZEALAND.

DAIRY INDUSTRY COMMISSION.

Presented to both Houses of the General Assembly by command of His Excellency.

APPOINTMENT OF DAIRY INDUSTRY COMMISSION.

BLEDISLOE, Governor-General.

To all to whom these presents shall come, and to The Honourable FRANCIS VERNON FRAZER, Judge of the Arbitration Court, Wellington; GEORGE ANDREW DUNCAN, Esquire, Company Secretary, Hawera; JOHN GILKISON, Esquire, Company Director, Invercargill; WILLIAM AUGUSTUS IORNS, Esquire, Farmer, Martinborough; and DAVID OWEN WILLIAMS, Esquire, Lecturer in Economics, Massey Agricultural College, Palmerston North: GREETING.

WHEREAS by the Dairy Industry Act, 1908, and its amendments, and the Dairy-produce Export Control Act, 1923, and its amendments, statutory provisions have been made relating to the carrying-on of the dairy industry in New Zealand and to the marketing of dairy-produce: And whereas a crisis has arisen in the affairs of the industry by reason in part of the cost of production and in part of a reduction in the price obtainable overseas for butter and cheese produced in New Zealand: And whereas it is contemplated that further legislation in amendment of the enactments hereinbefore recited or in addition thereto should be passed in order that the industry may be maintained and developed: And whereas by the Commissions of Inquiry Act, 1908, authority is conferred on the Governor-General in Council to appoint any person or persons to be a Commission to inquire into and report upon any question arising out of the working of any existing law or regarding the necessity or expediency of any proposed legislation: And whereas it is deemed advisable to appoint such a Commission in relation to the dairy industry and the enactments hereinbefore referred to:

Now, therefore, I, Charles, Baron Bledisloe, the Governor-General of the Dominion of New Zealand, in pursuance and exercise of the powers conferred on me as aforesaid by the Commissions of Inquiry Act, 1908, and of all other powers and authorities enabling me in this behalf, and acting by and with the advice and consent of the Executive Council of the said Dominion, do hereby constitute and appoint you, the said

FRANCIS VERNON FRAZER,
GEORGE ANDREW DUNCAN,
JOHN GILKISON,
WILLIAM AUGUSTUS IORNS, and
DAVID OWEN WILLIAMS

to be a Commission to inquire into and report upon the condition of the dairy industry in New Zealand and upon all such matters incidental or relevant thereto as you may think proper, with a view to the enactment by the General Assembly of New Zealand of such further legislation in relation to the said industry as will best promote the interests of the persons engaged therein and the general economic welfare of New Zealand; and, in particular, but without limiting the generality of the foregoing authority, to inquire into and report upon the following matters, namely:—

(1) The existing relationship between the production of dairy-produce in New Zealand and the demand for such produce in New Zealand or in existing overseas markets:

(2) The practicability of extending existing markets and of establishing new markets:

(3) The desirability or otherwise of varying the proportions existing between the different classes of manufactured dairy-produce produced for local or for overseas markets:

(4) The economic practicability of the utilization of raw dairy-products for purposes other than the manufacture of butter or cheese:

(5) The desirability or otherwise of reducing the total output of dairy-produce by the utilization for other purposes of lands that are now being used or are intended to be used for dairy-farming:

(6) The methods generally followed in the industry in the production of raw products or of manufactured products, and any practicable improvements of those methods or any of them that could be adopted with advantage:

(7) The sufficiency or otherwise of the monetary returns for the use of capital or labour received by persons directly or indirectly engaged in the industry:

(8) The manner in which charges on the proceeds of the industry can best be reduced, having regard to the interests of dairy-farmers and of workers engaged in the industry in the production of raw products, of persons engaged in the manufacture of dairy-produce, and of persons having capital invested by way of mortgage or otherwise in the industry or in any enterprise associated with the industry:

(9) The desirability or otherwise of affording further assistance for the maintenance and reasonable development of the industry, and the means by which any such assistance can best be afforded:

(10) The methods that should be adopted for the purpose of securing proper co-operation between persons engaged in New Zealand in the production, manufacture, sale, or distribution of dairy-produce and of persons similarly engaged elsewhere:

(11) Methods that may reasonably be adopted for promoting an increased consumption in New Zealand or elsewhere of raw or of manufactured dairy-produce:

(12) The adequacy of the provisions of the Dairy Industry Act, 1908, and the Dairy-produce Export Control Act, 1923, having regard to the special conditions now affecting the industry.

And with the like advice and consent I do further appoint you,

FRANCIS VERNON FRAZER,

to be Chairman of the said Commission:

And for the better enabling you, the said Commission, to carry these presents into effect, you are hereby authorized and empowered to make and conduct any inquiry under these presents at such places as you may deem advisable and at such times as you may deem expedient, with power to adjourn from time to time and from place to place as you think fit, and to call before you and examine on oath or otherwise, as may be allowed by law, such person or persons as you think capable of affording information in the premises; and you are also empowered to call for and examine all such books or records as you deem likely to afford you the fullest information on the subject-matter of the inquiry hereby directed to be made, and to inquire of and concerning the premises by all lawful means whatsoever:

And, using all diligence, you are required to submit a report to me under your hands and seals not later than the sixteenth day of June, one thousand nine hundred and thirty-four, of your opinion as to the aforesaid matters:

And you are hereby strictly charged and directed that you shall not at any time publish or otherwise disclose, save to me in pursuance of these presents or by my direction, the contents or purport of any report so made or to be made by you:

And it is hereby declared that these presents shall continue in full force and virtue although the inquiry is not regularly continued from time to time or from place to place by adjournment.

[L.S.] Given under the hand of His Excellency the Governor-General of the Dominion of New Zealand, and issued under the Seal of the said Dominion, this 27th day of April, 1934.

GEO. W. FORBES, Prime Minister.

Approved in Council.

F. D. THOMSON,
Clerk of the Executive Council.

Extending the Period within which the Dairy Industry Commission shall report.

BLEDISLOE, Governor-General.

To all to whom these presents shall come, and to The Honourable FRANCIS VERNON FRAZER, Judge of the Arbitration Court, Wellington; GEORGE ANDREW DUNCAN, Esquire, Company Secretary, Hawera; JOHN GILKISON, Esquire, Company Director, Invercargill; WILLIAM AUGUSTUS IORNS, Esquire, Farmer, Martinborough; and DAVID OWEN WILLIAMS, Esquire, Lecturer in Economics, Massey Agricultural College, Palmerston North: GREETING.

WHEREAS by a Warrant dated the twenty-seventh day of April, one thousand nine hundred and thirty-four, and issued under my hand and the Seal of the Dominion of New Zealand, you, the said The Honourable Francis Vernon Frazer, George Andrew Duncan, John Gilkison, William Augustus Iorns, and David Owen Williams, were appointed to be a Commission to inquire into and report upon the dairy industry in New Zealand and its future development: And whereas by the said Warrant you were required to report to me under your hands and seals not later than the sixteenth day of June, one thousand nine hundred and thirty-four, your opinion on the aforesaid matters: And whereas it is expedient that the period within which you are required to report to me should be extended:

Now, therefore, in pursuance and exercise of the powers and authorities vested in me by the Commissions of Inquiry Act, 1908, and of all other powers and authorities enabling me in this behalf, I, Charles, Baron Bledisloe, Governor-General of the Dominion of New Zealand, acting by and with the advice and consent of the Executive Council of the said Dominion, do hereby extend the period within which you are required to report to me, as by the said Commission provided, to the thirty-first day of July, one thousand nine hundred and thirty-four:

And in further pursuance of the said powers and authorities and with the like advice and consent I do hereby confirm the said Commission except as altered by these presents.

[L.S.] Given under the hand of His Excellency the Governor-General of the Dominion of New Zealand, and issued under the Seal of the said Dominion, this 18th day of June, 1934.

GEO. W. FORBES, Prime Minister.

Approved in Council.

F. D. THOMSON,
Clerk of the Executive Council.

Extending the Period within which the Dairy Industry Commission shall report.

BLEDISLOE, Governor-General.

To all to whom these presents shall come, and to The Honourable FRANCIS VERNON FRAZER, Judge of the Arbitration Court, Wellington: GEORGE ANDREW DUNCAN, Esquire, Company Secretary, Hawera; JOHN GILKISON, Esquire, Company Director, Invercargill; WILLIAM AUGUSTUS IORNS, Esquire, Farmer, Martinborough; and DAVID OWEN WILLIAMS, Esquire, Lecturer in Economics, Massey Agricultural College, Palmerston North: GREETING.

WHEREAS by a Warrant dated the twenty-seventh day of April, one thousand nine hundred and thirty-four, and issued under my hand and the Seal of the Dominion of New Zealand, you, the said The Honourable Francis Vernon Frazer, George Andrew Duncan, John Gilkison, William Augustus Iorns, and David Owen Williams were appointed to be a Commission to inquire into and report upon the dairy industry in New Zealand and its future development: And whereas by the said Warrant you were required to report to me under your hands and seals not later than the sixteenth day of June, one thousand nine hundred and thirty-four, your opinion on the aforesaid matters: And whereas the period within which you were required to report to me was extended to the thirty-first day of July, one thousand nine hundred and thirty-four, by Warrant dated the eighteenth day of June, one thousand nine hundred and thirty-four, issued under my hand and the Seal of the said Dominion: And whereas it is expedient that such period should be further extended:

Now, therefore, in pursuance and exercise of the powers and authorities vested in me by the Commissions of Inquiry Act, 1908, and of all other powers and authorities enabling me in this behalf, I, Charles, Baron Bledisloe, Governor-General of the Dominion of New Zealand, acting by and with the advice and consent of the Executive Council of the said Dominion, do hereby further extend the period within which you are required to report to me as provided by the said Commission and by the said Warrant dated the eighteenth day of June, one thousand nine hundred and thirty-four, to the thirty-first day of August, one thousand nine hundred and thirty-four:

And in further pursuance of the said powers and authorities and with the like advice and consent I do hereby confirm the said Commission except as altered by the said Warrant dated the eighteenth day of June, one thousand nine hundred and thirty-four, and by these presents.

Given under the hand of His Excellency the Governor-General of the Dominion of New Zealand, and issued under the Seal of the said Dominion, this 30th day of July, 1934.

[L.S.]

GEO. W. FORBES, Prime Minister.

Approved in Council.

F. D. THOMSON,
Clerk of the Executive Council.

Extending the Period within which the Dairy Industry Commission shall report.

BLEDISLOE, Governor-General.

To all to whom these presents shall come, and to The Honourable FRANCIS VERNON FRAZER, Judge of the Arbitration Court, Wellington; GEORGE ANDREW DUNCAN, Esquire, Company Secretary, Hawera; JOHN GILKISON, Esquire, Company Director, Invercargill; WILLIAM AUGUSTUS IORNS, Esquire, Farmer, Martinborough; and DAVID OWEN WILLIAMS, Esquire, Lecturer in Economics, Massey Agricultural College, Palmerston North: GREETING.

WHEREAS by a Warrant dated the twenty-seventh day of April, one thousand nine hundred and thirty-four, and issued under my hand and the Seal of the Dominion of New Zealand, you, the said The Honourable Francis Vernon Frazer, George Andrew Duncan, John Gilkison, William Augustus Iorns, and David Owen Williams were appointed to be a Commission to inquire into and report upon the dairy industry in New Zealand and its future development: And whereas by the said Warrant you were required to report to me under your hands and seals not later than the sixteenth day of June, one thousand nine hundred and thirty-four, your opinion on the aforesaid matters: And whereas the period within which you were required to report to me was extended to the thirty-first day of July, one thousand nine hundred and thirty-four, by Warrant dated the eighteenth day of June, one thousand nine hundred and thirty-four, issued under my hand and the Seal of the said Dominion: And whereas such period was further extended to the thirty-first day of August, one thousand nine hundred and thirty-four, by Warrant dated the thirtieth day of July, one thousand nine hundred and thirty-four, issued under my hand and the Seal of the said Dominion: And whereas it is expedient that such period should be further extended:

Now, therefore, in pursuance and exercise of the powers and authorities vested in me by the Commissions of Inquiry Act, 1908, and of all other powers and authorities enabling me in this behalf, I, Charles, Baron Bledisloe, Governor-General of the Dominion of New Zealand, acting by and with the advice and consent of the Executive Council of the said Dominion, do hereby further extend the period within which you are required to report to me as provided by the said Commission and by the said Warrants dated the eighteenth day of June, one thousand nine hundred and thirty-four, and the thirtieth day of July, one thousand nine hundred and thirty-four, to the thirtieth day of September, one thousand nine hundred and thirty-four:

And in further pursuance of the said powers and authorities and with the like advice and consent I do hereby confirm the said Commission except as altered by the said Warrants dated the eighteenth day of June, one thousand nine hundred and thirty-four and the thirtieth day of July, one thousand nine hundred and thirty-four, and by these presents.

Given under the hand of His Excellency the Governor-General
[L.S.] of the Dominion of New Zealand, and issued under the Seal of the said Dominion, this 3rd day of September, 1934.

GEO. W. FORBES, Prime Minister.

Approved in Council.

F. D. THOMSON,
Clerk of the Executive Council.

Extending the Period within which the Dairy Industry Commission shall report.

BLEDISLOE, Governor-General.

To all to whom these presents shall come, and to The Honourable FRANCIS VERNON FRAZER, Judge of the Arbitration Court, Wellington; GEORGE ANDREW DUNCAN, Esquire, Company Secretary, Hawera; JOHN GILKISON, Esquire, Company Director, Invercargill; WILLIAM AUGUSTUS IORNS, Esquire, Farmer, Martinborough; and DAVID OWEN WILLIAMS, Esquire, Lecturer in Economics, Massey Agricultural College, Palmerston North: GREETING.

WHEREAS by a Warrant dated the twenty-seventh day of April, one thousand nine hundred and thirty-four, and issued under my hand and the Seal of the Dominion of New Zealand, you, the said The Honourable Francis Vernon Frazer, George Andrew Duncan, John Gilkison, William Augustus Iorns, and David Owen Williams were appointed to be a Commission to inquire into and report upon the dairy

industry in New Zealand and its future development: And whereas by the said Warrant you were required to report to me under your hands and seals not later than the sixteenth day of June, one thousand nine hundred and thirty-four, your opinion on the aforesaid matters: And whereas the period within which you were required to report to me was extended to the thirty-first day of July, one thousand nine hundred and thirty-four, by Warrant dated the eighteenth day of June, one thousand nine hundred and thirty-four, issued under my hand and the Seal of the said Dominion: And whereas such period was further extended to the thirty-first day of August, one thousand nine hundred and thirty-four, by Warrant dated the thirtieth day of July, one thousand nine hundred and thirty-four, issued under my hand and the Seal of the said Dominion: And whereas such period was further extended to the thirtieth day of September, one thousand nine hundred and thirty-four, by Warrant dated the third day of September, one thousand nine hundred and thirty-four, issued under my hand and the Seal of the said Dominion: And whereas it is expedient that such period should be further extended:

Now, therefore, in pursuance and exercise of the powers and authorities vested in me by the Commissions of Inquiry Act, 1908, and of all other powers and authorities enabling me in this behalf, I, Charles, Baron Bledisloe, Governor-General of the Dominion of New Zealand, acting by and with the advice and consent of the Executive Council of the said Dominion, do hereby further extend the period within which you are required to report to me as provided by the said Commission and by the said Warrants dated the eighteenth day of June, one thousand nine hundred and thirty-four, the thirtieth day of July, one thousand nine hundred and thirty-four, and the third day of September, one thousand nine hundred and thirty-four, to the fifteenth day of October, one thousand nine hundred and thirty-four:

And in further pursuance of the said powers and authorities and with the like advice and consent I do hereby confirm the said Commission except as altered by the said Warrants dated the eighteenth day of June, one thousand nine hundred and thirty-four, the thirtieth day of July, one thousand nine hundred and thirty-four, and the third day of September, one thousand nine hundred and thirty-four, and by these presents.

Given under the hand of His Excellency the Governor-General of the Dominion of New Zealand, and issued under the Seal of the said Dominion, this 1st day of October, 1934.

[L.S.]

GEO. W. FORBES, Prime Minister.

Approved in Council.

F. D. THOMSON,
Clerk of the Executive Council.

Authorizing certain Members of the Dairy Industry Commission to continue and complete the Work of the Commission, notwithstanding the Illness and Absence of One of its Members.

BLEDISLOE, Governor-General.

ORDER IN COUNCIL.

At the Government House at Wellington, this 24th day of September, 1934.

Present:

HIS EXCELLENCY THE GOVERNOR-GENERAL IN COUNCIL.

WHEREAS the Honourable Francis Vernon Frazer, Judge of the Arbitration Court, Wellington; George Andrew Duncan, Esquire, Company Secretary, Hawera; John Gilkison, Esquire, Company Director, Invercargill; William Augustus Iorns, Esquire, Farmer, Martinborough; and David Owen Williams, Esquire, Lecturer in Economics, Massey Agricultural College, Palmerston North, were on the 27th day of April, 1934, constituted and appointed under the Commissions of Inquiry Act, 1908, to be a

Commission to inquire into and report upon, *inter alia*, the condition of the dairy industry in New Zealand: And whereas the aforesaid Francis Vernon Frazer, George Andrew Duncan, John Gilkison, William Augustus Iorns, and David Owen Williams have acted under the authority thereby given to them and have inquired into the matters submitted to them: And whereas the aforesaid William Augustus Iorns has, by reason of illness, become unable to continue to act in the said Commission: And whereas it is expedient that, notwithstanding such inability of the said William Augustus Iorns, the inquiry and report of the said Commission should not be abandoned, stayed, suspended, or delayed, but should be proceeded with as effectually as if the said William Augustus Iorns had not been incapacitated from acting as aforesaid: Now, therefore, I, Charles, Baron Bledisloe, the Governor-General of the Dominion of New Zealand, in pursuance and exercise of the powers conferred on me by the Commissions of Inquiry Act, 1908, and of all other powers me thereunto enabling, and acting by and with the advice and consent of the Executive Council of the said Dominion, do hereby authorize you, the said Francis Vernon Frazer, George Andrew Duncan, John Gilkison, and David Owen Williams, notwithstanding the illness and absence from the Commission of the said William Augustus Iorns, to continue and complete the work of the said Commission and to submit your report to me under your hands and seals not later than the thirtieth day of September, one thousand nine hundred and thirty-four:

And it is hereby declared that all acts and things done or to be done and all inquiries held or to be held in the premises by you shall be as valid and effectual, and that you the said Francis Vernon Frazer, George Andrew Duncan, John Gilkison, and David Owen Williams shall be as competent to present a report upon the matters into which you (together with the said William Augustus Iorns) were directed to inquire, as if the said William Augustus Iorns were still acting in the Commission aforesaid.

F. D. Thomson,
Clerk of the Executive Council.

TABLE OF CONTENTS.

PAGE

Appointment of Dairy Industry Commission 1
Preamble to Report 9

PART I.

GENERAL REVIEW.

Introduction 11
Development of the Dairying Industry in New Zealand 13
International Trade in Dairy-products 19
United Kingdom Trade in Dairy-products 22

PART II.

PROBLEMS OF EXPORT MARKETING.

Marketing in the United Kingdom 28
Quantitative Restrictions and Duties 36
Marketing Outside the United Kingdom 38
The Problem of Seasonal Production 46
Diversified and Supplementary Production 49

PART III.

SPECIAL PROBLEMS AND RECOMMENDATIONS.

Problems of Rural Finance 52
Quality of New Zealand Dairy-products 77
Control of Animal-diseases 96
Economies of Collection, Processing, and Distribution 100
Reorganization of Dairy-produce Control Board 109
Dairy Research and Laboratory Organization 116
Establishment of Council of Production and Trade 119
Local Marketing of Butter and Cheese 121
Local Utilization of Milk and Milk-products 125
Herd-testing Services 128

PART IV.

SUMMARY OF CONCLUSIONS AND RECOMMENDATIONS 132

PART V.

APPENDICES 134
INDEX 203

REPORT.

To His Excellency the Right Honourable Lord Bledisloe, G.C.M.G., K.B.E., Governor-General and Commander-in-Chief in and over His Majesty's Dominion of New Zealand and its Dependencies.

MAY IT PLEASE YOUR EXCELLENCY,—

Your Excellency's Commission, dated the 27th day of April, 1934, with which you were pleased to favour us, directed us to inquire into and report upon the condition of the dairy industry in New Zealand and upon all such matters incidental or relevant thereto as we might think proper, with a view to the enactment by the General Assembly of New Zealand of such further legislation in relation to the said industry as would best promote the interests of the persons engaged therein and the general economic welfare of New Zealand.

Your Excellency's further Warrants dated respectively the 18th day of June, 1934, the 30th day of July, 1934, the 3rd day of September, 1934, and the 1st day of October, 1934, extended the time within which we were required to furnish our report to the 15th day of October, 1934.

We regret that, owing to illness, Mr. William Augustus Iorns, who was appointed as a member of the Commission, was unable to take part in all the deliberations of the Commission, and was compelled to leave New Zealand on a health-recruiting tour before this report was completed. By Warrant dated the 24th day of September, 1934, Your Excellency authorized the four remaining members of the Commission to complete the inquiry and submit a report. At the time of Mr. Iorns's departure, the preparation of this report, with the exception of the section relating to marketing in Great Britain, was sufficiently advanced to enable him to express his concurrence in our conclusions and recommendations on all other matters dealt with therein. He has addressed a communication to us, a copy of which we append, in which he expresses his general agreement with our report, and sets out his views on the subject of marketing in Great Britain.

The Commission decided that the most satisfactory procedure to adopt in making its inquiry was to summon a number of persons to give evidence in respect of matters on which, by reason of their special knowledge and experience, they were particularly qualified to assist it; and to issue a general invitation to other persons who desired to make representations to the Commission to submit written statements of their views on any of the subjects contained in the order of reference. If, after considering a written statement, the Commission thought it desirable to hear the writer in person, it invited him to attend and give oral evidence to supplement his written statement. In other cases, where some amplification appeared to be necessary, a further written statement was asked for.

Sittings for the taking of evidence were held at Wellington, Stratford, New Plymouth, Hamilton, and Auckland. The Commission was engaged almost continuously in hearing evidence from the 9th May, 1934, to the 14th August, 1934. During that time it examined 193 witnesses, and received written statements from 262 persons. It also obtained a considerable quantity of data from Government departmental officers and officers of the Dairy Produce Control Board. The members of the Commission visited a number of dairy factories and engineering establishments, and made examinations of the conditions and methods of processing, manufacturing, and packing dairy-produce, and inspected types of dairy apparatus. A visit was made to the experimental dairy factory of the Dairy Research Institute at Palmerston North. The knowledge acquired on these occasions was of considerable value to the Commission.

The Commission desires to acknowledge the assistance it received from the witnesses who gave oral evidence and from the persons who submitted written statements. In the great majority of cases, it was evident that much care and thought had been devoted to the preparation of material. The Commission desires also to thank the officers of a number of State Departments and of the Dairy Produce Control Board for supplying much valuable information in the form of reports and returns which were compiled at the request of the Commission.

In making its report and recommendations, the Commission has found it necessary to depart from the scheme of subdivision of specific subjects of inquiry, as set out in the order of reference supplied to it. The several specific matters are, however, dealt with in appropriate sections of this report.

The Commission is satisfied that there is abundant evidence of an urgent need for making financial assistance, at low rates of interest, available to dairy-farmers. They are at present, after a period of low prices, facing the prospect of receiving still lower prices for their produce. The Commission has given particular consideration to methods of providing them with financial relief, and, to the formulation of a scheme of reorganization of the administration of the industry that will enable it to cope with the many problems with which it is faced. The Commission has realized the need for continued improvement in the quality of our dairy-produce in all the stages of production, processing, and manufacturing, and for a system of marketing that will enable the industry to obtain the best results under the difficult conditions that at present exist and are likely to continue for a considerable period.

The recommendations of the Commission are interrelated, and it is felt that, if the needed financial assistance is forthcoming as recommended in this report, the dairy industry can reasonably be expected to respond by accepting the scheme for reorganization of the administrative side of the industry, and accepting also the measures of discipline necessary for the attainment of further improvement in the quality of New Zealand dairy-produce.

The Commission wishes to place on record its appreciation of the capable and conscientious assistance and co-operation of Professor W. Riddet and Messrs. E. J. Fawcett and H. L. Wise, who were attached to the Commission as an expert secretariat, and of Mr. J. A. Gilmour, General Secretary to the Commission, and his assistant, Mr. R. D. Steel.

Our detailed report and recommendations are as follows.

PART I.

GENERAL REVIEW.

INTRODUCTION.

1. Pre-war International Trade :

The pre-war economic system of Western industrial countries was predominantly international in outlook, and all these countries strove vigorously to penetrate the world's markets with their rapidly increasing surpluses of goods, capital, and labour. At the same time they recognized more or less clearly the essential interdependence of trade, and were prepared, some freely, others under more or less moderate tariff penalties, to accept, in exchange for their goods and services, the surplus products of other countries.

The result of this reasonably liberal view of the nature of international trade was a rapid development of international specialization in trade and industry, a concentration of national energies and resources on those forms of production for which countries were by nature best suited, and the ready interchange of products not required for local consumption. This policy of specialized production and interchange of surpluses led to a rapid development of new countries capable of supplying the needs of industrial countries for raw materials and foodstuffs, and to a great increase in the volume of production and of world trade. Moreover, the younger primary-producing countries necessarily fashioned their economic structure to meet the requirements of the great consuming markets of the industrial West, and did so to a large extent by means of capital borrowed from the industrial West. In our own case, our national development has been based almost entirely on British markets, British capital, and British people. We have consistently looked upon the United Kingdom as the "natural" market for our primary products, and just as consistently we have viewed her as the "natural" source from which we could obtain the bulk of our requirements for manufactured goods and such new development capital as we needed. Both for the United Kingdom and for us, this growing reciprocal trading was, in the years previous to the present crisis, of great financial benefit.

2. Changes in International Trade :

The economic problems which confront New Zealand at the present time, and which are of particular moment to the dairy industry, arise out of the changes in the nature of international trade that have occurred in post-war years. The most notable feature of these changes has been the rapid growth of policies of national self-sufficiency in practically all European countries. Particularly, in recent years, have restrictive trade practices increased both in scope and intensity, with the result that exporting industries have found it more and more difficult either to hold markets previously established or to penetrate new markets.

Side by side with the tariff and quota obstacles imposed by countries on the import of primary and manufactured commodities has been the growth of the policy of subsidizing exports. Rapid production has been the inevitable outcome of this later development. It is clear that attempts on the one hand to limit imports and on the other to increase exports represent mutually opposed principles, and that the universal adoption of such practices would lead to the virtual cessation of international trade and the piling-up of unsaleable surpluses. In practice the result has been for these increasing surpluses to be thrown on to the United Kingdom market since, until recently, it was the only free market in the world. This double process of expanding production and limiting importation has been most evident in the case of dairy products, particularly butter, and has led to an acute state of market congestion in the United Kingdom, and been accompanied by a serious fall in prices.

3. Our Economic Structure :

It has always been apparent to close observers of our economic structure that it is highly sensitive to external conditions. This sensitiveness arises from the facts that the greater part of our national income is derived from primary products exported overseas, that these products are few in number, that, with the exception of wool, they are sold almost entirely in one market, and that our *per capita* external trade is the largest in the world. The result is that any event which prejudices the successful sale of any one of our major export commodities has immediate prejudicial effects on the farming industry concerned and early prejudicial effects on the rest of the community. Our lack of diversification both in products and in markets, plus the notorious instability of farm-produce prices as compared with most other prices, makes our economic position far more insecure than that of most other countries as soon as there is a check to the expansion of markets or a fall in prices. While this insecurity was always inherent in our economic structure, it was of no immediate practical importance while overseas markets were both profitable and expanding, and during this time there was no valid reason for assuming that a restriction or congestion of markets would occur. Recent events, however, have presented us with the problem of low prices combined with a state of market congestion. Policies of economic nationalism, notably in Europe, have both limited our outlets and led to the dumping on the English market of rapidly increasing supplies of subsidized dairy-produce. We, in turn, have enormously expanded the volume of our exportable surplus in an endeavour to increase turnover as a means of offsetting lower produce prices, and as a result of years of work in improving our grassland policy and the general efficiency of production. The serious fall in prices which has accompanied the increase of supplies to the United Kingdom makes it evident that this market is unable to absorb dairy-produce at prices that will cover the present costs of production of the majority of our dairy-farmers. In general, these costs are low. If interest charges are excluded, it is probable that no other

country in the world can produce high-grade dairy-produce as cheaply as we can. Despite these low costs, we are confronted with the fact that our actual output, which is far short of our potential production, is at present incapable of being marketed at remunerative prices.

4. Marketing Problems :

The situation outlined above indicates very clearly that we must abandon our traditional view of the United Kingdom as a bottomless market, and that we must more earnestly consider the balance of loss and gain that might follow upon an acceptance, in conjunction with other countries, of a policy of quantitative restriction of exports. Further, the problem of establishing ourselves in markets other than the United Kingdom becomes one of pressing urgency, demanding an organization of our national resources and a sustained, concentrated endeavour on the part of all primary-exporting industries not only to find and exploit additional markets, but also to develop as far as possible alternative types of products.

5. Quality and Organization :

The search for additional outlets and for more diversified forms of production must, however, be accompanied by a more competent and vigorous campaign to develop existing markets. For the purposes of maintaining and developing old markets, and for establishing new ones, it is important that attention be concentrated both on the improvement of the quality of our produce and on the methods of their marketing. This aspect of our problem involves consideration of the interrelated processes of production, manufacture, transport, and sale, and is essentially a question of organization and administration. It is clear to the Commission that substantial changes are required in the administration of the dairy industry, and that a closer co-ordination must be effected between the major exporting industries of the Dominion if a successful approach to these problems is to be made.

6. Disparity between Farmers' Costs and Income :

Looking at the situation from the farmer's point of view, we are at once impressed by his achievements in increasing production, and by the fact that his increased output has brought him no gain. The reason is that the rapid decline in export prices has not been accompanied by an equivalent fall in import prices or in any of the main farming costs. This disparity between income and costs is the basic proximate cause of farming distress. It is true that the disparity has to some extent been made less than it otherwise would have been by such devices as exchange depreciation and statutory reductions in interest, but the benefits of these measures have been largely or wholly offset by the continued fall in produce prices. Moreover, the continued disparity between rates of interest charged on rural mortgages and the yield from other securities has seriously impeded the needed adjustment of costs to prices. The processes of relief under the Mortgagors and Tenants Relief Act, while conferring great general benefit on both mortgagor and mortgagee, have unfortunately helped to "freeze" the mortgage situation and to prevent decisive adjustments from being made.

7. Rural Credit and Overcapitalization :

The maladjustment between costs and prices has thus brought into prominence the rigidity of many farm costs. It has also revealed an extensive amount of over-capitalization and an unsatisfactory state of rural finance. The unco-ordinated and competitive nature of our rural finance, allied to a strong tradition of trading in farms for profit, and to a highly efficient system of land transfer, has led to much land speculation on the basis of small equities and large mortgages, and in some cases to the financing of unsuitable men and unsuitable land. The problem of cost adjustment is therefore more than a problem of farming relief. It involves not only a consideration of means by which our rural credit mechanism may be strengthened, but a consideration also of means by which the present methods of relief may be made more positive in their operation.

8. Burden of Overseas Interest :

From a national point of view, the developments of the past few years have placed an increasing burden on us in the payment of our overseas interest bill. Because the rate of decline in prices has been greater than the rate of increase in production, an increasing proportion of our gross national income has to be allocated to overseas interest payments, and this without in any way easing the interest or other burdens of farmers. Hence, the same set of circumstances that places the farmer in a position where he requires relief adds to the burden of State commitments overseas, and thus makes it progressively more difficult for the State to assume further liabilities on the farmer's behalf. If produce prices fail to recover, it is difficult to see any solution of this problem, compatible with the continued payment in full of our overseas interest charges, for any substantial relief to farmers means placing additional burdens on other sections of the community, unless they too can be relieved through a lowering of taxation consequent upon a reduction of overseas claims. This problem of our ability to meet in full our obligations to our overseas creditors and to meet in full our obligations to our own farmers is inseparably linked up with our ability to sell and must be taken into consideration in future discussions with the United Kingdom in respect of market policies or trade agreements.

The major problems outlined above are dealt with more fully in subsequent sections of this Report, and most of them are made the subject of recommendations.

DEVELOPMENT OF THE DAIRYING INDUSTRY IN NEW ZEALAND.

9. Early History :

Development of the dairying industry in the Dominion can be dated from the first successful shipment of refrigerated meat from New Zealand in 1882, for the building up of any appreciable export trade in butter and cheese depended entirely upon transport equipped with freezing facilities. Coincidently with technical improvements in the transport of perishable foodstuffs, rapid progress was being made in the improvement of ocean transport, particularly through the change-over from sailing-ships to power-driven vessels, with a resultant lessening of the period required to place produce on the markets of Great Britain.

The year 1882 was also of importance in the history of the co-operative factory system as we now know it. Although such factories were operating previously to that date, the New Zealand Government in 1882 offered a prize of £500 to the co-operative cheese-factory which first reached an output of 50 tons of cheese in one season. Within ten years 214 co-operative factories of various kinds were erected. The results of this movement are to be seen to-day in the fact that for the past season proprietary factories manufactured for export less than 8,000 tons of butter out of a total of approximately 140,000 tons, and less than 2,000 tons of cheese out of a total of 101,000 tons.

The establishment of new outlets for dairy-produce, and the consequent rapid development of the factory system, resulted in the application of scientific knowledge to the processing of milk and cream, such services being regarded as a State function in the encouragement of the industry. Concurrently with this movement, the country was being rapidly settled and developed, the former through the introduction of an assisted immigration policy, and the latter by the spending of money, borrowed mainly in England, on public works commenced pursuant to the Vogel Public Works policy of 1870. In 1895 the first enumeration of dairy stock was made, the total herd numbering 257,140 cows.

In 1892 the Liberal Government, under the Hon. John Ballance, introduced the lease-in-perpetuity system of land tenure. This system, which enabled settlers to obtain land on most favourable terms, was fostered by the Seddon régime subsequently to the death of Hon. John Ballance, but was abolished in 1907. A progressive land-settlement policy was continued after the abolition of the lease-in-perpetuity system. With a steady increase in population and an apparently insatiable English market with reasonable returns to producers, a rapid deforestation of the Dominion took place, and by 1918 approximately 43 million acres were in occupation, this being the apparent limit of economic land-settlement.

10. Phases of Development :

The development of the dairying industry can be conveniently treated in three phases :—

(1) Previously to 1920, the system of farming adopted was extensive, in that we depended mainly on a highly favourable climate and the natural fertility of the soil. Thus, increased production was achieved through the breaking-in of more land rather than by the full exploitation of land already in production. Although artificial fertilizers were used for pasture top-dressing to some extent, the practice was not general. Supplementary crops such as turnips, swedes, and rape were used to augment grass in the feeding of dairy stock. Concurrently with the utilization of increasing areas of land, internal transport facilities were rapidly improving, and labour-saving machinery was being developed. Similarly, great improvements were being made in dairy sheds and yards. Lack of good roads confined cheese manufacture to limited areas, and butter-factories were also limited in scope until the introduction of home separation, which enabled farmers in isolated districts to undertake milking for butter-factory supply. Milking-machines were becoming very generally used, and these improvements, combined with concrete yards and walk-through sheds, contributed to the removal of prejudices against milking large herds as a sole means of livelihood.

(2) The repatriation of troops at the close of the war, and the subsequent soldier-settlement policy adopted for their absorption, combined with an attractive but unsound price-position for dairy-products, greatly increased the demand for and valuation of land, and reinforced the tendency towards land speculation. The temporary decline in prices of butter and cheese during the 1921–22 season, following a slump in meat and wool prices, stopped the speculative buying of land, and recent purchasers of farms faced the necessity of increasing production and reducing milking-costs in order to meet their liabilities. A new era of land utilization set in, and dairy-farm management changed rapidly from extensive grass utilization, supplemented with root crops, to intensive pasture utilization through the use of artificial fertilizers as a top-dressing, subdivision of paddocks, and the conservation of surplus grass in the form of hay and silage.

It was realized that large areas, particularly in the North Island, where rainfall was adequate and well distributed and where the topography of the land was suitable, were suitable for dairy cows provided fertilizers were judiciously used. New Zealand rapidly attained a world-wide reputation as the outstanding example of improved pasture-management methods, and holds pride of place in this respect up to the present time. Improvements in pasture-management were accompanied by improvements in stock. In this connection, the introduction of herd-testing and the development of instruction in live-stock management were of great importance, and it can be fairly stated that the quality of our dairy cows at the present time is, on the average, better than the efficiency displayed in their management and feeding.

This era of steady advancement in production and management during a protracted period of favourable prices came to an end in 1930, and was succeeded by the last phase which has culminated in our present problem.

(3) At the close of the 1929–30 season, world prices for primary foodstuffs began to decline. The opening of the 1930–31 dairying season showed the position to be serious, and when the season closed with an average payout for butterfat of 11·58 pence per pound compared with 16·25 pence for the previous season, it was fully realized that a depression of some magnitude had started. The effect was particularly noticeable as the season was, if anything, below the normal in production consequent upon adverse climatic conditions, whereas the previous season had been outstandingly good, resulting in a record level of average per-cow production for the Dominion. Anticipating that prices were likely to remain at a low level for a protracted period, dairy-farmers automatically endeavoured to offset the drop in prices by increasing their volume of output. This was achieved mainly by an appreciable and sustained cumulative increase in the number of cows milked. At the same time, Governmental action kept the price of fertilizers delivered to nearest rail points at a reasonable level. Thus, although the use of fertilizers in relation to the number of cows milked decreased somewhat, pastures were reasonably maintained. Additional cows, reasonable expenditure on pasture upkeep, and, in general, good pasture management, combined with good production seasons during the past two years, have had the effect of rapidly increasing the volume of the Dominion's exportable surplus of butter and cheese.

Whilst dairy-farmers have concentrated mainly on increasing their output of butterfat, they have also realized, more clearly than formerly, the advantages of a better utilization of by-products through the exploitation of pigs. As a result, an increasing export trade in frozen pork and bacon pigs has been built up.

Other countries exporting dairy and pig products have been faced with a similar set of circumstances. Moreover, they have been forced to rely more and more on Great Britain as the only large absorbing market, and their farmers have, as ours have, endeavoured to meet the price position by increased production. In many instances, Governments have assisted their dairy-farmers through various forms of subsidized production and marketing, but New Zealand has successfully refrained from similar action up to the present time.

In a later section of this report, the effects of trade restrictions in accentuating the supply position in Great Britain are discussed.

Having surveyed the three phases of dairying development within New Zealand in broad outline, the statistical position must be reviewed to show more fully their significance.

11. Total Dairy Cows :

Dairy cows in the Dominion are enumerated as at 31st January each year, and include cows in milk and dry at that date. The percentage of the total herd which is dry varies from 5 per cent. to 10 per cent., the tendency being to reduce the number of dry cows carried through the milking-season. It will be seen from a study of the figures given in Table 1 of the Statistical Appendix that the total herd increased at a steady rate from 1901 to 1919, with but minor fluctuations.

From 1919 to 1924 annual increases of over 100,000 cows were registered. As young stock was not available in sufficient numbers, culling of aged cows was suspended to some extent, and inferior cows were brought into the herd. Thus production was increased, but the stock position was recognized as unsound. From 1924 to 1927 a programme of heavy culling was followed, and the level of the Dominion's herd remained comparatively constant.

Following this period of adjustment, the upward movement recommenced in 1927–28. The increases from then onwards were made possible through a much sounder replacement position in that greater numbers of young heifers were made available from dairy herds themselves. From 1930 annual increases gained in momentum, cumulative increases of from 90,000 to 160,000 cows being registered each year. In the ten seasons 1919–20 to 1929–30, a total increase of approximately 550,000 cows took place, and was followed by a total increase of approximately 500,000 cows in the four seasons subsequent to 1929–30.

To illustrate their significance, movements in cow numbers have been placed on an index basis with the total for the season 1919–20 as 100. This index, together with the total cows for the Dominion, is contained in Table 1 of the Statistical Appendix.

12. Average Per-cow Production of Butterfat :

The average per-cow production given in Table 1 of the Statistical Appendix is computed over all cows, and shows a steady upward movement, with slight variations due to seasonal differences. Until 1920 the annual improvement was slow, but in succeeding seasons marked increases took place. The most extensive fluctuations were experienced in the seasons 1930–31 and 1931–32, consequent upon very unfavourable climatic conditions and a rapid diminution in the use of fertilizers. From 1901 to 1920, average production per cow increased by approximately 25 lb. of butterfat, whereas from 1920 to 1934, the average improvement was approximately 68·7 lb. of butterfat.

The index of cow averages given in the same table illustrates that, over a long period, climatic conditions in the dairying districts of the Dominion are remarkably uniform, the most extreme fluctuations in per-cow production experienced between two seasons being less than 10 per cent., and anything approaching this has occurred only in two instances.

13. Total Butterfat Production :

The level of total butterfat production for the Dominion is a direct result of total number of cows and average per-cow production. It has been noted that, with but minor exceptions, the movement in cow numbers and in their average production has been consistently upwards, and the combination of the two factors showing cumulative increases has resulted in a rapid advancement of the season's output from year to year. This is shown in Table 1 of the Statistical Appendix, where total butterfat produced is given to the nearest million pounds from 1901–2 onwards. In fourteen seasons, ending in 1920, production was doubled. In the fourteen succeeding seasons ending in 1934 production exceeded the 1919–20 level by more than three times. The highest annual increase was registered in the season 1932–33, when the previous season's output was exceeded to the extent of 57,000,000 lb. of butterfat, or an amount approximately equal to the total increase recorded between the seasons 1908–9 and 1919–20.

Total butterfat production on an index basis is also shown in Table 1 of the Statistical Appendix.

14. Replacement Stock :

Movements in total butterfat production are influenced to a greater extent by the movement in cow numbers than by per-cow production. In view of possible restrictive marketing measures to be faced in the future, the present stock-replacement position is of great importance.

The total number of cows carried during the current milking season will not be enumerated till January, 1935, but is determined by the number of dairy cows carried last season, plus replacement stock, less deaths and killings of mature cows. The position should therefore be approximately as follows :—

Total cows, January, 1934	1,932,000
Add replacement heifers	372,000
	2,304,000
Subtract deaths, say, 70,000, plus killings, say, 250,000	320,000
	1,984,000

The accuracy of this estimate of 1,984,000 depends upon the number of dairy cows slaughtered for the year ending 31st January, 1935. Although such killings have increased of recent years, the highest number yet reached is approximately 200,000. This would have to be increased to 300,000 for the current year to keep the Dominion's total herd at the 1933–34 level. It is not anticipated that the suggested figure of 250,000 will be exceeded, in which case at least 50,000 more dairy cows will be carried than last year.

Even if killings of dairy cows reach 250,000, it is more than probable that additional killings will be of dry cows, in which case the effective milking herd for the present season may be more than 50,000 in excess of last season.

The position of heifer calves shows very little variation from last year, the figures being 381,000, compared with 380,000 in 1933. Thus the foundation stock is available to ensure that the 1935–36 herd is maintained and increased unless a policy of heavier killing is adopted.

15. Factors affecting Increased Production :

As previously stated, the number of cows carried and the average per-cow production determine the volume output of butterfat.

These two basic factors are the resultants of (*a*) the amount and quality of feed made available to dairy cows ; and (*b*) the inherent production capacity of dairy stock carried.

(*a*) The fundamental determinants of quantity and quality of grass-growth are the incidence and spread of rainfall, temperature, soil fertility, and topography of the land used. As the dairy-farmers of New Zealand depend almost entirely on pasture in its green or cured state to provide stock food, the factors mentioned are of supreme importance, and have been increasingly exploited during recent years. Intensification of pasture management has taken the form of improved pasture associations and the use of proved strains of grasses and clovers, closer subdivision of farms, greater attention to pasture cultivation, rationalized rotational grazing, and conservation of surplus pasture-growth. These management features, combined with the discriminate use of artificial fertilizers, have enabled farmers to bring their good pasture-land to a higher state of efficiency, and to bring portions or the whole of previously undeveloped areas of their farms into a state of improved productivity. The area devoted to, and consequently the feed available for, dairy cows has been expanded during the past four years through a partial change-over from sheep-farming to dairying, where sheep-farmers had suitable land available. This movement has been brought about by the extremely low prices ruling for meat and wool in the early years of the depression, and by reason of the fact that dairy cows offered a means of increasing sheep-farmers' incomes without the necessity of incurring much capital expenditure.

The utilization of fertilizers on dairy farms is not scheduled separately from that used on sheep farms, but the following figures, showing the total area top-dressed, indicate the trend during recent years :—

Season.	Area Top-dressed, in Acres.
1926–27	1,414,264
1927–28	1,834,366
1928–29	2,534,496
1929–30	2,650,748
1930–31	2,432,438
1931–32	2,454,321
1932–33	2,438,114
1933–34	2,249,170

Although these figures show a falling off since 1929–30 in the total area top-dressed, the decline has been mainly in respect of pastures carrying sheep. The total area top-dressed does not approximate the estimated total area of 5,000,000 acres devoted to dairy cows, but the same land is not necessarily treated each year, and it can be accepted that the greater part of the 5,000,000 acres has been top-dressed once or more during the last three years.

The relationship of carrying-capacity and per-acre production to the use of fertilizers for top-dressing can be gauged from the following tabulation of records of 550 farms surveyed by the Department of Agriculture.

16. Farms grouped by Per-acre Production, showing Total Per-acre Expenditure on Fertilizers, Cows carried, and Costs per Pound :

Butterfat-production per Acre, in Pounds.	Total Per-acre Expenditure for Fertilizers.	Cows milked per 100 Acres.	Cost of Fertilizers per Pound of Butterfat.
Range.	£		d.
Under 75	0·282	29·2	1·193
75– 99·99	0·364	36·2	1·014
100–124·99	0·413	45·9	0·882
125–149·99	0·539	51·9	0·943
150–174·99	0·512	59·2	0·764
175–199·99	0·669	66·2	0·859
200–224·99	0·735	71·0	0·839
225–249·99	0·550	79·0	0·553
250 and over	0·942	86·9	0·803

(*b*) The increased production-capacity of our dairy cows has been built up through stock importations in the first instance, but the major factor has been the discriminate breeding and culling of stock by breeders and farmers within the Dominion itself. The average efficiency displayed in stock management and feeding has raised the general average of our dairy stock to a high level of productive efficiency in a comparatively short space of time. The average season's production for all cows milked during the past five seasons is :—

	Butterfat. lb.
1929–30	226
1930–31	215
1931–32	215
1932–33	230
1933–34	235

The introduction and expansion of herd-testing as a means of increasing yield have played an important part in building up the production-capacity of dairy stock. The original idea of the testing movement was the provision of a measure of efficiency which would facilitate intelligent culling of stock. Although this purpose has been served in some measure, deaths, forced culling for disease, calving difficulties, and a rapid expansion of herds have restricted the full utilization of testing data. The outstanding benefit derived from herd-testing has been the guidance it has afforded in general farm and stock management. The element of competition introduced through the press and through agricultural publications, as well as the direct competition fostered by the Herd-testing Federation and by different associations, has spurred farmers to greater effort and to improved methods. Thus the testing movement has become of incalculable value in the life of the industry. In the last decade the number of cows under test has increased by more than 160 per cent.

17. Total Cows under Test and Average Production :

Season.	Total Cows tested 100 Days or over.	Average Production of Cows tested.
		lb.
1923–24	107,777	213·01
1924–25	151,875	223·54
1925–26	146,398	220·51
1926–27	155,028	240·48
1927–28	206,323	224·68
1928–29	245,811	240·50
1929–30	272,554	253·61
1930–31	260,469	241·05
1931–32	251,441	236·87
1932–33	276,179	255·57
1933–34	286,889	262·44

Although the average production position over the total cows in the Dominion can be regarded as reasonably satisfactory, a percentage of the cows milked should be culled on a production basis. An estimate of the number of cows falling within prescribed production groups has been made by the Department of Agriculture, the calculation being based on herd-testing records, but applying to all cows in the Dominion.

18. Distribution of Total Cows based on Average Production :

Production Range (Pounds of Butterfat per Cow).	Percentage Total Cows represented.	Average Production per Cow.	Percentage New Zealand Total Butterfat represented.
		lb.	
Under 100	4·7	69·8	1·4
100–150	8·5	123·4	4·3
150–200	18·0	174·4	13·1
200–250	25·2	224·9	23·7
250–300	21·0	275·6	24·1
300–350	13·0	322·0	17·5
350 and over	9·6	398·8	15·9

The following table, based on the same data, gives an estimate of the number of herds in the Dominion which fall into certain groups with a narrow range of average production.

19. Distribution of Total Herds based on Average Production :

Range of Herd-production Average.	Percentage of Total Herds represented.	Average Production per Herd.
lb.		lb.
Under 150	3·6	107·7
150–200	15·9	175·2
200–250	36·4	225·4
250–300	34·2	275·2
300–350	9·2	318·6
350 and over	0·7	366·7

These two estimates indicate the extent to which unproductive cows are still being milked, and the uneconomic nature of many herds. The presence of such units in the industry makes it apparent that adjustments in farmers' positions cannot be made until all facts relevant to each farm are fully investigated, for herds in the lower-production categories cannot prove sound investments at any level of prices.

20. Labour in relation to Production :

Dairying in New Zealand is organized largely on the basis of family labour, the efficiency of which varies considerably. There are, however, instances of one unit of male labour milking up to forty cows, and a range of between fifteen and thirty-five cows per male unit is common. Thus the efficiency of farm labour measured in butterfat output shows wide variations, and may range from 2,700 lb. to 12,600 lb. of butterfat on farms where dairying is the main source of income. High per-acre production of butterfat is, however, generally associated with high labour efficiency. With improved herds, and through the more widespread use of labour-saving machinery, the general level of labour efficiency has been raised materially during recent years, and to-day 6,000 lb. of butterfat per male unit should be viewed as the minimum for machine-milked herds. It is difficult to estimate accurately the improvement in labour efficiency, but, measured in butterfat produced, it has risen between 75 per cent. and 100 per cent. as compared with 1919–20. There are approximately 81,000 labour units employed on some 34,000 dairy-farms where dairying is the main or only source of income. These farms carry herds ranging from twenty cows upwards, and labour units may be owners or hired labour. About 10,000 of such farms are not equipped with milking-machines. The extent to which labour-saving machinery has been introduced is shown in the following tabulation of milking-machines and of separators. It should be remembered that milking-machines are used only where herds are of reasonable size, whereas separators are used on practically all farms where cows are milked for butter-factory supply, but not on farms supplying cheese-factories.

21. Milking-plants and Separators :

Season.	Total Milking-machine Plants.	Total Cows milked by Machines.	Total Separators on Farms.
1919–20 ..	8,806	392,747	26,678
1926–27 ..	17,090	753,751	45,246
1932–33 ..	24,350	1,247,279	54,200

22. Products Supplementary to Dairying :

The dairy-farmers of the Dominion have, up to the present, looked upon dairying as a specialized undertaking. Thus, on true dairy-farms sources of income other than from butterfat have, in the main, been negligible. Some return has been obtained from the sale of cull cows, skins, and surplus calves, and, during the period of rapid development, some farmers have supplemented their income by the sale of heifers, either as calves or as in-calf heifers. Poultry products have not been exploited to any extent, and, until the force of economic circumstances necessitated the extraction of income from every possible source, the use of pigs in the utilization of skim-milk, whey, and other foodstuffs produced on the farm has not, except in individual cases, been greatly developed. During the past four seasons, however, dairy-farmers have realized the possibilities of pigs, and a rapid development has taken place. Although pigs are raised and fattened on farms other than dairy-farms, the pork and bacon industry can be viewed as mainly supplementary to dairying.

23. Breeding-sows carried and Pigs slaughtered :

Season.	Total Breeding-sows.	Total Pigs slaughtered.
1923–24	55,348	320,153
1931–32	75,409	482,450
1932–33	87,686	590,607
1933–34	97,448	766,627

24. Utilization of Total Butterfat produced :

The total butterfat produced in the Dominion is utilized in the manufacture of butter and cheese and other products such as milk-powders and condensed-milk, for human consumption as whole milk and cream, and for the feeding of calves. The quantity of butterfat utilized in manufactured products other than butter and cheese is not great, and has not shown any increase during recent seasons. Butterfat used as whole milk, cream, and for the feeding of calves bears a direct relationship to the increase in human population and to increases in the number of calves kept for replacement of cull cows and expansion of herds. Although an increasing quantity is used in the manufacture of cheese, the increased output of butterfat is mainly diverted to buttermaking. For the season 1919–20, approximately 63,000,000 lb. of butterfat were used in butter manufacture and 58,000,000 lb. in cheese, whereas for the season 1933–34 the figures were approximately 308,000,000 lb. and 93,000,000 lb. respectively. The full details of butterfat utilization from 1901–2 onwards are shown in Table 2 of the Statistical Appendix.

25. Quantities of Butter and Cheese manufactured :

The collective effect of increased production of butterfat when expressed as butter and cheese has been to aggravate the already unsound supply position on the British market, particularly in respect of butter. Although New Zealand has greatly increased her cheese exports, the increases have but compensated for the drop in Canadian supplies, whereas butter-supplies to Great Britain have been increased from all major exporting countries. The following table, which shows the estimated total manufacture of butter and cheese in New Zealand since 1919–20, illustrates the importance of butter as an absorptive channel for increases in butterfat, and also stresses the increasing percentage of butter available for export.

26. Estimated Total Butter and Cheese manufactured, and Percentage of each Product exported :

Seasons.	Butter.			Cheese.		
	Total Butter made (estimated).	Percentage exported.	Percentage locally consumed.	Total Cheese made (estimated).	Percentage exported.	Percentage locally consumed.
1919–20 ..	33,327	51·50	48·50	68,172	97·27	2·73
1920–21 ..	45,990	63·38	36·62	59,094	96·74	3·26
1921–22 ..	65,504	73·13	26·87	66,502	96·99	3·01
1922–23 ..	81,855	77·70	22·30	62,297	96·69	3·31
1923–24 ..	77,710	75·70	24·30	75,454	97·19	2·81
1924–25 ..	82,325	79·86	20·14	72,190	96·98	3·02
1925–26 ..	79,911	73·38	26·62	75,813	97·03	2·97
1926–27 ..	91,315	74·84	25·16	78,766	97·06	2·94
1927–28 ..	94,647	75·38	24·62	77,553	96·97	3·03
1928–29 ..	102,323	76·96	23·04	89,191	96·70	3·30
1929–30 ..	116,901	79·58	20·42	88,766	96·64	3·36
1930–31 ..	119,246	79·14	20·86	91,484	96·33	3·67
1931–32 ..	126,522	80·13	19·87	90,651	97·00	3·00
1932–33 ..	150,303	83·14	16·86	103,455	97·35	2·65
1933–34 ..	164,163	83·60	16·40	106,288	97·40	2·60

INTERNATIONAL TRADE IN DAIRY-PRODUCTS.

27. International Trade in Milk :

It is authoritatively stated that milk and milk-products contribute more to farm income throughout the world than any other single agricultural product. Although probably more than half of the milk produced is consumed in liquid form, liquid milk does not enter to any extent into international trade since, by reason of its bulk and the difficulties attendant upon its distribution, it must be produced either in the country in which it is consumed or in countries immediately adjacent to it. Small quantities of liquid milk and cream are imported by the United States from Canada, and occasionally by the United Kingdom from the Continent of Europe. Milk that is surplus to local needs in dairying countries is converted into butter, cheese, casein, and dried and condensed milk. All these products enter into international trade, but butter plays by far the most important part.

A world-wide increase in the production of milk has been a notable feature of the dairying industry during the past half-century. The most rapid development has, however, occurred during the past decade. In the early stages, development was fostered both by an increasing demand for dairy-products and by the fact that greater profits could in most countries be derived from dairying than from other forms of farming. In particular, dairying was found to be more profitable than grain-growing. Hence, milk production expanded first by the diversion of grain-growing land to dairying purposes. Later, the opening-up of new dairying-lands, especially in Empire countries, and, finally, improvements in farming methods and in animal husbandry accelerated the process of expansion. Improvements in farming methods and in animal husbandry have been outstanding features of the present age in all countries, whether they import or export. This great increase of production has occurred wh le the rate of increase of population of the white races has been declining ; and since the white races are the only important consumers of dairy-products, serious problems in international dairy trade have arisen, and are likely to increase.

28. International Trade in Butter :

Butter is the most important dairy-product entering international trade. At the present time the leading exporting countries are Denmark, New Zealand, and Australia, which together account for fully 68 per cent. of the butter exported by all countries, the individual contributions being respectively about, 27, 24, and 17 per cent. Other important countries are Russia, the Baltic Secession States (Finland, Latvia, Estonia, Poland, Lithuania), Netherlands, Sweden, Irish Free State, and Argentina. Hungary and Austria and the Union of South Africa have recently developed an export trade. The United Kingdom is by far the most important importing country, the proportion of world exports absorbed by it having risen from just over 63 per cent. in the period 1928–30 to approximately 82 per cent. in 1933. The only other important market is Germany, but the restrictions imposed in the past few years have caused a rapid contraction of imports, and the proportion of world exports taken by that country has declined from over 27 per cent. in 1928 to approximately 11 per cent. in 1933.

29. Development of International Trade in Butter :

The development of the butter trade can be divided into fairly distinct periods : (*a*) The period of gradual expansion dating from the "eighties" of last century till the beginning of the war ; (*b*) the war period (1914–1918) ; (*c*) the period (1918–1923) of post-war recovery ; (*d*) the period of rapid expansion (1923–1931) culminating in marketing difficulties ; (*e*) the period since 1931, during which protective measures have been developed to protect local production in importing countries ; and (*f*) the period since 1932, during which subsidies and other devices have been adopted in exporting countries to relieve dairy-farmers of burdens caused by low prices.

Period (a).—During this period Denmark, already fairly well developed agriculturally, built up and organized her dairy industry and created for her butter a goodwill which still excels that of all other exporting countries. In this period Russia, Holland, Sweden, France, and Ireland were all exporters of butter ; but Australia and New Zealand were only commencing to develop their dairying industry. The United Kingdom was the principal market, with Germany next in importance.

Period (b).—During the Great War, international trade was largely dislocated. Neutral exporting countries of Europe had to reduce production on account of abnormal trading and shipping conditions. Trade in belligerent countries was entirely upset, and, although these countries made every effort to increase imports of butter, they were forced to rely on increased local production to meet their requirements. During this time, the Russian Revolution entirely destroyed the Russian export trade in butter, and similarly the dairying industry of Ireland was affected by disturbed political conditions.

Period (c).—During the years 1918–1923 European countries were engaged in post-war readjustment and reconstruction. Denmark quickly recovered and actually increased production, but New Zealand even more rapidly increased her output of butter, and became the second exporting country of the world. In the same period the Baltic Secession States proceeded to organize their dairying industry along Danish lines, and supplied part of the market previously served by Russia. The gross international supply was readily absorbed by the United Kingdom and by Germany, which again became an important importing country.

Period (d).—Between 1923 and 1931 all European exporting countries rapidly increased their butter-production, and Russia once more took part in the export trade. Even greater progress was made first by New Zealand and later by Australia. Increased world production was at this time fostered by the relatively higher prices received for dairy-produce than for other forms of agricultural produce. In 1931 international trade in butter reached its peak, and competition made exporting countries exploit

every available European market. The United Kingdom and Germany continued to absorb increasing quantities, and France, previously an exporting country, became an importer of butter. Imports into Belgium, Switzerland, and Canada also increased rapidly in the years 1929–1931.

Period (e).—It was in response to this influx of butter that Switzerland, France, and Germany raised their protective tariffs in 1931. These measures were insufficient to stem the increase in butter importations, and more drastic steps were therefore taken. Determined to make its protection of local producers effective, France instituted a "Global" quota in September, 1931. Soon afterwards Britain departed from the gold standard and was followed by the principal dairy-produce exporting countries. The result was to make more profitable the markets of the remaining importing "gold" countries not subject to quotas, and this led to increased exportations to them. To protect themselves from this new development, Belgium, in March, 1931, and Switzerland, in December, 1931, again raised their butter tariffs.

In the meanwhile all countries rapidly filled the French "Global" quota. This led to trade difficulties, and in December, 1931, France instituted individual quotas based on the exports of each country to France in the previous year, and at the same time imposed surtaxes on the produce of countries with depreciated currencies. The action of France was rapidly followed by the adoption of additional protective measures in other European importing countries. Thus, in 1932, Germany introduced her combined tariff-quota policy, accompanied by differential tariffs to provide preference for Treaty countries and to offset the effects of depreciated currencies. This policy favoured the Baltic States to the disadvantage of Denmark and Holland, which had previously been Germany's principal sources of supply. This measure was replaced by a definite quota allocation to each country and a flat rate of tariff. Switzerland varied her tariff on two occasions, and finally adopted the principle of admitting imports by license granted by a Butter Control Board, vested with special powers to control sales and assist farmers. Belgium adopted the quota principle in April, 1932, and France slightly increased her tariff in February, 1932, while still adhering to quotas, but finally abandoned quotas in September, substituting therefor increased tariff rates. Italy increased her tariff rates in March, 1932.

The United Kingdom could not remain unprotected in view of these events. From 1st March, 1932, an import duty of 10 per cent. was placed on butter imports from foreign countries, Empire butter being admitted free. Later, in accordance with the Ottawa Treaty, a tariff of 15s. per cwt. was imposed on foreign butter, Empire produce still remaining free.

As a result of these various measures, the import of butter between 1931 and 1932 into Germany, France, Switzerland, and Italy decreased by 44,650 tons, while the import into Belgium increased by 2,350 tons. The net difference had either to be absorbed by Britain in spite of tariffs or reduced by local action of the various producing countries. In the aggregate, production was decreased, but nevertheless an increased quantity was forwarded to the United Kingdom.

In 1933 quota countries reduced their allotments to exporting countries. France reintroduced the quota system and increased her tariff in March; Belgium imposed a duty on import licenses; Germany took measures to control the sale of all fats, and later (December) set up an organization to control the marketing of all dairy-produce. The result of these measures was to contract the year's importations into Germany, France, Belgium, Switzerland, and Italy by a further 25,200 tons. By this time Switzerland had become practically self-supporting.

Comparing the imports of 1933 with those of 1931 into Germany, France, Belgium, Switzerland, and Italy, it is apparent that tariffs and quotas led to a contraction equal to 67,500 tons. The main effect of this contraction has been felt by European exporting countries.

Italy raised her butter tariff in February of this year (1934), and all quota countries reduce their allotments to exporting countries. For the six months ended 30th June, 1934, Germany, France, Belgium, and Switzerland reduced their imports by 9,994 tons as compared with the same period in 1933. It is probable that an even greater drop will be recorded in the second half of the year, for France has made no butter allotment for the third quarter, the Belgian allotment is being reduced monthly, and the Swiss demand is negligible.

Period (f).—The effect of European trade restrictions was to deflect a greater proportion of each exporting country's butter export to the United Kingdom. This is shown in the accompanying table.

30. Proportion of Total Exports of Butter from Chief Exporting Countries to the United Kingdom:

Country.	1928.	1932.	1933.
	Per Cent.	Per Cent.	Per Cent.
Denmark	68	82	84
Russia	45	52	74
Sweden	51	67	69
Finland	73	74	56
Latvia	14	33	50
Estonia	35	37	46
Lithuania	6	38	57
Netherlands	15	11	29
Poland	11	11	1
Irish Free State ..	100	94	94*
New Zealand	80	99	99
Australia	83	93	92
Argentina	92	55	60

* Estimated.

31. Subsidies and other Measures of Relief :

The increase of supply to the United Kingdom market was accompanied by rapidly falling prices, and all European exporting countries devised measures of relief for farmers. Practically all granted subsidies in some form. In some cases the subsidy was derived from a tax on butter and other fats consumed locally, and in others from State grants. In the cases of Finland, Estonia, and Latvia minimum prices for dairy-produce have been fixed, while in Denmark, Sweden, and Netherlands attempts have been made to reduce the consumption of margarine and increase that of butter. In addition, Denmark and the Netherlands have taken steps to reduce their herds. The Paterson plan in Australia was intended to encourage exports, and the Butter Stabilization Scheme, which has now replaced it, has the same object.

Since the development of subsidy schemes, aggregate butter exports have increased, partly no doubt as the result of such subsidies. This increase is still proceeding. During the six months ended 30th June, 1934, increased exports, as compared with the same period in 1933, were registered by Denmark, Estonia, Finland, Sweden, U.S.S.R., and the Netherlands, but Latvian exports were less. The aggregate increases amounted to 15,965 tons. As a result of the diminished volume of purchases by Germany, France, Belgium, and Switzerland for the period ended 30th June, 1934, and of the increased output of European exporting countries, the additional volume of produce from these sources, absorbed mainly by the United Kingdom, has been approximately 26,000 tons.

Moreover, New Zealand exports have materially increased, and there is some indication of a further increase in the present year. In our case these annual increases have been made without the aid of subsidies.

32. International Trade in Cheese :

International trade in cheese differs markedly in several respects from the trade in butter. It is much less extensive, amounting in 1933 to approximately 277,000 tons. The two main exporting countries are New Zealand and the Netherlands, which account for about 35 per cent. and 22 per cent. of world exports respectively. Canada, Italy, and Switzerland are also important cheese-exporters, the proportion provided by them approximating 27 per cent. The remainder of the world export in cheese is provided by Denmark, Australia, Finland, Norway, Jugo-Slavia, Bulgaria, South Africa, and Lithuania. The United Kingdom is the principal importing country, accounting for approximately 54 per cent. of the 1933 trade. Germany imported 14·6 per cent., Belgium 7·8 per cent., United States of America 7·8 per cent., and France 7·4 per cent. Of less importance are Algeria, Egypt, Tunis, Spain, Java and Madura, Syria and Lebanon, India, Sweden, Portugal, and the Irish Free State.

The United Kingdom purchases cheese mainly of the Cheddar variety, while the other four principal countries import chiefly Edam, Gouda, Swiss, Parmesan, and to a lesser extent blue-veined and soft varieties. New Zealand and Canada supply the bulk of the Cheddar cheese entering world trade, and the Netherlands, Italy, Switzerland, Denmark, and France supply the other types. A small amount of Cheddar and Cheshire cheese is exported from Holland.

Continental importing countries and the United States have in the last decade made extensive purchases of cheese from the Netherlands and from Italy and Switzerland. The demand from Germany and the United States reached a peak in 1929, from Belgium in 1930, and from France in 1931. In response to this demand, increased exports took place from European exporting countries. Within recent years importing countries, with the exception of Belgium, have all materially contracted their purchases, and consequently exports from European countries have fallen accordingly.

The measures taken by Switzerland and Italy to reduce their butter imports can be traced to the falling off in their cheese exports, while the increased export of butter from Holland is due partly to the restriction of her cheese exports and partly to the restriction of preserved milk exports. All European countries make appreciable quantities of cheese locally. Thus, in view of their present efforts to become self-supporting in dairy-products, there is little immediate hope for New Zealand to develop a trade in cheese with these countries, with the possible exception of Belgium. The United States produces practically the whole of its cheese requirements. Cheddar cheese is the principal variety consumed, and is wholly supplied by local manufacture. Continental varieties are imported, but in diminishing quantities as local production of such varieties increases.

33. International Trade in Casein :

The principal countries exporting casein are New Zealand, Argentina, France, Australia, and the United States. The importing countries are principally the United Kingdom, Germany, Japan, and the United States.

34. International Trade in Preserved Milk :

The principal countries exporting preserved milks are the Netherlands, Denmark, New Zealand, Canada, and Belgium. Less important exporters are the Irish Free State, Australia, Switzerland, Italy, and the United States.

UNITED KINGDOM TRADE IN DAIRY-PRODUCTS.

35. The United Kingdom Butter Market :

The United Kingdom relies mainly on imports for her butter-supply. Butter produced on farms and in creameries is important only as an outlet for surplus milk. The estimated local production in Great Britain in the season 1930–31 was approximately 48,000 tons, while the estimated total consumption of butter was approximately 400,000 tons. Slight increases in local butter-production, in keeping with the increase in milk-production in the United Kingdom, are being annually recorded, but there is no reason to expect a rapid increase in the near future. The finest type of British farm butter commands a price-premium over imported brands.

36. Butter Import Trade :

Between 1866 and 1900 butter imports into the United Kingdom rapidly increased as a result of the development of the Danish export trade. In 1900 the total import was 166,350 tons, or approximately one-third of the 1933 import. Annual increases were recorded till 1904, when 203,850 tons were imported. Thereafter the supply remained fairly steady until 1913. Reduced quantities were imported during the war, and the supply continued to be low till 1922.

Until 1914 the chief sources of supply were Denmark, Russia, Sweden, and the Netherlands. During the period 1900–4 foreign countries supplied 82·3 per cent. of the total importations and Empire countries 17·7 per cent. Between 1904 and 1913 Empire supplies, more particularly Australian, increased, and in the period 1909–13 the proportion supplied by foreign countries was reduced to 77·3 per cent., while that supplied by Empire countries rose to 22·7 per cent.

In 1922 the import of butter into the United Kingdom was slightly less than the 1913 level, but rapid increases were recorded between 1926 and 1931, the increase in 1931 being particularly great.

During the 1922–31 period practically all supplying countries increased their exports to the United Kingdom. Notable expansions were made by the Baltic Secession States and by Empire countries. The most outstanding feature of the trade during this period was the rapid increase in the supply from New Zealand, and later, especially during the years 1931 and 1932, from Australia. During this period appreciable quantities of butter were re-exported from the United Kingdom, mainly to European countries.

In 1932 the introduction by Continental countries of quotas and other trade restrictions and the imposition of the United Kingdom tariff on butter imports from foreign countries led to a slight reduction of total imports from these sources. At the same time, New Zealand and Australian supplies greatly increased.

In the following year imports from foreign sources increased by 7,502 tons, no doubt as the result of subsidies, and attained the highest level yet recorded. Supplies from New Zealand again increased, while those from Australia approximated the level of the previous year. The combined effect was to raise the total import to 441,750 tons. This was a record importation for the United Kingdom, being 38,200 tons above the 1931 supply. As her re-exports in this year were only 4,235 tons, the net imports were 437,465 tons, as compared with 402,950 tons in 1932. Of the total imports in 1933, foreign countries contributed 47·2 per cent., whilst Empire countries accounted for 52·8 per cent. Increased imports were received from Russia, Sweden, Latvia, Holland, and Lithuania, and decreased imports from Denmark, Finland, Norway, and Argentina. A notable feature of the 1933 trade was the supply of butter from Hungary and Austria, countries that had not previously been important suppliers.

37. The United Kingdom Cheese Market :

English cheese production comes mainly from farms. The principal type made is Cheddar, but different varieties are manufactured in several districts, each of which enjoys a limited local demand. There is little authentic information as to the total volume of cheese locally made, but it is estimated that during 1931 the production of farm cheese amounted to 34,500 tons, compared with 32,375 in 1924–25, while in 1930 the production of factory cheese was estimated to be 23,000 tons, compared with 5,600 tons in 1924. There is reason to believe that the increase in the production of factory cheese was mainly due to the processing of cheese both locally produced and imported. It is believed that owing to the drought in 1933 the production of cheese in the United Kingdom was less than usual.

Despite her substantial local production, the United Kingdom imports large quantities of cheese. A very rapid increase in imports occurred between 1860 and 1900, the total imports in 1900 amounting to 135,300 tons. There was a slight reduction in imports between 1901 and 1913, the total quantity in the latter year being 114,850 tons. After the war imports increased rapidly for a few years, reaching 132,850 tons in 1922 and 154,935 tons in 1925. Since that time imports have kept fairly steady at about 150,000 tons per annum.

38. Sources of Supply :

The rapid increase in supply between 1860 and 1900 coincided with the development of the factory system in the United States of America and Canada. Imports from the United States of America fell off markedly in the first decade of the present century, while Canadian exports continued at a high level and provided the greater part (65 per cent. in the period 1900–4) of the United Kingdom supply. During this period Empire countries supplied the United Kingdom with approximately 68 per cent. of her cheese, whilst New Zealand supplied about 3 per cent. The main foreign sources of supply were the United States of America (16·7 per cent.) and the Netherlands (11·2 per cent.). Canada had in 1904 reached the record export figure of 104,155 tons of cheese. Thereafter Canadian and Dutch

exports declined, and simultaneously exports from the United States decreased at an even greater rate. New Zealand in the meanwhile was rapidly increasing her exports, and in the five-year period ended 1913 had increased her proportion to about 20 per cent.

During the period 1920–24 the proportion of total imports into the United Kingdom supplied by New Zealand rose from 20 per cent. to 48 per cent., while the proportion supplied by Canada fell from 62 per cent. to 38 per cent. In 1933 the corresponding figures were: New Zealand 68 per cent. and Canada 21 per cent. Meanwhile the supply from foreign countries had been greatly reduced, due possibly to the 10-per-cent. tariff imposed by the Import Duties Act, 1932, and to the 15-per-cent. tariff imposed by the Ottawa Agreement of 1932. A study of the supply position reveals that, although the exports of New Zealand cheese have materially increased within recent years, the total supply from all sources to the United Kingdom market has not increased. The position is thus markedly different from that which obtains in the case of butter, and therefore some explanation for the price decline other than a question of supply must be sought. It is probable that the explanation lies partly in the growth of diversified forms of consumption in the United Kingdom, and this suggestion is supported by the fact that the *per capita* consumption of cheese shows a slight decrease. This being so, it is a tenable assumption that we are approaching, or have reached, the saturation point of cheese consumption in prevailing circumstances. The situation may alter should prices for substitute foods rise or should competing supplies of cheese decline; but, until the position is more clearly defined, it would appear unwise to develop further the export of Cheddar cheese.

In the case of varieties imported from foreign countries prices have fallen less than in the case of Cheddar cheese, and there may, therefore, be some prospect of developing an export trade in such types. The market for types other than Cheddar is, however, small, amounting to about 12,000 tons only.

NOTE.—Details of trade agreements between the United Kingdom and other countries, of subsidies, quotas, and import duties, and of exports and imports of dairy-produce are given in Appendices II to VIII inclusive, and in the Statistical Appendix, Tables 3 to 11 inclusive.

39. The United Kingdom Trade in Condensed Milk and Milk-powders:

The United Kingdom is the largest importer of condensed milk, imports showing an upward tendency until 1932, when a slight decline took place. As from 1st June, 1933, a voluntary agreement operated, whereby imports from foreign countries were restricted for the remainder of the year to 80 per cent. of the corresponding 1932 figure. For December, 1933, this restriction was modified to 85 per cent. Further voluntary arrangements were made, whereby imports of condensed skimmed milk from Denmark and the Netherlands were reduced by 17½ per cent. in January, 20 per cent. in February, and 22½ per cent. in March, 1934, compared with supplies in the corresponding basic period of June, 1932, to May, 1933. In the second quarter of 1934 the reduction remained at 22½ per cent. For the first six months of 1934 imports of condensed whole milk from Denmark, the Netherlands, Belgium, United States of America, and Germany, and of milk-powder from the Netherlands and United States of America, remained at 80 per cent. of the imports in the corresponding basic period. Agreement was also reached with the Irish Free State whereby supplies of condensed milk and milk-powder would be reduced by 10 per cent. for the first six months of 1934, compared with the same period of 1933. Other Empire countries agreed not to ship larger quantities than in the corresponding period of 1933.

Empire countries supply approximately 10 per cent. of the total imports of condensed milk into the United Kingdom, and under the present trade arrangements the possibility of increasing this proportion is not great. Although the total import of condensed milk into the United Kingdom is very large, the greater part consists of sweetened skimmed milk, and therefore the market does not offer a wide field for the utilization of whole milk. The details of imports of condensed milk and milk-powder into the United Kingdom are as follows:—

40. Imports of Condensed Milk and Milk-powder into the United Kingdom:

Year.	Sweetened Whole.	Sweetened Skimmed.	Unsweetened Whole.	Milk-powder.		Preserved Milk, other Kinds (Unsweetened).
				Unsweetened.	Sweetened.	
	Cwt.	Cwt.	Cwt.	Cwt.	Cwt.	Cwt.
1913	481,435	720,772	50,008	46,572	7	15,870
1926	257,133	1,773,431	361,758	135,168	1	29,399
1927	253,272	1,854,759	411,485	137,794	32	26,709
1928	297,015	1,951,025	425,406	199,706	63	34,073
1929	258,421	1,986,893	405,387	263,048*	16,475*	4,912*
1930	226,666	1,972,432	402,967	250,440*	14,364*	2,360*
1931	229,646	2,085,535	483,579	352,652*	8,106*	5,100*
1932	205,413	2,138,756	397,229	320,312*	6,216*	6,054*
1933	145,069	1,917,863	380,560	280,036*	5,865*	1,363*

*As a result of changes in methods of classification, the figures for "Milk-powder" and "Preserved milk, other kinds," for 1929 onwards are not strictly comparable with those for previous years.

41. Developments in Markets outside United Kingdom :

Canada.—Up to the end of the 1929–30 dairying season, New Zealand was developing a valuable market for butter in Canada, the quantity exported to that country for that particular season being no less than 20,530 tons. The imposition by Canada of higher rates of duty against New Zealand caused shipments of butter to fall off very considerably, and during the 1930–31 season only 1,489 tons were exported to Canada. A concession was granted to New Zealand under a new Trade Agreement which came into force on the 24th May, 1932, but the policy of the Canadian Government has been to develop the Canadian dairying industry by the imposition of import restrictions and provisions of other kinds. As a result, New Zealand exports of butter to Canada have dropped to the low figures of 180 tons in 1931, 302 tons in 1932, and 350 tons in 1933.

Australia.—In the three years 1926, 1927, and 1928 New Zealand exported butter to Australia in the following quantities: 1,747 tons, 4,748 tons, and 1,181 tons respectively. The development of the dairying industry in Australia, with accompanying tariff protection, however, caused us to lose that market. In the two succeeding years exports of butter from New Zealand to Australia were nil, and in 1931, 1932, and 1933 they amounted to only 26 tons, 94 tons, and 74 tons respectively.

The United States of America.—For some years New Zealand had an expanding market for butter in the United States. Between the years 1925 and 1928 the quantity shipped to that country increased from 961 tons to 2,135 tons. Shipments then rapidly fell off, and in the three years 1931, 1932, and 1933 the quantities were 8 tons 3 cwt., and 32 tons respectively. With a tariff of 14 cents per pound against New Zealand, the development of a market in the United States is impossible.

Japan.—New Zealand also had an expanding market for butter in Japan until recent years. In 1929, 860 tons were sent to that country, but from that time onwards the quantity has steadily diminished each year, and in 1933 only 83 tons were sent. The development of the dairying industry in Japan has been assisted by a fairly high tariff on butter and by a subsidy on the export of that commodity from Japan, with the result that production in Japan is now largely able to take care of demand.

The extent to which the loss of these markets has caused us increasingly to concentrate our supplies on the United Kingdom markets may be judged from the following tables covering the exports of butter and cheese from New Zealand for the past six calendar years.

42. Exports of Butter from New Zealand, 1928 to 1933 :

Calendar Year.	United Kingdom.		United States.		Canada.		Australia.		Other Countries.		Total (Tons).
	Tons.	Percentage of Total Exports.	Tons.	Percentage of Total Exports.	Tons.	Percentage of Total Exports.	Tons.	Percentage of Total Exports.	Tons.	Percentage of Total Exports.	
1928 ..	57,912	79·9	2,135	3·0	9,986	13·8	1,181	1·6	1,263	1·7	72,478
1929 ..	63,843	77·2	475	0·6	16,756	20·3	..	..	1,616	1·9	82,690
1930 ..	77,687	82·5	1	..	14,803	15·7	..	..	1,721	1·8	94,211
1931 ..	98,116	98·7	8	..	180	0·2	26	..	1,097	1·1	99,428
1932 ..	107,807	98·7	..	..	32	0·3	94	0·1	1,074	0·9	109,277
1933 ..	129,851	98·5	32	..	349	0·3	74	0·1	1,456	1·1	131,762

43. Exports of Cheese from New Zealand, 1928 to 1933 :

Calendar Year.	United Kingdom.		Other Countries.		Total (Tons).
	Tons.	Percentage of Total Exports.	Tons.	Percentage of Total Exports.	
1928	77,576	99·0	787	1·0	78,363
1929	88,507	99·5	447	0·5	88,954
1930	90,468	99·8	181	0·2	90,649
1931	81,762	99·9	55	0·1	81,817
1932	89,449	99·9	72	0·1	89,521
1933	99,043	99·9	103	0·1	99,146

44. Effect of International Trade Policies on Prices :

The preceding discussion has shown that the decline in dairy-produce prices which commenced in 1929–30 was accentuated by restrictive policies in importing countries and by different policies of giving State aid to producers in exporting countries; and that an increased supply of dairy-products has been directed to the United Kingdom market, irrespective of whether the production of individual

exporting countries has increased or declined. Australia, partly under the stimulus of a policy of subsidized exports, and New Zealand, independently of any such policy, have both made important contributions to the total supply thrown on to the United Kingdom market. The subsequent congestion, particularly of the butter-market, has, in conjunction with the decline in purchasing-power of consumers, converted the seller's market of 1929 into the present buyer's market. Although the cheese-supply position, on a purely quantity basis, appears more favourable than the butter-supply position, the London prices realized for cheese have shown the same relative movement as those of butter.

The following table gives an index of price movements for butter and cheese with 1928–29 as a base and expressed as 100. The prices from which this index has been compiled are the seasonal average wholesale prices of finest salted butter and choicest Cheddar cheese.

45. Index of Butter and Cheese Prices :

Season.	Butter.			Cheese.	
	Danish.	New Zealand.	Australian.	Canadian.	New Zealand.
1928–29	100	100	100	100	100
1929–30	91	88	88	87	88
1930–31	75	67	68	70	64
1931–32	68	61	62	64	63
1932–33	59	50	50	60	54
1933–34	52	45	46	54	48

A complete range of average monthly London quotations for New Zealand and Danish butter and for New Zealand and Canadian cheese from 1924 to the present time is given in Tables 12 and 13 of the Statistical Appendix.

46. Consumption in relation to Prices :

The pressure of supplies on the markets of the United Kingdom has led to a rapid *per capita* increase in consumption. It is evident that while a policy which virtually amounts to compulsory absorption is followed, disposal of increasing volumes of butter can be effected only with a compensatory fall in prices or with a fall which, once saturation point is approached or reached, may be disproportionate to the increased volume of supply. The apparent weekly consumption of imported butter (excluding re-exports) by the United Kingdom was 6,400 tons in 1930, 7,300 tons in 1931, 7,650 tons in 1932, 8,475 tons in 1933, and for the nine months ended 30th September, 1934, it has averaged 9,310 tons per week. The consumption of imported cheese has remained comparatively stable at approximately 2,900 tons per week over a long period of years. Increased consumption of butter has been obtained to some extent through a gross increase in fat consumption, but mainly at the expense of margarine. The *per capita* consumption of these two commodities in the United Kingdom is given in the following table :—

47. *Per capita* Consumption of Butter and Margarine in the United Kingdom :

Year.	Butter, in Pounds, per Head.	Margarine, in Pounds, per Head.	Total Butter and Margarine, in Pounds, per Head.
1924	14·76	12·35	27·11
1931	20·66	10·55	31·21
1932	21·48	9·30	30·78
1933	23·16	8·50	31·66
1934	25·83*	8·10†	33·93

* Estimated on nine months' figures. † Estimated on seven months' figures.

The position indicated in respect of margarine consumption is of particular significance. It is apparent that the possibilities of displacing margarine with low-priced butter are becoming less as margarine consumption approaches the point where it is used under purely economic stress. Thus, further displacement can be achieved only to a limited extent by further price reductions, unless the price of butter approximates that of margarine. This contention is supported by the fact that, despite the recent rapid decline in the price of butter, the rate of displacement of margarine is progressively lessening. On the statistical evidence it would appear that the fall in butter prices is now adding to the total consumption of edible fats rather than reducing the consumption of margarine.

In addition to butter and margarine, approximately 10 lb. of lard and 9 lb. of cheese per head per annum are consumed.

The inter-relation of increasing supplies of butter, spending-capacity of consumers, and prices at which consumers are prepared to absorb supplies is revealed in the following tabulation of gross imports into the United Kingdom, and of the value of such imports from year to year. It will be noted that imports in 1933 exceeded imports in 1929 by 38 per cent., but that the total value of this increased volume of butter was 37 per cent. below the value of the lesser amount imported in 1929.

48. Total Butter Imports into the United Kingdom, and Total Value :

Year.	Imports, in Tons.	Value.	Index of Imports and Value (1929 = 100).	
			Imports.	Value.
		£		
1929	320,300	54,706,000	100	100
1930	341,400	46,870,000	107	86
1931	403,500	46,298,000	126	85
1932	418,300	41,055,000	131	75
1933	441,700	34,437,000	138	63
1934*	485,300	32,000,000	152	59

* Estimated on nine months' imports and six months' values.

The case of cheese is somewhat different from that of butter, the drop in value being due, it is suggested, partly to the reduced spending-power of consumers, partly to a "sympathy" movement with butter values, and partly to the growth of more diversified forms of consumption. It will be noted in the following table that the volume of imports does not vary by more than 4 per cent., whereas the value of all cheese imported has dropped by 45 per cent.

49. Total Cheese Imports into the United Kingdom, and Total Value :

Year.	Imports, in Tons.	Value.	Index of Imports and Values (1929=100).	
			Imports.	Value.
		£		
1929	149,700	13,913,000	100	100
1930	155,600	12,603,000	104	91
1931	144,200	9,063,000	97	65
1932	150,300	9,090,000	100	65
1933	150,900	7,612,000	102	55
1934*	149,700	6,631,000	100	48

* Estimated on six months' price position; quantities taken as for 1929.

50. United Kingdom Policy as affected by Prices of Imported Cheddar Cheese :

Milk produced in the United Kingdom but not required for consumption in a liquid state is converted into various dairy-products, principally butter and cheese, which are mainly made on farms. The best farm cheese meets a special demand, and commands a far higher price than the imported article. Nevertheless, much farm and all factory cheese competes freely with Canadian and New Zealand cheese, and is frequently sold at lower prices.

When cheese prices began to fall, while milk prices remained relatively constant as a result of voluntary collective bargaining arrangements made between city milk-dealers and farmers' organizations, many farmers and creamery-owners who formerly made cheese offered milk to city dealers at prices lower than the agreed prices. A chaotic condition in the milk market resulted. Farmers therefore sought the protection of the Agricultural Marketing Act, and in accordance with its provisions a Milk Marketing Scheme was introduced in October, 1933. Under this scheme the returns (within defined areas throughout Britain) from the sale of milk used both for consumption in liquid form and for manufacturing purposes are pooled. In determining the value of milk used for cheese and butter making the monthly wholesale prices of Canadian and New Zealand cheese per pound are averaged. From the figure so arrived at, a deduction of $1\frac{3}{4}$d. per pound is made in the case of factory milk to cover manufacturing costs, and the resulting figure is taken to be the net value of one gallon of milk.

It is evident, therefore, that the price of Canadian and New Zealand cheese bears directly on the assessed value of surplus milk converted into cheese and butter. When, therefore, the price of imported cheese fell to low levels towards the end of last year and during the early part of this

year, British dairy-farmers took exception to the low net price obtained by them for surplus milk. The Government thereupon guaranteed a minimum price of 5d. per gallon for all milk manufactured in factories and for milk manufactured into cheese on farms during the months of April to September (inclusive), and a minimum price of 6d. per gallon during the rest of the year. The Milk Marketing Board increased this guarantee by 1d. per gallon for milk made into "hard" cheese, as a means of encouraging the continuation of farm cheesemaking. These guarantees expire in April, 1936.

It is too early to determine the influence of these measures on farm and factory cheesemaking in the United Kingdom, but it is clear that both the Government and the dairy-farmers are vitally interested in maintaining cheese prices at reasonably high levels. It may well happen, therefore, that on the expiry of the present guarantees further action will be taken to protect British farmers, if the cheese-supply position is aggravated and prices forced down still further.

51. The Butter-supply Position in 1934 :

The state of market congestion revealed in the preceding discussion is being accentuated during the present year. During the nine months ended 30th September, 1934, gross imports of butter into the United Kingdom amounted to 384,278 tons, a figure greater by 43,000 tons than the total imports for the full twelve months of 1930, and 45,000 tons greater than the imports for the corresponding nine months of last year. Foreign countries have contributed 17,000 tons and Empire countries (mainly New Zealand and Australia) 28,000 tons of this increase. It should be noted that every foreign exporting country, with the exception of Argentina, has this year increased its exports to the United Kingdom.

A study of the butter-stock position shows that increasing difficulty is being experienced in getting butter rapidly absorbed by the market. The estimated stocks of all butters in London, including stocks in private and provincial stores and in steamers not discharged, as at 1st October were as follows :—

	Tons.
1932	20,000
1933	26,000
1934	37,500

There is no information as to the source of supply of this stored butter, but it is estimated that 40 per cent. of the 1934 quantity is of foreign origin, principally from the Baltic States and Russia; 40 per cent. is New Zealand butter, and the remainder Australian and Irish.

The most disturbing feature of the stock position from our point of view is that New Zealand butter is tending to accumulate in store at a period when stocks are normally cleared. It is usual for New Zealand butter to be stored in May, June, and July to provide for the needs of the trade in July, August, September, and October when supplies from the Dominion are relatively low, and during the latter months it is readily sold at prices above those ruling in the remainder of the year. Between August, 1933, and June, 1934, deliveries of our butter from store amounted to 96,752 tons, as compared with 78,585 tons for the corresponding period in 1932–33. During the three months of July, August, and September, 1934, however, the position became much less favourable, since only 17,520 tons were delivered from store, as compared with 24,327 tons delivered for the corresponding period of 1933. The September deliveries alone show a decline from 8,690 tons in 1933 to 5,870 tons in 1934. The fact that the price of New Zealand butter in September, 1934, averaged about 28s. per hundredweight less than in September, 1933, makes the present unsatisfactory state of the market all the more significant.

From a study of available figures it would appear that the market is being supplied with additional Continental exports, while New Zealand butter, to the extent that it is surplus to established demands, is being stored. The reasons for this cannot be fully determined. It may be due partly to the fact that New Zealand butter can be stored with safety and that therefore merchants may be using it as a reserve in the event of Continental supplies rapidly falling off. In the meantime, however, the rapid increase that has occurred in subsidized Continental supplies, combined with the dumping of butter on the United Kingdom market at sacrifice prices, has created a difficulty in disposing of our stored butter before the arrival of our new season's output. Statistical details of gradings and stocks are given in Tables 14 and 15 of the Statistical Appendix.

52. Summary of Present Position :

The outlook for the international trade in butter is unpromising. The United Kingdom is the only market of any account; other European markets are protected by quotas; the Swiss market is to all intents and purposes provided by local supply; the Belgian and French markets offer only a limited outlet; and the German market is restricted to an import of 45,000 tons. These outlets are annually being further restricted. Between 1931 and 1933 their supply was contracted by approximately 67,000 tons, and a further contraction of 10,000 tons has already been registered in the first six months of this year. Although quota restrictions, excess supply to the United Kingdom market, and price repercussions initially reduced production in 1932, the introduction of subsidies stimulated an increase in gross exports in 1933, and further increases have already occurred in the present year. This increased production has to find an outlet, mainly in the United Kingdom, which is already receiving additional supplies from Australia and New Zealand. The result has been the growth of fierce competition for the disposal of produce and a consequent collapse of prices. The extent and duration of this competition will depend on the ability of subsidizing countries to continue to support industries that are fundamentally uneconomic, and upon the willingness of countries generally to enter into reasonable trade agreements.

PART II.

PROBLEMS OF EXPORT MARKETING.

MARKETING IN THE UNITED KINGDOM.

53. Introduction :

The Commission desires at the outset to point out that, owing to the fact that it was unable to obtain direct evidence regarding many important aspects of marketing in the United Kingdom, its conclusions and proposals are tentative, and are in the nature of suggestions as to the lines on which further inquiries should be made.

For all practical purposes, New Zealand has had in the past, and still has, only one market for butter and cheese—the United Kingdom market. This part of our report is therefore devoted to a consideration of matters affecting marketing in the United Kingdom. In another section we deal with alternative markets.

54. Absolute and Limited Control by Dairy-produce Control Board :

The desire of the producers to extend their co-operative interests into the sphere of overseas marketing, and the failure of the dairy-factory companies to evolve a comprehensive and orderly system of marketing, led to the setting-up of the Dairy-produce Control Board in 1923. After making a survey of the position, the Board decided in 1926 to assume absolute control of export marketing. The Board's action, principally because it included fixation of prices, met with strong opposition in the United Kingdom, and absolute control was abandoned on 1st October, 1927, after it had been in operation for thirteen months. Since that time, the Board has exercised a limited control over export dairy-produce, and under its statutory powers it has arranged shipping contracts, regulated shipments, supervised storage and transport conditions, including the regulation and checking of temperatures in freezing-chambers in ships, improved storage and handling facilities in the United Kingdom, effected marine insurances, assisted dairy research, extended sales by advertising and displays arranged by its London agency, and maintained contact between exporters and importers of dairy-produce.

55. Early Policy of Export Marketing :

In the earlier years of export marketing of New Zealand dairy-produce, sales were made principally on a f.o.b. or c.i.f. basis. The dairy-factory companies had, in consequence, only an indirect interest in the prices realized in the United Kingdom, for they had parted with the ownership of the produce before it left New Zealand. Their direct interest lay in obtaining the best prices possible from local exporting firms and British importing firms. As production increased and the export trade developed, consignments to selling-agents in the United Kingdom increased in volume and relative importance, and at the present time the greater part of our butter and cheese goes forward on consignment, and remains the property of the dairy-factory companies until it is sold. The reason for the expansion of consignments relatively to sales is that the rapid increase in the volume of dairy-produce available for export outstripped the capacity of merchants to make direct purchases on a f.o.b. or c.i.f. basis. For the last five seasons the percentages of butter and cheese sold f.o.b. or c.i.f. and shipped on consignment averaged respectively—

	Per Cent.
Butter sold f.o.b. or c.i.f.	16·8
Butter shipped on consignment	83·2
Cheese sold f.o.b. or c.i.f.	11·3
Cheese shipped on consignment	88·7

The ratio of f.o.b. and c.i.f. sales to consignment shipments is not constant from season to season or from month to month. It varies seasonally in accordance with the expected movement of prices on the London market. The percentages of butter and cheese sold f.o.b. or c.i.f. during the 1933–34 season were lower than the average for the five-yearly period, being 15 and 7 respectively. This no doubt was due to the fact that prices were at a low level, and to the consequent disinclination of dairy-factory companies to make sales at prevailing levels. Not unnaturally, they preferred to risk the market, in the hope of obtaining better prices when the produce arrived in the United Kingdom. The consistently low levels of prices and the uncertainty of the market had also the effect of causing traders to refrain from forward buying.

56. Outline of Existing System of Export Marketing :

The greater part of the New Zealand butter and cheese shipped to the United Kingdom goes to London, but during recent years rapidly increasing quantities have been shipped to west coast ports, and during the present year a direct shipment was made to the east coast port of Hull. London and the southern counties have long been regarded as the special market for New Zealand and Australian dairy-produce, and the Midland and northern counties have been regarded as the Danish market. The Commission considers it desirable that the policy of making regular direct shipments to west and east coast ports should be continued and expanded, with the object of giving the best possible service to importers whose natural channels of trade are through those ports, and thereby increasing our field of distribution. Traders in the areas served by such ports as Avonmouth, Liverpool, Manchester, Glasgow, and Hull are unanimous in desiring direct shipments and decentralization of distribution. It appears to be desirable to do all that is possible, without overloading the capacity of these outlets, to meet the wishes and requirements of traders in these areas in an endeavour to compete with Danish and other European producers.

The present marketing policy of the Dairy-produce Control Board tends to limit the number of importers of New Zealand dairy-produce. We propose to discuss at a later stage the recently introduced marketing regulations made by the Board, but it is sufficient for the moment to say that our dependence on an oversupplied market, in which intense competition exists, makes it pertinent to inquire into the relation between an increase in the number of importers and a more widespread distribution of our produce.

When butter and cheese are shipped on consignment, the importing agent sells on behalf of the exporting factory companies on a *del credere* basis, and charges an inclusive commission of 2½ per cent. on sales. Sales are made by importers to wholesale merchants, multiple-shop firms, large retailers, and blenders, and any surplus supplies are disposed of through brokers. A number of importing agents act in the capacity of wholesale merchants, in that they distribute to retailers; and we were informed that many importers who sell to wholesale merchants also sell to retailers in so-called wholesale lots of twenty boxes of butter or ten crates of cheese. Wholesale merchants work on a margin of 5 per cent. (in some cases less) on sales to retailers who purchase from them in the ordinary way.

With an increasing output and a wider distribution of New Zealand dairy-produce, competition for supplies became general. A number of wholesale merchants, who had previously relied for supplies on the importing houses, negotiated with New Zealand dairy-factory companies and New Zealand dairy-produce exporting houses for consignments, and also effected purchases in New Zealand. The growth of multiple-shop concerns and other group-purchasing organizations deprived wholesale merchants of part of their distributive outlets, and stimulated their efforts to deal directly with New Zealand dairy-factory companies and New Zealand exporting houses in order to be able to cater more efficiently and economically for the requirements of individual retailers. Coincidently with this development, competition among importers for consignments became more intense, and importing houses found it increasingly difficult to retain their connection and secure continuity of supplies, and were in some cases compelled to purchase outright in New Zealand in order to protect their consignments.

57. Steps taken to improve System of Export Marketing :

The New Zealand Dairy-produce Importers' Association of London, which consists largely of Tooley Street merchants, approached the New Zealand Dairy-produce Control Board last year, with a view to rationalizing the system of marketing of New Zealand dairy-produce. The association complained of certain undesirable practices in the marketing of dairy-produce, and represented that the merchants, by themselves, were powerless to put a stop to them. It asked the Board to adopt marketing regulations, which it was thought would end the doubtful practices complained of, and have a beneficial effect on prices. The association complained specifically of "short" selling, forward selling of consignment produce, unfair methods of canvassing for consignments, and f.o.b. and c.i.f. purchasing by consignment agents on their own account. Previously to this the Board apparently was not aware of the extent to which consignment agents were making purchases outright in New Zealand on their own account, and even now has no specific knowledge on the point. It was assumed that f.o.b. and c.i.f. purchases made by them were generally made on behalf of clients in the United Kingdom.

58. New Marketing Regulations :

In the early part of 1933 the Importers' Association held a meeting, at which a subcommittee was set up to draft proposals for marketing regulations, and at a further meeting the subcommittee's report was adopted. The following cablegram, dated London, 11th July, 1933, was received by the Board :—

"Following resolutions have been approved unanimously by Importers' Association and handed to Mr. W. A. Iorns to submit to you :—

"(1) Export all butter and cheese from New Zealand to be under license granted by the New Zealand Dairy Board to importers approved by the Board jointly with Importers' Association. Such importers to be consigning and selling agents only as far as New Zealand dairy-produce is concerned—that is, they may not buy in New Zealand or afloat on their own account; all sales f.o.b. or c.i.f. to be on factories' account.

"(2) Butter and cheese to be allotted by the New Zealand Dairy Board in co-operation with factories, Board to have final decision in the allocation, but importers in the event of any change to have opportunity of discussing this matter with the Board before such allocation completed. No canvassing to be allowed as from date agreed upon between the New Zealand Dairy Board and the Importers' Association.

"(3) Accounts to be subject to verification as and when required by the Board's accountant. If any importer desires independent verification, Board willing to grant it but it will be at importer's expense.

"(4) No importer holding a license to sell New Zealand dairy-produce 'short.'

"(5) No sale of butter and cheese on consignment after date of bill of lading to be made until official notification of commencement of discharge.

"(6) Sales through brokers: Buyer's name to be disclosed and goods to be invoiced direct. List of accredited brokers to be made by Importers' Association in conjunction with the Board.

"(7) Existing contracts not to be interfered with.

"(8) Commission on landed sales not less than 2½ per cent.; c.i.f. and f.o.b. sales not less than 1½ per cent.
"(9) Agents prepared to contribute to advertising-scheme equitably to the amount spent by Board not exceeding ½d. per box, butter, and 1d. per crate, cheese.
"(10) Any dispute between licensed agent and Board to be settled by arbitration under rules to be formulated and agreed."

A large number of cablegrams on the subject-matter of the proposed regulations passed between London and Wellington, and the regulations in an amended form were finally adopted by the Board, and were made effective on and from 1st August, 1934. The regulations, as adopted by the Board, are as follows:—

"(1) Export of all butter and cheese from New Zealand to the United Kingdom to be under agreement between the Board and importers. Such importers to be approved by the Board after consultation with importers. Such importers to be consigning and selling agents only so far as New Zealand dairy-produce is concerned—that is, they may not buy in New Zealand or afloat on own account. Importers may buy on spot for legitimate requirements. Such purchases to be reported weekly to Board. Importers shall, if required, satisfy Board that such purchases are utilized for their regular trade outlet. All f.o.b. and c.i.f. sales to be on factories' account, through such importers as approved by Board.
"(2) Butter and cheese shall be allotted by the Board in co-operation with factories. Board to have final say in allocation to importers. In the event of a change, importers to have opportunity of discussing such matters with Board before allocation completed. It is understood that, although the Board shall have final say in appointment of importers and the allocation of outputs, the Board shall not arbitrarily exercise such right, but shall give full consideration to recommendations of Importers' Association. From date to be mutually agreed, no canvassing of factories shall be allowed.
"(3) Accounts to be subject to verification as and when required by the Board's accountant. If any importer desires independent verification, the Board willing to grant it, but it will be at the importer's expense.
"(4) No importer signing agreement shall sell New Zealand produce 'short.'
"(5) No sale of butter and cheese on consignment after date of bill of lading to be made until official notification of commencement of discharge.
"(6) In connection with sales through brokers, information regarding these to be supplied to the Board on request.
"(7) Existing contracts not to be interfered with where general interest of the industry does not suffer by such action. The Board undertakes to give all possible protection to existing contracts between factory and agent.
"(8) Commission on landed sales to be not less than 2½ per cent.; on f.o.b. and c.i.f. sales, not less than 1½ per cent.
"(9) Agents prepared to contribute to advertising-scheme equitably to the amount spent by the Board, not exceeding ½d. per box butter, and 1d. per crate cheese.
"(10) Any dispute between approved importer and/or broker and the Board to be settled by arbitration under rules to be formulated and agreed.
"(11) No averaging of returns shall be permitted under the agreement.
"(12) Board to be advised weekly of the stocks of consignment produce in London."

The great majority of the dairy-factory companies, realizing the necessity for some change in the system of marketing, approved of the regulations, and the Commission was informed that no objections by individual importers or exporters were notified to the Board until after the Board had completed, in terms of the arrangement entered into, its allocations of consignments for the current season. Since that time a considerable number of protests have been made in respect of the restriction imposed by clause 1 on f.o.b. and c.i.f. sales. The addition of the words "through such importers as approved by the Board" altered the meaning of the concluding sentence of the clause, and made it more restrictive than the clause as originally drafted; and most of the criticism that has been levelled against the marketing regulations has been founded on this addition. To a less marked extent, the prohibition against importers (consignment agents) purchasing on f.o.b. or c.i.f. terms on their own account has been also a subject of criticism.

59. Investigation of Present Marketing Conditions:

It has been exceedingly difficult to arrive at definite conclusions as to a system of marketing in the United Kingdom that would be most advantageous to the interests of the New Zealand dairying industry as a whole. The evidence tendered by representatives of co-operative and proprietary dairy-factory companies, New Zealand exporting houses, British importing houses, brokers, and traders, was affected (no doubt unconsciously) by the business interests of the witnesses. In the majority of cases the witnesses did not appreciate the necessity of considering the interests of the industry as a whole, but were inclined to regard as conclusive the fact that in their opinion their methods had been satisfactory to themselves and to the persons with whom they transacted business, irrespective of the effect on the industry as a whole. The evidence given on behalf of British importing houses was tendered almost entirely by local agents, who were obviously unable to express the views of their principals on some points that we regarded as important. We realize that we were at a disadvantage in being unable to ascertain the views of the principals on these matters, for the local agents were necessarily limited in their knowledge of marketing in the United Kingdom, and were unable to assist us materially, except in respect of their operations in New Zealand.

We were greatly assisted by a report obtained from a Committee set up in London, under the chairmanship of the High Commissioner, which investigated certain aspects of the marketing situation in the United Kingdom. Unfortunately, however, we were not in a position to question the persons who gave evidence before that Committee. Many of the witnesses who gave evidence before us dealt with issues relating to conditions in the United Kingdom, which they regarded as being of paramount importance, but which were not dealt with by the London Committee.

As we stated at the outset, we hesitate, in view of the conflicting and incomplete nature of the evidence available to us, to express definite conclusions regarding the system of marketing that should be adopted in the United Kingdom. Our opinions on marketing are accordingly put forward as tentative conclusions. We have recently received information that a section of importers in the United Kingdom desires to have the existing marketing regulations further amended, but that, owing to fears of antagonizing other interests and possibly prejudicing consignments, it does not care to express definite opposition to the regulations in their present form. It is probable that some modification of the regulations, in the light of further experience, will require to be made, in order to attain the objective of an orderly system of marketing, suitable for the requirements of a co-operatively organized industry and free of unnecessary and irksome restrictions. We are firmly of the opinion that a confidential investigation should be made in the United Kingdom of the system of marketing New Zealand dairy-produce, with a view to ascertaining the precise nature and extent of the difficulties that gave rise to the present regulations, and evolving satisfactory means of removing those difficulties. It is necessary, too, that the inquiry should be directed to the discovery of means of improving the whole system, and obtaining the widest possible distribution of New Zealand butter and cheese throughout the country. We are satisfied that such an investigation and inquiry can best be made by a small committee familiar with New Zealand conditions and the views held by the industry in New Zealand, and free from any suggestion of being influenced by sectional interests. It is particularly important, because of the uncertainty and suspicion that exist, that the members of any committee sent to the United Kingdom should be absolutely impartial, so as to ensure gaining the confidence of importers and merchants. It is very apparent to us, from the confidential communications made to us by the representatives of many interests, that importers and merchants are apprehensive of the sectional cleavages in the industry in New Zealand, and are not prepared to commit themselves to definite statements unless assured that they will be regarded as confidential. It is essential that we should not take any action that might forfeit the good will of importers, and that we should endeavour to secure their co-operation in extending the distribution of our produce.

60. Discussion of New Marketing Regulations :

Towards the end of July we were requested by the Government to indicate whether, in our opinion, the marketing regulations of the Dairy-produce Control Board should be permitted to become operative. We interviewed the Deputy Chairman and Secretary of the Dairy-produce Control Board, and, after hearing their views, we reported that, owing to the Board having then completed and notified its allocations for the current season in terms of the agreement with the Importers' Association embodied in the regulations, it would be impossible to delete the portion of clause 1 relating to f.o.b. sales without nullifying the whole agreement. This we thought would prove very disturbing to marketing arrangements, and would create unrest locally as well as in the United Kingdom. In view of the fact that the Board had completed its allocations and that the new regulations were substantially acceptable to the producers and to the importers, we thought that to upset the arrangements already made would cause a disturbance in the relations between the industry and the importers that might have serious effects, as well as laying the Board and the industry open to the charge that they had broken what was virtually a contract. We further expressed the opinion that the operation of the new regulations during the current season would provide useful information which could be utilized in framing a future marketing policy, and that time would thereby be afforded for making a fuller investigation of the marketing problem in the United Kingdom. We added that the problems of marketing our dairy-produce in the United Kingdom were complex, and that it was difficult for us to express a comprehensive opinion on the merits of the marketing regulations. While we were not prepared to question the findings of the London Committee as to the undesirability of imposing restrictive conditions on f.o.b. sales, we realized that the members of that Committee could not be expected to be in close touch with the related problems at the New Zealand end. We accordingly recommended that the regulations should be given a trial for the present season, and that a comprehensive survey of marketing conditions in the United Kingdom should be made during the season.

We have now had a further opportunity of considering the marketing regulations, which have been operative since 1st August, 1934, and we submit our views concerning them. We have borne in mind the matters that led to the formulation of the regulations, and we have not overlooked the difficulties with which the Dairy-produce Control Board was faced; and we have endeavoured to arrive at conclusions as to the lines upon which a further investigation of marketing problems should proceed, rather than to arrive, on insufficient evidence, at definite conclusions intended to be solutions of those problems.

The effect of the regulations is that, in place of free marketing of New Zealand dairy-produce, there is now a system of regulated marketing. For the current season a list of some thirty licensed importers, who are all consignment agents, or are regarded as such, has been prepared by the Board, and allocations of all the exportable surplus of butter and cheese have been made to these importers. These allocations are subject to subsequent f.o.b. and c.i.f. sales. There are also three licensed import brokers, who purchase f.o.b. or c.i.f. for clients in the United Kingdom. The Board has placed on its list of importers all the importers and import brokers who handled New Zealand butter or cheese during the 1933–34 season, and has allotted to them approximately the same respective quantities as were handled by them during that season. Its intention is to maintain a close scrutiny of the

operations of the licensed importers, and to increase or diminish their allocations in future years according to their efficiency in distribution, and from year to year, as occasion warrants, to license other importers. There is, however, no provision for removing an unsatisfactory importer from the list, or cutting down his consignments, or allotting consignments to importers not on the list before the end of a season. The Board has agreed with the Importers' Association not to add any more importers to its list without first consulting the associated importers. We are of the opinion that it is unwise to obstruct the obtaining of supplies by a *bona fide* importing agent whose financial standing and business reputation are good, and who has a genuine distributive connection, and is prepared to agree to reasonable conditions of trading. We think, too, that the system of allotting consignments, for a year ahead, of our whole exportable surplus of butter and cheese, subject only to subsequent f.o.b. and c.i.f. sales, is objectionable because of its inflexibility. A system that would permit of more frequent rearrangement of consignments and the unfettered recognition of sound importing agents, would, in our opinion, be preferable. We do not suggest that the value to the industry of a consignment agent should be judged on the basis of returns from a few shipments, but we think that when, from a consideration of all the circumstances, it appears that an agent is unable to dispose to the best advantage of all his supplies, the question of revising his allocation should be gone into.

61. Purchases by Consignment Agents on their Own Account :

We are inclined to the view that, as a matter of general trading policy, it is reasonable to require importers who are consignment agents to undertake to act solely in that capacity in so far as New Zealand butter and cheese are concerned. The marketing regulations of the Board impose this requirement, for they prohibit the purchase of New Zealand dairy-produce, either in New Zealand or afloat, by importers on their own account. This does not preclude the purchase on spot, in the United Kingdom, of New Zealand dairy-produce legitimately required by them for their regular trade outlets, nor does it prevent them from purchasing f.o.b. or c.i.f. for *bona fide* clients, but it aims at the prevention of speculative purchases on their own account. A consignment agent owes a duty to his principal to obtain the best possible prices for the goods entrusted to him for sale ; but if he is at the same time the owner of similar goods, he may be induced by self-interest to give preference of marketing to his own goods. A consignment agent, who acts only in that capacity, and a trader who buys and sells only on his own account, are both interested in obtaining the best returns from sales : in the case of the consignment agent, because he earns a larger sum by way of commission, and retains the good will of his client ; and in the case of the trader, because he gains a larger margin of profit. When, however, the two classes of business are combined in the business dealings of the same merchant, a possibility arises of conflict between duty and self-interest. It may be said that a person carrying on a combined agency and trading business would not take the risk of prejudicing his agency connection by submitting to his principal lower sales returns than those submitted by his competitors for goods sent forward on consignment ; but the Commission was informed that in some cases New Zealand dairy-factory companies had been credited with larger sums than the sales of their produce realized, the margin having been provided from surplus profits made by the agent on sales of produce purchased on his own account. There is evidence also that a system of pooling returns of sales on consignment has been in operation, thus enabling an importer to equalize prices to factories. It is contended, on the other hand, that f.o.b. and c.i.f. purchasing by consignment agents has a tendency to stiffen the market. This tendency, however, exists when f.o.b. and c.i.f. purchases are made by other persons, and further stiffening by means of purchases made by consignment agents does not appear to be necessary. In both cases, there is always the possibility of a weak market being forced still further down by weak holders and quick quitters. On the whole, we are inclined to the view that firms that act as consignment agents should not be purchasers on their own account, and our view is strengthened when we consider the nature of the disability that necessarily affects vendors who are at the other end of the world from their market. In this connection, a paragraph from the report of the Imperial Economic Committee on Marketing may be appropriately quoted. The paragraph is contained in the Committee's report on dairy-produce, and is as follows :—

> " In our report on fruit we draw attention to the fact that importers frequently operate in a dual capacity—they sell some goods on consignment as the agent of the producer and other goods on their own account for a profit. The importer is anxious to obtain a remunerative return on his own goods, and naturally tends to give them a preference over the produce he is selling on consignment. In the presence of fluctuating prices, moreover, he is specially anxious lest he should lose on the produce which he has purchased and owns. We believe that the same situation holds in regard to dairy-produce. In principle we cannot agree that such a position is satisfactory. In those trades which are highly organized, as, for instance, the buying and selling of stocks and shares, such a competition of interests on the part of a single firm is forbidden, and the functions of merchant and commission salesman are kept apart. *Other things being equal, we think that the overseas producers' organizations, when selling in the United Kingdom, should consider the advisability of giving their preference to dealers who are prepared to sell on commission only, and do not operate in both capacities.* We recognize, however, that this must be a matter of gradual evolution."

It is, of course, impossible to prevent consignment agents from purchasing on their own account dairy-produce from other countries than New Zealand, and accordingly the objection to their being purchasers of New Zealand dairy-produce loses some of its force ; but, to the extent to which a demand exists for New Zealand dairy-produce in preference to dairy-produce from other countries,

the objection holds good. It may be the case that consignment agents who, as part of their business, effect f.o.b. or c.i.f. purchases of New Zealand dairy-produce for clients, are at a disadvantage through being unable to make quick contacts between vendors and purchasers who are 13,000 miles apart, and that in consequence they may have to make sales of competitive butters from other countries. It is thought that, if this is so, it is not impossible to devise safeguards, by means of a system of notification and audit, which will prevent speculative purchases from being made by consignment agents on their own account, but will enable them to purchase on f.o.b. or c.i.f. terms small stocks from which they can make quick sales to *bona fide* purchasers in the United Kingdom.

We are of the opinion that the requirement of clause 1 of the Board's marketing regulations, that all f.o.b. and c.i.f. sales are to be through such importers as are approved by the Board, is unwise. It would have been sufficient if the regulations had required that particulars of f.o.b. and c.i.f. sales should be notified to the Board. We agree with the London Committee that under present conditions freedom to make sales is desirable. In the absence of a system of absolute control of sales and pooling of returns, dairy-factory companies should be left unhampered in this respect. At the present time, the Board each week fixes minimum prices at which sales may be made. This provision is, in our opinion, unnecessary. We think that it is desirable, with a growing production, that the channels of distribution should not be restricted in number, and that the Board should not attempt to confine f.o.b. and c.i.f. sales to the agency of a limited number of importers. As the clause stands, it eliminates the possibility of a sale being made by any dairy-factory company or exporter in New Zealand to any purchaser in the United Kingdom, except through one of a small group of firms. We think that we should say, before we leave this matter, that the members of the Dairy-produce Control Board were not of one mind as to the effect of the clause, and that it is probably true that the general approval given by the dairy-factory companies to the regulations would not have been given if the full import of the regulations as finally approved had been clearly understood by them.

The remaining provisions of the marketing regulations do not call for detailed comment. The prohibitions against short-selling, sales of consignment produce in transit, and pooling of returns, are justifiable on the ground that the dairying industry in New Zealand is essentially co-operative, and that consequently practices that may benefit one company to the detriment of others should be prohibited. It seems clear to us that the unsound practices that have been complained of have arisen largely from fierce inter-factory competition, which is the antithesis of co-operation. Dairy-factory companies have insisted on importers returning to them prices at least equal to those returned by the same or other importers to neighbouring companies, without taking into account such circumstances as variations in quality and differences in times of arrival of consignments. Importers have in some cases been compelled, in self-defence, to adopt business practices that are specially objectionable when a co-operatively managed industry is concerned. The blame for this rests largely on the New Zealand dairy-factory companies. They have failed to display the spirit of co-operation in matters affecting the industry nationally. Their action has tended to a levelling of prices, and has tended to discourage special efforts by importers on behalf of specially choice brands.

62. Review of New Marketing Regulations at End of Current Season :

We think that, with the exception of the portion confining f.o.b. and c.i.f. sales to the agency of approved importers, the regulations may be allowed to continue for the remainder of the current season. Regarding f.o.b. and c.i.f. purchases by agents on their own account, we consider that if the prohibition can be modified, by agreement with the Importers' Association, with adequate safeguards against speculative purchases, the position can be met. We have come to the conclusion that it would be wise not to interfere with the regulations, except to the extent indicated, during the remainder of the season, because the unorganized methods of marketing formerly prevailing were unsatisfactory to the industry, the Board, and the importers, and a measure of control was necessary. The Board had a difficult task to perform in making allocations for the first year of marketing under new conditions, and, subject to what we have said about the unwisdom of limiting outlets, we think that, in allotting to the importers who handled New Zealand dairy-produce during the previous year substantially the same quantities as were handled by them during that year, it probably followed the only course open to it. Its action evoked opposition from some firms that, anticipating the probable trend of events, had endeavoured to obtain larger consignments, but on the whole its allocations have been accepted as reasonable. The delay of twelve months between the initiation of the discussions between the Importers' Association and the Dairy-produce Control Board and the finalizing of the marketing regulations was unfortunate, because in the meantime dairy-factory companies had in some cases revised their consignment allocations for the present season. The agents who canvassed the companies for increased consignments knew, however, that they were taking the risk of having their efforts rendered nugatory, and therefore have no real cause for complaint.

We think that after the expiration of the current season the Board should be able to devise a system of output allocations that would best serve the requirements of the industry. The present year may be regarded as a trial period, during which the results of the new system can be estimated, and any weaknesses and imperfections discovered. In determining on any system of allocations, it is desirable that the Board should make allowance for supplies, or increased supplies, that may be required by importers who do not at present receive supplies or who could effectively handle larger supplies, and particularly by those importers whose areas are served by ports other than London. We are of the opinion, also, that while the Board should endeavour to co-operate fully with importers and merchants, and should be free to make all inquiries and engage in all consultations that it may consider necessary, it should not in any way hamper its freedom of action by entering into any obligation in this respect.

63. Relation of New Regulations to Fall in Prices :

It is not reasonable to attribute to the marketing regulations of the Dairy-produce Control Board the falling-off of f.o.b. and c.i.f. sales and the general fall in prices. Last season, before the regulations were introduced, f.o.b. and c.i.f. sales had fallen below the average. The unfavourable stock position and the uncertainty of the market are the prime causes of a falling off in f.o.b. and c.i.f. sales. That this is so was frankly admitted by one of the keenest critics of the regulations. We say this in fairness to the Board, though we are of the opinion that f.o.b. and c.i.f. sales to ascertained buyers should be free from unnecessary restrictions. The general fall in prices is due to the huge increase in supplies from nearly every producing country except Denmark. That our butter has maintained a higher price-level than other imported butters, with the exception of Danish, is sufficient proof that the existence of the regulations has not affected its price injuriously. Its low price as compared with that of Danish butter and the inability to clear stocks are, however, indications that shipments have increased in volume more rapidly than the constant consumptive demand.

64. Essentials of Successful Marketing System :

The success of the methods of marketing in the United Kingdom of New Zealand dairy-produce that may be adopted in the future depends on the building-up of a constant and increasing demand for our butter and cheese. Three factors are essential: The highest possible quality, regularity of delivery of supplies, and the good will and co-operation of distributors in a widespread distributive service. Danish butter is able to command a consistently high price in the United Kingdom because a demand for it has been built up over a long period. Consumers insist on having Danish butter, and are willing to pay a price well above the prices asked for other butters. This consistent preference for Danish butter is due partly to custom, but largely to the fact that Danish butter is a freshly made butter of high quality. New Zealand butter is well established in London and the south of England, but before it can be equally well established in the midland and northern counties the population must be satisfied (*a*) that it possesses particularly good keeping-qualities, (*b*) that by reason of the conditions under which milk is produced in this country, New Zealand butter is particularly rich in vitamin content, and (*c*) that its wholesomeness and the quality of its finest grades are unexcelled. The best butters now produced in New Zealand have the fresh, natural creamy flavour that is generally desired in the United Kingdom, and it is possible, if the recommendations we have made elsewhere in this report are adopted, to bring the less full-flavoured butters up to the same standard. It is not suggested, of course, that New Zealand manufacturers should attempt to make a high-acid butter similar to the Danish, for butter of that type does not possess the necessary keeping-qualities. The careful checking of temperatures in cool stores and afloat, and the installation of thermographs, now ensure that New Zealand dairy-produce reaches the consumer in the United Kingdom in as fresh and wholesome a condition as that of any freshly made European butter, and the New Zealand processes of manufacture are designed to produce a butter that has unsurpassed keeping-properties. The medical profession in Great Britain has paid a tribute to the high and uniform potency of our butter in vitamins A and D. This potency is due to the plentiful sunshine and rich, unfailing pastures of the Dominion, which enable milk and cream to be produced all the year round under the best possible conditions—conditions that in Northern Europe are impossible of attainment. Danish butter, as we have said, is in steady demand in the midland and northern counties, because of its high quality and because it reaches the consumer shortly after it is manufactured. It will require time, trial, and propaganda to satisfy consumers that New Zealand butter is of equally high quality, richer in vitamin content, and equally fresh in spite of the time occupied in transit from New Zealand. This is possible of achievement, and further improvements in quality, effected through closer supervision of production, manufacturing, and transport, will make it easier to attain the desired end. The chief real advantages possessed by the Danish butter-manufacturers over the New Zealand manufacturers, apart from the distinctive flavour of Danish butter, are their ability to time the arrivals of their produce with regularity and precision, and their widespread distributive service in the United Kingdom. The New Zealand Dairy-produce Control Board has done a great deal towards ensuring regularity of shipments and a more even spreading of arrivals throughout the year, and we think that its policy in this respect should be continued and expanded, and that a distributive service similar to that of the Danes should be aimed at.

65. The Danish System of Marketing :

The present Danish system of marketing in the United Kingdom was decided upon after several experimental systems had been tried. Briefly, the Danish system is to sell the output week by week. Contracts are made with merchants in the United Kingdom for regular supplies, and these contracts absorb about 75 per cent. of the output. The remaining 25 per cent. is disposed of through agents and brokers. Sales of this so-called "free" butter are reported to the Central Committee in Copenhagen, and on the basis of the prices realized for the "free" butter the weekly price of the "contract" butter is fixed. Contracts with certain dairy-factory companies, the produce of which has a high reputation for quality, contain a provision that so much per cask over the Copenhagen price is to be paid. This system has worked well, and Danish butter commands a high price, which does not fluctuate as violently as do the prices of other butters.

66. Shipment of Produce to United Kingdom for Distribution by Board :

Owing to our distance from the United Kingdom market, it is not practicable for New Zealand to adopt the Danish system of marketing in its entirety. We think, however, that the Board should consider the advisability and practicability of assuming absolute control of export marketing after the end of the present season, but without attempting to repeat its former experiment in the direction

of price fixation. If this course were adopted, the Board could ship all butter and cheese in its own name to its United Kingdom agency, through which it could be allocated for sale through existing and new channels of distribution. Such a system would give greater flexibility in making allocations than is possible under the existing system. It would enable the Board itself to make f.o.b. and c.i.f. sales whenever market conditions made it advisable to do so. The proceeds of all sales, however made, would require to be pooled. We have recommended, in another part of this report, that improvements in quality should be encouraged by the imposition of a levy on all butter and cheese exported, and the distribution of the amount levied among the dairy-factory companies grading through the respective ports in accordance with the grading-points awarded to their produce. If, however, the Board assumes absolute control, and pools sales returns, it will be unnecessary to impose a special levy for this purpose, for graduated bonuses on butter and cheese obtaining the higher grading-points can then be made a first charge on the pooled returns, and be paid out to the companies entitled according to the quantities of their produce that are awarded the respective grading-points. The system of pooling adopted under the 1926–27 control scheme provided for the payment of quality premiums according to grades. It is common knowledge that a considerable stimulus to quality-improvement was an immediate result. It is certain that a system of quality premiums based on grading-points rather than on grades would be still more effective as an incentive to the production of butter and cheese of the highest quality.

67. Investigation by London Committee :

We now refer to the report of the London Committee, the members of which were the Hon. Sir James Parr, High Commissioner; Frank Coller, Esq., C.B.; T. W. King, Esq., C.B.E.; Victor Joseph, Esq.; the Hon. Algernon Borthwick; and Lachlan McLean, Esq., O.B.E. The Committee dealt with the stock position, and expressed the opinion that the restriction on butter imports into other countries had caused Great Britain, in spite of the effect of the tariff on foreign butters, to become the dumping-ground of highly subsidized European butters in such quantities as to render it impossible to forecast a restoration of normal conditions that would enable butter to be sold at an economic price. Until a restriction of supplies was arranged, there was little chance of any substantial improvement in prices. So far as New Zealand was concerned, there was reason to anticipate an increased absorption of her butter, for three reasons: (*a*) The harassing effect of the tariff on foreign butters; (*b*) the high reputation of New Zealand butter; and (*c*) the Empire sentiment that was so assiduously cultivated by the Empire Marketing Board in 1931. The committee stressed the importance of improved marketing conditions and continuous publicity. It was of the utmost importance that our somewhat precarious hold in northern and midland districts should be strengthened by improving shipping facilities to west and east coast ports, and spending another £30,000 per annum in publicity. The committee considered that the existing propaganda efforts, while excellent in their conception, lost efficacy owing to the limitation of the "drive" in each area to a month or six weeks. It was thought that the campaign in each important district should be continuous in order to consolidate the gains from competitors, and thus to increase the number of consumers demanding New Zealand butter as a direct product.

Regarding quality, the London Committee reported that, though the quality of New Zealand butter generally was satisfactory, it was desirable to raise it to the highest level, and retain the original creamy flavour. It was desirable to aim at a softer texture, if it were possible of attainment without sacrificing the keeping-qualities, in order to remove complaints as to bad spreadability. Attention to wrapping-material was necessary, so that surface changes might be reduced. Butter was bought on quality, and an improvement would be ultimately reflected in prices. The quality of cheese had improved, the chief fault now being openness of texture.

Under the British Merchandise Marks Regulations, produce from Empire countries must be marked "Empire," and produce from countries outside the Empire must be marked "Foreign." Blends of Empire and foreign produce must be marked accordingly. When the regulations were being discussed, the New Zealand representatives pressed for the name of the country of origin being stated in each case, but were unsuccessful. There is evidence that customers who ask for New Zealand butter are told that "Empire" means the same thing, and it is probable that cheaper Empire butters are sold as New Zealand butter. The London Committee expressed the opinion that the publicity given by the Empire Marketing Board had helped New Zealand by encouraging consumers to buy Empire goods, but that New Zealand had recently tended to lose by reason of the merger of its identity. The Committee considered that only publicity could now make consumers ask more frequently for New Zealand butter. We agree with this view, but we are of the opinion that it would be advisable to take up the matter again with the Government of the United Kingdom, with a view to having the marking regulations amended to require the name of the country of origin to be stated.

An important matter on which the London Committee reported was the extent to which the displacement by butter of margarine as a food would be maintained if butter prices were raised as a result of a reduction of importations. The Committee considered that if the average retail price of imported butter did not exceed 1s. per pound, there would be no considerable increase of margarine consumption. In so far as New Zealand butter was concerned, the information received by the London Committee was that the annual consumption would be reduced by 10,000 tons if the retail price reached 1s. per pound. The two statements appear to be contradictory, but the probable explanation is that many persons who had, during the recent period of low butter prices, purchased butter instead of margarine would continue to purchase butter in spite of a moderate increase in price; but that if New Zealand butter reached 1s. per pound, and other imported butters were at a lower price, consumers of New Zealand butter to the extent of 10,000 tons per annum would purchase

the cheaper butters. In the light of this information, we desire to stress the point that it is essential, if we are to maintain a price of even 1s. per pound, that we concentrate on improvement of quality, better conditions of marketing, and widespread and continuous publicity, in order to create such a constant consumptive demand for our butter as will enable the increasing quantities that are being shipped to the United Kingdom to be absorbed at an economic price.

Regarding the possible effect of the agricultural policy of the United Kingdom Government on the capacity of the United Kingdom market to absorb New Zealand dairy-produce, the London Committee expressed the opinion that no restriction would be imposed before 1936. In this connection, it is to be noted that the provisions of the Ottawa Agreement relating to dairy-produce are subject to revision after July, 1935, but that, owing to the existence of trade treaties between the United Kingdom and the Argentine Republic, Denmark, Sweden, and other countries exporting dairy-produce to the United Kingdom, which do not expire until 1936, it is unlikely that any restrictions on imports from the dominions will be imposed, except with the consent of all the Governments concerned, until the whole position can be reviewed on the expiration of the treaties. This is doubtless the ground for the Committee's opinion. The Committee thought that in 1936 the Government of the United Kingdom might attempt a scheme of quantitative regulation of dairy imports from all exporting countries.

Commenting on the question as to whether an exclusively consignment policy was to be preferred to the present system of forward selling f.o.b. and c.i.f. combined with consignments, the Committee reported in favour of the existing system, but urged for wider distribution of supplies. In particular, the Committee stressed the necessity of arrivals at more regular intervals of steamers serving Avonmouth, Liverpool, Manchester, and Glasgow. The irregularity of arrivals caused local gluts and shortages. It was desirable to make an adjustment in the arrangement of calls at the New Zealand outports, delays at which were the effective cause of irregularity in arrivals. The Committee reported that direct shipments of Australian dairy-produce to Hull had gained favour, and recommended that we should inaugurate a monthly service to that port, and consider extensions to Newcastle-on-Tyne and Cardiff.

On the question of the probable reaction in the United Kingdom to any plan of direct subsidy to producers or of indirect subsidy through raising the local price of butter, the Committee did not express its own opinion, but stated that all witnesses agreed that no adverse reaction need be anticipated.

The Committee considered that the trade in patted butter was negligible in the north, and increasing slowly in the south, but that the importers and wholesalers were generally meeting such demand as existed. The ratio of patted to bulk sales would not justify the New Zealand dairying industry entering this difficult trade. Any attempt to do so would lead to antagonism on the part of the present distributors and loss of retail good will. In extension of the Committee's report in this connection, we desire to add that, though sale of butter from the block is the usual method adopted in retail shops in the United Kingdom, there is a considerable trade in packet butters, which, however, in most cases bear the name or brand of a distributor, wholesaler, or retailer. It would be unwise to push the sale of New Zealand butter in packets in opposition to the existing packet butters. We think that the London Committee is on sound ground in suggesting that it is safer to leave it to the importers and wholesalers to meet the demand for New Zealand butter in packets. The fact that it is necessary to rework butter before patting it adds to the cost; and as patted butter does not keep as well as bulk butter, a constant supervision of retailers' stocks is necessary. It is better, therefore, to leave the patting of butter in the United Kingdom in the hands of the firms that are dealing with it at present. The experience of Denmark in respect of patting affords an instructive lesson. The Danish newspaper *Politiken*, under date 12th July, 1934, reports that the combined Danish Butter Factories Association had had such disappointing results from the packing and sale in pats of Danish butter in England, that after a two years' experimental period it had decided to discontinue the system.

The London Committee recommended the prohibition of the export of second-grade and whey butter. The recommendation was made with the object of conserving the high reputation for quality that is possessed by New Zealand butter. At the present time, our second-grade and whey butter are consigned to one importer in the United Kingdom, on the strict understanding that they are not to be sold as New Zealand butters, and are to be sold only for manufacturing purposes. If this system does not prove effective, we agree with the Committee that the export of these butters should be prohibited.

QUANTITATIVE RESTRICTIONS AND DUTIES.

68. Duties on Imported Butters :

We referred briefly, when we were discussing the report of the London Committee, to the possibility of a quantitative restriction being imposed in 1936 by the United Kingdom Government on imports of dairy-produce from the dominions. We know that the policy of the Government of the United Kingdom is to secure economic prices for the products of the British farmers. At the present time it subsidizes the production of milk, and levies a Customs duty of 15s. per hundredweight on foreign butters imported into the United Kingdom. Owing to the restrictions imposed on imports into other European countries, the greater part of the exportable dairy-produce from European producing countries has been diverted to the United Kingdom.

As we have shown earlier in this report, this increase of imports, together with increased imports from the Southern Hemisphere, has created such a glut in the markets of the United Kingdom that, even at the low and uneconomic prices now ruling, it appears that consumption cannot be further increased, except at the cost of a disproportionate drop in prices. The Government of the United Kingdom may be satisfied, without attempting to regulate the volume of imports, to continue to levy

duties on foreign dairy-produce and to impose duties on Empire dairy-produce, and to apply the proceeds towards subsidizing the British producer. By this means the British consumer will be able to buy cheaply, and the British producer will be protected. On the other hand, the Government may take the view that its trade relations with Empire and foreign countries cannot be maintained on a sound basis if those countries are allowed to make themselves bankrupt in an endeavour to sell, for an indefinite period, increasing quantities of their produce in the United Kingdom market at a heavy loss. In so far as debtor countries are concerned, it is necessary to conserve their ability to pay interest and accumulate sinking funds in respect of their loans, and the United Kingdom, as a creditor country, is vitally interested in this respect. Further, the Government of the United Kingdom may seek to place British farmers on a sounder economic basis, without their having to rely on the indefinite continuance of subsidies. It is therefore not improbable that the Government of the United Kingdom will impose a limit on imports of dairy-produce, with or without the levying of differential duties, and will, in fixing quotas within that limit, have regard to the relative claims of Empire and foreign countries.

69. Special Trade Relations of New Zealand with United Kingdom :

In so far as New Zealand is concerned, it may be claimed that she is, for climatic and other reasons, best fitted for the economic production of butter and cheese of the highest quality, and that most of the land now used for dairying cannot profitably be diverted to other purposes. The Dominion's export trade in dairy-produce has been built up in reliance on the markets of the United Kingdom being always open to it, and the loan-moneys borrowed from the United Kingdom have been borrowed in the faith that interest and principal payments would be made from the proceeds of the sales of our primary products therein. Apart altogether from the wider aspects of loyalty to the Empire, New Zealand has consistently given a greater measure of her trade to the United Kingdom than has any other Dominion, and has maintained the lowest scale of tariffs against the products of the United Kingdom. In fact, it is not exaggerating the position to say that New Zealand is economically almost a part of the United Kingdom, for she imports more largely *per capita* than any other country from the United Kingdom, exports almost exclusively to the United Kingdom, makes the fullest possible use of British-owned ships for her trading requirements, and pays to British shipowners over £8,000,000 a year in freight charges on goods shipped to and from the United Kingdom.

70. The Principle of "Preference for Preference" within the Empire :

It has been said that there can be no discrimination within the Empire, but we think that this statement, in the bald form in which it is usually made, is misleading and ambiguous. We agree, as a broad statement of principle, that New Zealand cannot claim any arbitrary discrimination in her favour ; but should not the principle of non-discrimination be based on equality of reciprocity ? There can be no injustice in giving to other Empire countries equal preference to that accorded to New Zealand, provided they accord to the United Kingdom the same preference as New Zealand does. Equally, there is no injustice in according to New Zealand preference for preference. In this connection, we have not endeavoured to counter the British milk-marketing subsidy by subsidizing our producers, and consequently we cannot be fairly charged with using the United Kingdom market as a dumping-ground for our surplus produce. In addition to any scheme of differential treatment as between Empire and foreign countries that may be adopted by the United Kingdom Government, we may fairly claim that an equitable scheme of differential treatment of Empire countries should be devised, which would give preference, as to both quotas and import duties (if the latter be imposed), to those dominions that maintain low tariffs against goods exported from the United Kingdom and do not dump their produce in the United Kingdom under the shelter of subsidies.

71. Probability of Continued Low Prices :

In the early stages of what is termed "the depression," it was commonly thought that the general fall in prices was of a temporary nature, and that the depression period would be short. In fact, it is still held by many people that "something" is just round the corner, and that the unexpected thing will happen, which will once again send prices of primary products to a remunerative level. The general acceptance of this doctrine has resulted in the adoption of temporary expedients to meet an anticipated temporary crisis. It is still argued that importing continental countries will soon grow tired of paying high retail prices for butter and cheese, and will be forced by their own consumers to remove quotas and prohibitory duties, and thus open their markets to foreign produce, even though their action will reduce the prices of dairy-products at present enjoyed by their own farmers. It is still argued that Governments at present subsidizing the production and marketing of dairy-products will be forced through economic stress to discontinue this form of assistance, and that their countries will then no longer be serious factors in the British supply position. There are still some who look to droughts to reduce the production of competitive exporting countries, and others again have in mind the possibility of wars as a means of again establishing an artificial position of supply and demand. Again, hopes are held that the recovery of trade in Great Britain will be reflected in such an increase in the purchasing-power of the workers as will enable the increasing supplies to be cleared at substantially higher prices.

In the face of the actual position as it exists, and in the absence of any indication of a change from the general policy of national economic self-sufficiency, it appears to the Commission that the grounds for these views and hopes are shadowy and unsubstantial.

72. Advisability of Quota Discussions :

For this reason, and because of the still less favourable outlook in so far as dairy-produce prices are concerned, we are of the opinion that the possibility of quota restrictions as a means of relief to

producers in the dominions as well as in the United Kingdom should be considered, more especially as in 1935 the United Kingdom will be in a position to levy Customs duties on Dominion imports, and in 1936 will be in a position to deal comprehensively with the matter of quantitative regulation of imports both from the dominions and from those foreign countries with which trade treaties are now in force. Accordingly we recommend that, when a convenient opportunity offers, a full discussion of the question with the Government of the United Kingdom should be initiated by the Government of New Zealand. It is suggested that such a discussion would make clear an important issue—the extent to which it is desired that the dairying industry in the United Kingdom should expand. We assume that the principal economic value of the industry to the United Kingdom is that it is necessary to provide fresh milk and cream for human consumption. It is consequently necessary that the seasonal surplus should be available for the manufacture of cheese at payable prices. The manufacture of butter is not carried on on a large scale, and it is probable that the surplus cream that is not required for consumption in its raw state represents a substantial portion of the cream that is used in the manufacture of butter. We assume, also, that the Government of the United Kingdom does not desire to foster the expansion of the dairying industry to an uneconomic extent. It is, of course, possible to expand the industry almost indefinitely, but this can be achieved only at an increasing and uneconomic cost. A preliminary discussion with the Government of the United Kingdom would enable the Government of New Zealand to discover the extent to which it is desired that the British dairy-farmer should be assisted. When an understanding has been arrived at on this and other preliminary matters, we suggest that the Government of the United Kingdom should be requested to arrange a conference of all Empire and foreign exporting countries, with a view to reaching a final settlement. It is desirable that finality should be reached, for there seems to be no immediate prospect of a reopening of the continental European markets from which Northern European production has been diverted to the United Kingdom ; and, in the absence of the reopening of those markets, financial disaster and a more serious reduction of production than any system of quotas would impose appear to be the only possible outcome of the present uneconomic competition in the United Kingdom market. In such an economic struggle, victors and vanquished alike must suffer severe losses, from which the process of recovery will be slow. In our opinion nothing is to be gained by adopting a policy of inactivity and drift ; and much may be lost by its adoption.

MARKETING OUTSIDE THE UNITED KINGDOM.

73. The Need for New Markets :

The trend towards self-sufficiency, particularly in Continental Europe, has resulted in increased production and decreased importations of many commodities in countries formerly dependent to a large extent on external supplies. As a result, channels of trade have been disorganized and old established markets for many classes of manufactured products have either been lost or seriously diminished in importance and value. In the case of the United Kingdom, the value in 1913 of her home-produced or manufactured exports to foreign countries was about £330,000,000, and to Empire countries about £195,000,000, a total of approximately £525,000,000, whereas in 1933 the value of her exports to foreign countries had fallen to about £204,000,000, and to Empire countries to about £163,000,000, a total of approximately £367,000,000.

Adverse trading conditions in the United Kingdom have resulted in the development of an agricultural policy involving the regulation of imports and the subsidizing of production. This new development in British agriculture directly affects New Zealand and confronts us with the problem of disposing of our increasing production at remunerative prices. The policy adopted by the Government of the United Kingdom is likely to make our problem of disposal more difficult if she persists in her refusal to discriminate between dominions in regard to trade agreements.

The rapidly changing conditions of the past few years have indicated the need for a much wider range of markets than we have had in the past, particularly in view of the fact that the greater part of our national income is derived from a limited range of primary products which are sold mainly in one market. Diversification of markets is as important as diversification of production, and the difficulties at present confronting the dairying and meat industries necessitate the exploitation of every available or potential avenue of disposal. Other countries, realizing the importance of securing additional outlets for their exports, have in various ways encouraged the development of their export trade. As a result, we have been outdistanced in some markets by our competitors. Australia, for example, has obtained a considerable advantage over New Zealand in Eastern markets.

74. Features of our Trade with certain Countries (other than the United Kingdom) :

A considerable amount of statistical and other information relating to overseas markets has been submitted to the Commission. Such statistical data are given in Tables 16, 17, and 18 of the Statistical Appendix. The market possibilities of India, Ceylon, Burma, British Malaya, Dutch East Indies, Hong Kong, China, Japan, the Philippine Islands, the British West Indies, the Panama Canal Zone, South America, Belgium, Canada, and the United States have been examined.

75. Eastern Countries—General Trade Position :

The present volume of our export trade with Eastern countries is small. The only country purchasing any substantial quantity of our produce is Japan, wool being the main item in this case. On the other hand, New Zealand imports considerable quantities of goods from Eastern countries.

and, with the exception of Hong Kong, the balance of trade is substantially in their favour. The value of New Zealand and Australian export and import trade with the principal Eastern countries in each of the past three calendar years is briefly summarized below.

76. New Zealand Trade with Eastern Countries :

	Exports from New Zealand.			Imports into New Zealand.		
	1931.	1932.	1933.	1931.	1932.	1933.
	£	£	£	£	£	£
India	59,185	53,378	34,326	392,088	354,752	461,532
Ceylon	5,093	3,498	2,670	617,042	351,598	442,628
Burma	779	827	743	10,459	13,437	13,791
British Malaya	14,922	26,868	22,929	56,949	86,431	50,545
Dutch East Indies	10,205	5,255	5,496	848,216	793,647	798,579
Hong Kong	14,165	14,153	15,143	2,542	4,832	5,039
China	17,625	15,413	54,564	82,257	77,283	58,228
Japan	267,899	236,799	354,462	304,532	434,746	541,342
Philippine Islands	5,414	1,081	413	9,367	5,654	5,626

77. Australian Trade with Eastern Countries :

	Exports from Australia.			Imports into Australia.		
	1930–31.	1931–32.	1932–33.	1930–31.	1931–32.	1932–33.
	£	£	£	£	£	£
India	3,151,781	959,497	831,470	3,778,492	2,775,356	3,423,103
Ceylon	558,485	376,768	333,001	1,061,478	598,177	624,562
British Malaya ..	818,917	916,462	963,970	274,894	276,654	271,639
Dutch East Indies ..	1,412,525	1,333,959	1,207,890	4,011,194	2,648,948	2,930,951
Hong Kong	379,880	737,280	770,718	14,436	6,156	10,363
China	3,348,518	4,942,859	6,285,035	347,641	314,778	266,988
Japan	9,500,499	11,659,012	11,648,459	2,379,558	2,396,734	3,536,581
Philippine Islands ..	329,239	315,366	431,808	39,957	35,947	34,899
Siam	60,324	58,460	78,132	2,112	2,218	1,512

In making a comparison of New Zealand's trade with that of Australia it must be borne in mind that a very considerable part of Australian exports to the East consists of wool, wheat, and flour. Exports of raw wool from Australia to the above-mentioned Eastern countries during 1932–33 totalled 203,212,532 lb., valued at £8,033,571. Wheat exports to the countries shown amounted to 32,071,329 centals, valued at £7,930,292, while the quantity of flour exported was 7,405,648 centals, valued at £2,473,473. Together these three items totalled £18,437,336. Full details of the trade of New Zealand with these Eastern countries are shown in Tables 17 and 18 of the Statistical Appendix. The exports of butter, cheese, and milk and cream from New Zealand to the East in each of the past three calendar years are shown as follows :—

78. New Zealand Exports of Butter, Cheese, and Milk and Cream to Eastern Countries :

Country to which exported.	Butter.			Cheese.			Milk and Cream (Dried, Preserved, and Condensed).		
	1931.	1932.	1933.	1931.	1932.	1933.	1931.	1932.	1933.
	Cwt.	Cwt.	Cwt.	Cwt.	Cwt.	Cwt.	Cwt.	Cwt.	Cwt.
Burma	106	126	126	..	..	..	5	9	28
Ceylon	703	431	277	..	..	..	280	150	100
Hong Kong	453	1,079	1,032	65	83	303	185	141	321
India	786	968	1,120	1	14	11	49	73	701
Malaya	1,650	363	931	19	12	..	836	12,166	7,877
China	648	1,449	1,732	445	745	524	11	1,765	2,470
Dutch East Indies ..	555	368	134	8	..	..	526	148	240
Japan	712	603	375	..	8	6	60	429	218
Philippine Islands ..	855	188	50	..	..	..	25	..	..

The development of trade with Eastern countries is rendered difficult by reason of the fact that the market is not one large homogeneous whole, but rather consists of a number of widely different and widely separated markets. Moreover, although these countries are densely populated, they are not yet advanced industrially, except in the case of Japan. Foods are not generally of the Western type, except wheat and flour, which constitute a large proportion of Australian sales. On the other hand, tariffs do not present any great difficulty except in the case of Japan, which, nevertheless, is at the present time our most important market in the East.

Eastern markets for butter, cheese, and certain other products that New Zealand can supply are small, but they may become of substantially greater importance with the development of industries and with the spread of Western ideas. At the present time the demand for butter and cheese is limited to the white population resident in the East, and to the wealthier classes of the Native populations. In Japan the dairying industry is being encouraged with the aid of subsidies, and that country is now developing an export trade in butter and condensed milk.

Total imports of butter (frozen and tinned) from all sources into the Eastern countries dealt with above amount to between 7,000 and 8,000 tons per annum. The Australian share of this trade in 1932–33 was approximately 6,000 tons.

Total imports of cheese from all sources into the East amount to, roughly, 2,000 tons per annum, of which Australia contributed in 1932–33 approximately 160 tons.

Throughout the East there is a very large demand for condensed and preserved milk, but price competition is exceedingly keen. A substantial field is open to the New Zealand manufacturer or exporter, provided price and quality of product are competitive. On the evidence made available to the Commission, it appears doubtful whether this Dominion can compete in price under present conditions. The trade in these products in the East is largely controlled by concerns with international ramifications, and the share of different countries appears to be based largely on seasonal and other factors.

Australian exports of milk and cream (dried, preserved, and condensed) to the East in 1932–33 approximated 8,500 tons.

As previously mentioned, the balance of trade between New Zealand and the countries covered by the foregoing tables is, with one exception—namely, Hong Kong—substantially in their favour. To some extent this position is unavoidable since certain of our imports, particularly those of a tropical nature, must of necessity be obtained from these countries, alternative sources of supply not being available. Where, however, supplies can be obtained elsewhere, there is a strong argument, in view of the present conditions of trading, in favour of negotiating with countries to improve existing trade relationships, or, alternatively, of transferring our import trade wherever possible to countries which purchase more extensively from us. This argument applies not only to our trade with the East, but to our export trade generally.

79. Special Considerations respecting our Trade with India :

Ghee.—The Commission has made special inquiries regarding the market for ghee in India and the possibilities of manufacturing ghee in New Zealand for export to that country.

Ghee is clarified butter, and is widely used throughout India as a most valued article of diet, and for almost all the purposes to which butter and other edible fats are commonly put. It enters into the composition of most Indian confectionery, is employed to a considerable extent in Hindu religious ceremonies, and is also an important ingredient in certain Native medicines.

It has been represented to the Commission that India does not and cannot produce sufficient ghee at a price to meet the requirements of the population, and the shortage is at present made up partly by adulterating ghee and partly by the use of substitute fats, such as hydrogenated vegetable oils, which stand in the same relation to ghee as margarine does to butter. The bulk of the ghee produced in India is locally consumed, and supplies are augmented by a considerable frontier trade and by sea-borne imports. The cheapness of hydrogenated vegetable oils renders their use as a substitute for ghee very popular among the less wealthy classes, and considerable quantities of these oils are now produced locally in India and imported from other countries. These oils are also used on a large scale for the adulteration of ghee.

The manufacture of ghee is a cottage industry in India, and no reliable statistics of the costs of production are available, but from an official source in India it has been ascertained that, roughly calculated, the average cost can be taken as from 7 to 8 annas per pound. Taking a rupee as being worth 1s. 6d., this cost would be about 9d. per pound.

Selling-prices of ghee at Calcutta in the middle of August, 1934, were 45 to 80 rupees per maund of $82^{2}/_{7}$ lb., and information from the same official source indicates that it is probable that a large trade would be immediately available if New Zealand could place pure ghee on the Indian markets at anything under a figure of 10 annas a pound (about $11\frac{1}{4}$d. on the basis of a rupee being worth 1s. 6d.). It is necessary to be cautious, however, in accepting this view. The market possibilities are obscure. In the first place it has been represented to the Commission that in India the primary wholesale price of ghee is higher than the retail price, the reason being that the first wholesaler deals with pure ghee, while subsequent dealers largely depend on adulteration for their profit. It is stated that while it is not impossible to buy pure ghee at retail, it costs considerably more than the adulterated article, which appears to be the staple form. Consequently, price quotations of ghee are likely to be very misleading unless they are supported by accurate descriptive data. The Commission was unable to obtain sufficiently comprehensive information of a reliable nature in regard to prices. Moreover, it was found impossible to assess accurately the extent to which local production in India is insufficient to meet local demands, the relative importance or permanence of substitute fats such as hydrogenated vegetable oils, the actual or potential retail demand for pure ghee, the bearing that widespread adulteration

would have on the possibilities of marketing our own ghee, or the trade obstacles, if any, that India might place in the way of substantial consignments from New Zealand. It is evident that adequate information on all these matters is necessary before any comprehensive recommendation can be made. Further, it is considered that insufficient experimental work on the manufacture of ghee has been done in New Zealand to assure us that ghee of the right kind and colour could be successfully made. In view of the inconclusive nature of the evidence available to us in respect both of the marketing and the manufacturing possibilities of ghee, and in view also of the great possibilities which some witnesses saw for ghee, we suggest that further inquiry regarding prices and marketing be made by the appropriate body, and that further experiments in manufacturing be undertaken by the Dairy Research Institute. The further marketing inquiry should include, *inter alia*, an exploration of the possibilities of New Zealand obtaining a share of the Indian Army contracts for milk-products, and in the case of ghee it should cover quality requirements, methods of packing, and channels of distribution.

80. Shipping Facilities with the East :

In supplying Eastern markets, New Zealand is at a considerable disadvantage on account of inadequate shipping facilities as compared with Australia. Australia has frequent direct services to all parts of the East while New Zealand has only two regular direct services—namely, the monthly service to Japan provided by the Osaka Shosen Kaisha Co. and the four-monthly service to India via the Dutch East Indies and Singapore provided by the Union Steamship Co.'s vessel "Narbada."

Shippers in New Zealand may, however, make use of any of the lines trading from Sydney to all parts of the East. This involves shipment by inter-colonial steamer to Sydney and transhipment at that port, with resulting additional freight and transhipping charges. Exporters may also ship either by the Canadian–Australasian Royal Mail Line or by the Matson Line to Honolulu and tranship there to one of the lines trading from American West Coast ports to the East. The cost by this route is approximately the same as via Sydney, but the Honolulu route has the advantage of being somewhat more speedy.

It is these additional costs incurred through transhipment either at Sydney or Honolulu that make it difficult for the New Zealand exporter to compete with Australia in Eastern markets. Moreover, the present direct service to Calcutta is too infrequent to be of value in building up trade on a substantial basis. A six-weekly or preferably a monthly service is necessary for reasonable effectiveness. The evidence submitted to the Commission shows that no material expansion of our export trade with the East generally can be looked for until adequate direct shipping facilities are provided, and until freight rates generally from New Zealand to the East are comparable with those charged from Australia.

81. British West Indies :

With a view to the development of trade with the British West Indies, the New Zealand Government instructed the Trade Commissioner in Canada to visit the islands towards the end of 1933. The information obtained shows that the market is comparatively small, but that the trade is nevertheless a valuable one.

82. Jamaica :

The principal market is Jamaica, where New Zealand has already gained the greater part of the trade in butter. Further development is possible with butter and also with cheese. There is a substantial market for condensed milk, but price competition is keen. Powdered milk is not popular at present, and considerable advertising would be necessary to secure bulk sales.

The figures for the first nine months of 1933 (the latest available) show that New Zealand sold in Jamaica 557,723 lb. of butter, valued at £22,495, as against 77,744 lb., valued at £3,728, sold by other competing countries. In addition, much of the butter imported from the United Kingdom was of New Zealand origin.

83. Imports of Butter, Butter Substitutes, Cheese, and Milk into Jamaica, Calendar Year 1932 :

Source of Supply.	Butter.		Butterine and Oleomargarine.		Cheese.		Milk (Condensed).		Milk (Powdered).	
	Quantity	Value.	Quantity	Value.	Quantity	Value.	Quantity.	Value.	Quantity.	Value.
	Tons.	£	Tons.	£	Tons.	£	Tons.	£	Tons.	£
United Kingdom	50·5	6,035*	197·0	10,930	..	..	1,008·0	48,090	..	..
Canada	22·7	3,323	..	..	171·2	13,122	334·7	19,015	1	146
Australia ..	2·6	291	..	..	..	..	..	..	..	..
New Zealand ..	221·7	27,317	..	..	8·4	628	..	..	..	..
Kenya Colony ..	1·9	187	..	..	..	..	..	..	..	..
United States ..	..	..	..	..	..	..	378·1	15,207	..	..
Denmark ..	..	..	..	..	..	..	258·2	12,255	..	..
Other sources ..	..	..	3·3	155	7·8	1,003	357·9	15,321	..	..
Total ..	299·4	37,183	200·3	11,085	187·4	14,753	2,336·9	109,888	1	146

* Mainly New Zealand butter re-exported.

The Trade Commissioner stated in his report that the sale of butter substitutes has been largely checked by the general use of New Zealand butter, and, as long as it can be sold retail at about 1s. 1d. to 1s. 2d. per pound, this preference may be expected to continue. New Zealand cheese has given satisfaction so far as its price and quality are concerned, and we may expect to gain a larger share of the trade.

84. Bermuda :

It has been ascertained that the market in Bermuda is largely held by New Zealand butter, which is either reshipped from London or delivered via Canada, but that neither cheese nor condensed milk of New Zealand origin finds a place in that market.

85. Imports of Butter, Cheese, and Milk and Cream into Bermuda, Calendar Year 1932 :

Source of Supply.	Butter.		Cheese.		Milk and Cream (Canned).		Milk (Powdered).	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
	Tons.	£	Tons.	£	Packages.	£	Packages.	£
United Kingdom ..	..	16,757*	..	881	..	7,873	..	796
Canada	..	14,483	..	6,134	..	14,206	..	1,217
United States	..	2,259	..	1,884	..	5,073	..	689
Other sources	..	..	..	..	..	360	..	107
Totals ..	288·8	33,499	107·6	8,899	25,510	27,512	1,871	2,809

* Mainly New Zealand produce re-exported.

Bermuda does not produce butter and relies entirely upon imports, approximately 700,000 lb. being consumed annually. The New Zealand Trade Commissioner found during the course of his visit that approximately 75 per cent. of the butter then being sold was of New Zealand origin. New Zealand cheese is not known in Bermuda, nor, in fact, is it known by any of the merchants in the West Indies other than in Jamaica, but a vigorous marketing policy should enable New Zealand exporters to gain a share of the trade. The market for condensed milk is also in the same way capable of extension.

86. The Bahamas :

Up to the present New Zealand butter has been able to obtain only a small share of the market. Particulars of imports of butter, cheese, and milk into the Bahamas for the year 1932 are as follows :—

87. Imports of Butter, Cheese, and Milk into the Bahamas, Calendar Year 1932 :

Source of Supply.	Butter.		Cheese.		Milk (Sweetened).	Milk (Unsweetened).
	Quantity.	Value.	Quantity.	Value.	Value.	Value.
	Tons.	£	Tons.	£	£	£
United Kingdom	..	..	..	..	1,784	19
Australia	..	251	..	..	..	..
Canada	..	8,193	..	1,292	3,005	3,487
New Zealand	..	206	..	..	..	..
United States	..	2,295	..	1,707	263	2,213
Denmark	..	..	..	..	530	338
Holland	..	..	..	..	821	173
Switzerland	..	..	..	..	..	19
Other sources	..	..	..	77	..	..
Totals	74	10,945	29	3,076	6,403	6,249

The Trade Commissioner reports that a greater share of the above trade can be gained by New Zealand, provided regularity of supplies can be assured, and provided prices are competitive.

88. Shipping Facilities :

The steamers "Ionic" and "Tainui" have been providing practically a two months' direct service from New Zealand to Jamaica. This service is highly valued because of the comparatively quick deliveries, the lower cost of transport, and the excellent condition in which commodities have been landed, and the establishment of this connection is stated to be mainly responsible for the increase in trade between New Zealand and the colony. Occasional calls at Jamaica have also been made by the steamers "Rangitiki" and "Rangitane." No guarantee exists, however, that these services will be continued. Merchants are desirous that the calls should be maintained, and, if possible, that they should be made more regular and frequent.

89. Panama Canal Zone and South America :

Exports of butter to the Panama Canal Zone have shown a steady increase during the past three calendar years from 308 tons (valued at £32,921) in 1931 to 670 tons (valued at £59,054) in 1933. Exports of cheese are insignificant, amounting to only 33 cwt. (valued at £75) in 1933. Exports of dried, preserved, and condensed milk showed some expansion over the three years, the figures being 14 tons (valued at £542) in 1931, 75 tons (valued at £2,742) in 1932, and 60 tons (valued at £2,204) in 1933.

With suitable shipping arrangements, it is possible that the Panama Canal Zone might be utilized as a centre of distribution for trade with certain South American countries and with certain British West Indian Islands not catered for by direct shipment from New Zealand. In connection with re-export from the Canal Zone and from Panama, it has been ascertained that re-exports of New Zealand dairy-produce are allowed free of duty ex bond, and that a drawback will be allowed in respect of produce which, having been withdrawn from bond and having had duty paid thereon, is subsequently re-exported. Bonded cold storage is, however, stated to be very limited.

90. Belgium :

Despite the Trade Agreement which was recently concluded with Belgium, the prospect of any substantial or rapid development in the volume of our butter or cheese trade with that country is small. No direct export of these commodities to Belgium is recorded in our trade statistics for recent years, but it is understood that some trade, in cheese at any rate, is carried on through London.

The demand for cheese in Belgium has been largely for types produced by the Netherlands. A report recently presented (June, 1934) by a Government officer who visited the Continent of Europe, including Holland and Belgium, states that, while there is not a big outlet for Cheddar cheese in Belgium there nevertheless seems to be a growing taste for it; and that if it be possible to stimulate this trade and to make satisfactory business connections it may later be possible to develop the export of other varieties of cheese. The report further states, however, that traders tend to look to particular countries to supply specific varieties of cheese, and that other countries can gain a footing only by cutting prices. This seemed to be the position with New Zealand Cheddar, for retail prices quoted at the time of his visit were: New Zealand Cheddar, 6½d. per pound; Canadian, 7d. to 8d. per pound; Finnish Gruyère, 8d.; while full-cream Gouda was 6½d. per pound wholesale.

The report concluded with an expression of opinion that under prevailing conditions there was little prospect of gaining a footing in Belgium or other importing European countries with Gouda or other special types of cheese, for the countries at present producing them were well placed to carry on the existing trade. Moreover, as a result of being shut out of some markets which they previously possessed, they were fighting to retain the markets left to them. The importing countries, on the other hand, are trying to encourage their own internal production, and, although Belgium is not a dairying country, she also is doing something in this direction. Certain importers in Belgium stated that the taste for New Zealand Cheddar cheese is growing to the exclusion of Canadian, which up to the present has held the market for that particular type. If this be so, some development of trade in New Zealand Cheddar may be possible; but from the evidence available it would appear that any material expansion must come about through the displacement of types of cheese other than Cheddar.

Quotas, tariff restrictions, and keen competition are effective hindrances to the development of trade in the case of butter.

91. Canada :

The dairying industry in Canada has undergone remarkable changes during the past few years for not only has her greatly increased production enabled her to meet domestic requirements, but it has also enabled her to make a surplus available for export, mainly to England. Two factors largely responsible for this were the modification of the Hawley-Smoot tariff on milk and cream imported into the United States, and the low prices received by Canadian farmers for their grain.

Following upon the raising of the United States tariff on dairy-products, the Canadian Government gave notice of the cancellation of the Trade Treaty to which New Zealand had been a party since 1926, and notified the New Zealand Government that the duty on butter—our principal item of export to Canada—was to be increased from 1 cent to 4 cents per pound. Subsequently the rate of duty was raised to 8 cents per pound, and became effective against New Zealand as from the 12th October, 1930. The adverse effects of the new duties are seen in the decline of butter exports to Canada from 20,530 tons in the 1929–30 season to 1,489 tons in the 1930–31 season.

A new Trade Agreement between Canada and New Zealand came into force on 24th May, 1932, under which the duty on New Zealand butter entering Canada was assessed at 5 cents per pound, as against a British Preferential rate of 8 cents, and a general rate of 14 cents. Despite this new Agreement, however, little advantage has accrued to New Zealand in respect of butter, although in the case of other commodities it has been of undoubted advantage. The policy of the Canadian Government has been to develop the Canadian dairying industry with a view to fulfilling local requirements from local production, and the imposition of restrictions and provisions of other kinds has effectively kept importations from New Zealand down to comparatively negligible figures. For the calendar year 1931, exports from New Zealand were only 180 tons, for 1932, 302 tons, and for 1933, 350 tons.

92. United States :

Exports of butter from the United States in 1930 totalled 1,318 tons, and in 1932, 716 tons, while in the same two years imports into the United States amounted to 1,103 tons and 453 tons respectively. The duty on butter, oleomargarine, and other butter substitutes imported into the United States is 14 cents per pound.

The factory production of cheese in the United States (excluding that made on farms) in 1929, 1930, and 1931, was 216,000 tons, 223,000 tons, and 220,000 tons respectively. In addition, a special class of cheese produced—cottage pot and baker's cheese—totalled approximately 45,000 tons in 1929. The figures for this special class are, however, not available for 1930 and 1931.

Exports of cheese from the United States amounted to only 37 tons in 1932, while imports aggregated approximately 24,000 tons. The duty on cheese imported into the United States is 7 cents per pound, but not less than 35 per cent. *ad valorem*.

At present the United States is of no value as an outlet for our butter and cheese, but it is considered that it might be possible to conclude a Trade Agreement with her by means of which a market—perhaps seasonal in nature—might be opened. The recent admission of New Zealand apples into the United States suggests the possibility of similar treatment for butter and cheese. The figures available indicate that local production in the United States is able at present to take care of demand, but, with a steadily increasing consumption, there may be an opportunity for the development of a market for New Zealand butter. The figures show that the domestic production of butter in the United States increased from 815,000 tons in 1922 to 980,000 tons in 1931.

93. Reasons for Small Extent of Our Present Trade in Dairy-produce with Countries other than the United Kingdom :

(*a*) Until the past few years this Dominion has not felt the necessity for developing markets outside the United Kingdom for such commodities as dairy-produce and meat. For many years the United Kingdom has been a satisfactory and a growing market, and we in New Zealand have been accustomed to believe that it was illimitable. Further, in normal times, farmers and others interested in the marketing of our dairy-produce have seldom been willing, while they enjoyed the apparently secure and growing market of the United Kingdom, to spend money on ventures the outcome of which was problematical.

(*b*) Attempts to open up new markets have hitherto depended on the initiative of individual traders. There has been no co-ordinated effort either by the dairy industry, the meat industry, or any other industry as a whole, and there has been no co-operation among the different industries. Such attempts as have been made have been futile or only partially successful, for the costs of effective market penetration are normally beyond the financial resources of a single trading unit. Moreover, the establishment of new markets should be an enterprise co-operatively undertaken by all our exporting industries.

(*c*) Our geographical position raises problems of marketing which are not experienced to the same degree by other countries more favourably situated in relation to the world's principal markets. Our comparative isolation from the large consuming centres of the world renders us particularly dependent upon adequate shipping facilities. While such facilities have been developed for the transport of our bulk produce to our main markets, our comparative isolation has been an obstacle to the development of shipping services to other countries where our export and import trade is small. Hitherto it has been considered that the smallness of our trade did not justify the establishment of more regular and direct services. But the new conditions that have arisen make it clear that while our present facilities are sufficient to cater for our present volume of trade, they are not satisfactory from a trade development point of view. In the absence of frequent and regular direct services at low rates of freight, it is difficult for us to compete in Eastern markets, and with many lines of produce it is quite impossible. Unless the buyer in these markets can be assured of obtaining regular and frequent supplies from New Zealand, he will prefer to buy from some other country which can meet his requirements.

(*d*) So far as markets in the East are concerned, shipping companies have not been prepared to assume the risks of pioneering, and hold the view that they should be protected by the State from any loss that they may incur in instituting new services or expanding those already in operation.

(*e*) Inadequate knowledge of the characteristics and requirements of certain markets places us at a serious disadvantage when competing with other countries which are either more favourably situated geographically, or which, through the adoption of a more progressive trade development policy, have already established themselves.

(*f*) Tariff barriers have always been a serious handicap to the development of trade, but this handicap has been accentuated in recent years by additional factors such as quantitative restrictions, production subsidies, and exchange difficulties.

94. Creation of the necessary Organization :

There is need for an organization to function in the co-ordination of the marketing of our produce overseas, and in the investigation and opening up of new markets for the disposal of surplus production. This organization would be in a position to make any necessary trade and market surveys, either directly or by delegation of authority, to determine a trade policy embracing all appropriate industries and products, and to carry out that policy either directly or by delegation of its authority.

95. Market Surveys :

A necessity exists for making complete surveys of particular markets, for the purpose of supplementing the information at present [illegible] arding—

(*a*) The special requirements [illegible] markets :
(*b*) The possibilities of adjusting our present methods of production, manufacture, and marketing to meet these requirements :
(*c*) The capacity of particular markets to absorb new products :

(*d*) The terms and conditions of trading in each area :
(*e*) Existing Customs tariffs, trade agreements, &c. :
(*f*) Existing shipping, wharf, and storage facilities :
(*g*) The means of distribution within each particular area, and the transport available :
(*h*) The necessary financial arrangements in each market :
(*i*) Methods of advertising most suited to the particular market :
(*j*) Suitable business firms, agents, &c., in any particular market.

96. Trial Shipments and Pooling :

For the purpose of effectively carrying out and supplementing market surveys, it may be necessary to send trial shipments of our produce to particular markets. It is desirable that all classes of produce suitable for those markets should be included, and that the returns should be pooled, and the resultant profit or loss spread over the respective industries.

97. Shipping Facilities.—Eastern Countries :

With a view to improving shipping facilities and extending our trade with Eastern countries, it is desirable that negotiations should be entered into with shipping companies and, where necessary, with the Governments of these countries. In this connection three alternatives present themselves,—

(*a*) A subsidy to shippers of the amount of extra freight and transport charges involved in shipping via Sydney or via Honolulu. This would mean no extension of existing facilities, but would merely have the effect of placing New Zealand shippers on the same footing as Australian exporters :

(*b*) A straight-out subsidy or a guarantee of minimum freights to a shipping line in consideration of the expansion of existing facilities or of the establishment of a new direct service to be arranged :

(*c*) The extension to New Zealand of one of the existing shipping services trading to Australia, or, alternatively, the inauguration of a new direct service with New Zealand in consideration of the granting by New Zealand of preferential tariff treatment to specified products.

The inauguration of a direct service to and from New Zealand is to be preferred to any extension of an existing service or services via Australia, and we are therefore of the opinion that negotiations directed to this end should be entered into with such companies as have indicated to us their willingness to confer with the Government of New Zealand on the matter.

98. British West Indies :

In the interests of trade development with Jamaica and the British West Indian Islands generally, it is desirable that shipping companies should be encouraged to maintain and improve the existing services.

99. Panama Canal Zone and South America :

In view of the possibilities of further extension of our trade in dairy-produce with the Panama Canal Zone, and of utilizing that territory as a distribution centre for trade generally with South America and with certain West Indian Islands, it is necessary that a survey should be made of the markets included in this area, and that special consideration should be given to the question of the provision of low through-rates of shipping freights to South American ports.

100. Trade Agreements and Barter Arrangements :

In view of the unbalanced nature of our trade with India, Ceylon, British Malaya, Dutch East Indies, Japan, and the United States of America, it is desirable that negotiations should be entered into with their respective Governments with a view to the making of trade agreements, and that, in any discussions which may ensue between the Government of New Zealand and the Governments of any of the countries referred to, special consideration should be given to the question of a market for butter and cheese. For the five calendar years 1929 to 1933, our trade position with these countries was as follows :—

101. New Zealand's Balance of Trade with Specified Countries :

	Exports from New Zealand.	Imports into New Zealand.	Difference in favour of Overseas Country.
	£	£	£
India	940,188	2,612,960	1,672,772
Ceylon	27,382	3,039,775	3,012,393
British Malaya	111,635	395,390	283,755
Dutch East Indies	53,176	4,404,519	4,351,343
Japan	1,442,[illegible]	2,471,598	1,029,120
United States	8,820,0[illegible]	26,428,901	17,608,804

It is desirable, too, that full consideration should be given to the question of making barter arrangements with any of the countries mentioned above, or with any other country.

102. Trade Delegation :

With a view to the development of our trade with the East, it will probably be found necessary to despatch a delegation from New Zealand to the Eastern countries to which reference has been made. It is suggested that the delegation should enter into preliminary negotiations respecting trade agreements and tariffs, make full investigation in India of the possibilities there of the market for ghee, and assist in making contracts for the supply of ghee if, on investigation, it appears to be commercially practicable.

103. Overseas Trade Representatives :

The difficulties of the present situation, as they affect the marketing of our products abroad, have emphasized the necessity for providing an organization overseas to investigate the nature and extent of tariff concessions that it may be reasonable to expect overseas countries to grant, and to make inquiries respecting existing and possible future restrictions on imports of any class of produce ; to assist sellers in New Zealand to effect contacts with buyers in overseas countries ; to arrange publicity for New Zealand goods and New Zealand scenic attractions ; and to make representations for the removal or modification of restrictions hampering trade, in connection with shipping, quarantine requirements, storage, &c.

At the present time there are only two full-time New Zealand Trade Commissioners abroad, one at Sydney and the other at Toronto. Other countries have realized the necessity for adequate overseas representation, and have built up effective Trade Commissioner services. There appears to be justification for the extension of the present organization by the appointment of additional full-time Trade Representatives.

104. Recommendation :

We are of opinion that a central co-ordinating body is necessary to advise and assist the Government and the different Produce Boards in dealing with the matters that have been referred to in this section of our report, and for this reason we have recommended in a later section the formation of a Council of Production and Trade.

THE PROBLEM OF SEASONAL PRODUCTION.

105. Introduction.

A policy of continuous production which would ensure the export and consumption of freshly made butter has frequently been discussed in New Zealand, but the practice has not been adopted on a widespread scale. The Imperial Economic Committee which reported on the marketing of dairy-produce in 1926 advocated such a policy in preference to the storage of butter. As New Zealand now supplies the United Kingdom with nearly 30 per cent. of her imported butter, the question is becoming increasingly important. It is not so applicable to cheese, for the present seasonal production in New Zealand fits in with corresponding seasonal production in Canada and the United Kingdom.

New Zealand has adapted herself to seasonal production of butter by manufacturing a type which retains its quality in storage and enables the Dominion to supply market requirements by regulating shipments.

106. Evidence from Witnesses :

The following statement of a witness epitomizes the views of those who doubt the wisdom of this policy :—

> " The greatest price influence is perhaps not the total amount of butter on the market, but the visible supplies at certain periods of the year. On the whole, every exporting country has a high-price period and a low-price period, not necessarily coincident with each other, but depending upon seasonal supply, and the degree of divergence in tonnage between maximum and minimum deliveries during the year. In broad terms, New Zealand's rising-price period is May to October, and her falling-price period is November to April. Increasing tonnage during the rising-price period and decreasing tonnage during the falling-price period, nicely adjusted, may easily result in a better average price. This is the whole principle involved in the present *Danish system of marketing, which should not be termed the Danish system of marketing, but the Danish system of production,* which aims at as even a delivery as possible, brought about by as even a production throughout the year as possible.
>
> " Evenness of production in the case of Danish butter is, of course, essential owing to the fact that her production has to be cleared virtually weekly, it being, in general terms, a poor-keeping butter ; but with New Zealand, up to the present time, ability to hold in store for lengthy periods has enabled a certain smoothing-out of deliveries to be accomplished, even with a divergence in production of graded butter in New Zealand from 500 tons per week at its lowest point to 5,000 tons per week at its highest point. Delayed shipment is, however, not sufficient for quite a number of reasons, one being that such tonnage held is visible and not cleared, tending to depress rather than stabilize or raise price. Winter milking would certainly enable greater regularity of shipment, and if this is an advantage, then the question of winter milking should be given serious consideration. Its objections are manifold from the producer's standpoint, but if it would tend to raise the average price, and perhaps enable a larger tonnage to be rationally marketed, then it would be nationally sound, as, although it would reduce the potential production of the individual, it would allow for expansion of dairying, rather than reduction. I take it, however, that the Commission will take into consideration all the aspects concerned.

"The Danish system of production management, enabling her to spread deliveries and sell most of her butter before it is produced, is possible only under a system of continuous milking. In discussing Danish marketing, this fact should not be lost sight of. Denmark's policy is to 'sell' as much butter as possible to Great Britain and 'market' as little as possible. Her production graph is very significant, and means the peddling of only 40,000 tons instead of New Zealand's 140,000 tons."

From the point of view of the quality of butter, there is no doubt that, on the average, it is wise to reduce storage to a minimum. Unfortunately, there is no definite information available in New Zealand as to whether butter made in winter and consumed two months later is superior to butter made in mid-summer and stored for six months, assuming that the butter is made from the milk of cows at the same stage of lactation. Some witnesses considered that there would be difficulty in procuring a pure milk-supply in winter, when cows would be exposed to cold weather and fed largely on supplementary feed. Others believed that this view was unsound, because already in some areas cows are brought into profit early in July, and no difficulty is experienced in obtaining cream of high grade in the winter and early spring. Some factory-managers, while agreeing that the best-quality butter is made in summer, pointed out that a more even supply of cream throughout the year would facilitate the manufacture of good-quality butter. They claimed that it would obviate the difficulties that arise when most cows came into profit within a short period of two months, and therefore arrive at the end of their lactation at much the same time; that it would permit of daily cream collection throughout the year; that it would improve the efficiency of labour through constant employment of workers and avoidance of labour difficulties at periods of peak production; and that it would permit of a material increase in butter-production without the necessity of incurring additional capital expenditure on factory buildings, plant, and stores.

On the side of farm production, it is apparent that it would entail in some districts a considerable change in systems of animal husbandry, but if the practice resulted in an increased price for butter, suitable farm practices could be evolved. Although many farmers consider that winter milking is not economically possible under existing conditions, owing to the added costs of feed and the need for housing cattle in some districts, the following extracts from evidence summarizing the experiences of farmers who have already adopted winter milking, do not support this view. One witness said:—

"An increased percentage of our cows calving in the early autumn as against the spring is to our minds quite a feasible proposition, and capable of being exploited to quite an extent with benefit both to the farmer himself and the industry as a whole. In the Auckland Province, at least, we have two periods in the year with little or no growth—the winter months, which, generally speaking, we at present use as an off period, and the dry period of January and February, when in many seasons, through lack of rainfall, little or no growth is apparent. What is more natural than to have as many cows as possible having their spelling period during these times, so that with a smaller number of cows milking, a greater quantity of good milk-producing food would be available per head? We have proved through practical experience that the autumn calving cow will produce equally as well as when she calves in the spring, in fact, better than if she were not calving in the spring till late September or October.

"The system has the following advantages to the farmer:—

"(*a*) It will tend to even up his income throughout the year.

"(*b*) It will remove to a large extent the attendant worry always attached to the getting of one's cows in calf for the spring period. In most cases cows difficult to get in calf in midsummer will hold easily at this period of the year, and milk through to the following summer with little trouble.

"(*c*) It will simplify his operations with the utilization of his skim-milk or whey for his pigs, as he will not have to the same extent that glut period, and also that period of scarcity, so apparent to-day.

"(*d*) He will have less trouble at calving-time in the autumn, owing to the fact that, generally speaking, his cows will not be subject to the same radical change in feed which is so noticeable at spring calving, and which undoubtedly is one of our chief causes of trouble with our dairy stock at this period.

"(*e*) Young stock born in the autumn appear to pass that critical period in their lives at eight to twelve months, so noticeable amongst many of our spring calves, with little trouble.

"Care must be taken in the recommendation of the general adoption of winter dairying to point out that it has to be gone into gradually, so that the farmer will gradually be able to assess the feed requirements of his stock during the winter months. The success of winter dairying is absolutely bound up with the provision of adequate feed for the stock in milk. In the hand of the inefficient farmer it might be dangerous and lead to a lot of trouble, but for any one working on sane sound lines nothing but good can come from its adoption.

"With calving about 20 per cent. of one's herd in the autumn, no appreciable increase in the cost of production has taken place. If this percentage were increased to say, 40 per cent. and further supplementary crops had to be grown to enable them to be really well fed, a slight increase might occur, but this would, we believe, be more than offset by the advantages previously referred to."

Another witness expressed the following view :—

"For the past five or six years I have been practising all-the-year-round dairying on my own farm.

"As a result of my experience I can say quite definitely that there is no real reason why New Zealand should not be able very largely to even up her production of butterfat month by month, by milking all the year round. In certain areas there may be difficulties, as where, for instance, the farms are too wet to carry stock in the winter. This evenutally may be got over, as grass is coming more and more to be treated as a crop. I myself have seen in Holland cases where grass is cut and carried to the cow-sheds to be fed to cows under cover. Rapid improvements in methods of handling grass are being made overseas. Those of us who produce winter grass in New Zealand are very careful not to leave the animals on it longer than is necessary for them to get a good feed, in order to reduce trampling and soiling to a minimum. It is quite certain, however, that we can, by proper management, produce excellent grass in this comparatively mild winter of ours. We certainly cannot get grass to grow in the dry summer period. The objections raised to winter milking are not convincing. The ordinary one is that the farmer wants a rest sometime. If this attitude is to be adopted, it means that farmers will soon go to the wall. Our competitors in other countries milk all the year round, so why should we expect not to ? The other objection is that winter milking causes too large an accumulation of mud around the shed. Yet most farmers are already bringing in their cows in the end of July and in August, the wettest months of the year. The advantages far outweigh any possible disadvantages, and many people have stressed the advantages besides myself. From the marketing point of view, all-the-year-round production is of prime importance. In the first place, we should then be in a position to place supplies of fresh butter on the market all the year round. We should also even up the quality, because it is well known that the chemical and physical character of milk varies with the advance in lactation of the cow; milk produced at the end of the lactation period apparently producing butter which keeps less well than that produced from milk of cows in full milk. Owing to difficulty in getting cows in calf, quite a number of farmers are being forced into winter milking. By bringing in a portion of the cows in autumn less work is thrown on the bulls.

"Calving down a portion of the herd in autumn actually eases the feed position on the farm in my experience, because in the Waikato the summer drought, if at all extended, means an enormous slump in autumn; and if this drought happens to be prolonged, the cows never come back on their milk, and the autumn and early winter production suffers. A certain proportion of autumn calvers will correct this slump. It is easier also to calve cows down in good condition in autumn that after a hard winter, and this partly accounts for the fact that these autumn calvers usually give a higher total production than spring calvers. The calves from autumn calvers are weaned in time to take advantage of the spring flush of grass, from which they receive great benefit. Spring calvers produce calves, which by the time they are weaned have missed this spring flush, and then are weaned on to dry summer grass and suffer severely from flies. It is also an advantage, to my mind, to put yearlings born in the late spring to the bull so that they calve down in the autumn at two and half years old. Similarly calves born in the autumn can be brought in to calve in the spring, when they are two and a half years old. Too many animals are brought in, underdeveloped, at two years old at present, with consequent breeding troubles.

"As a result of my own experience and that of farmers practising all-the-year-round milking, however, it is important to point out that it is undesirable to bring in too many of the cows in the autumn, and we put the figure at not more than one-third of the herd at the outside.

"As regards the effect of all-the-year-round milking on cost of production, we have to look at both the farm and the factory side of the matter. From the farm point of view there is no extra expense so far as I can see, except in a case where at times labour is stood off during the winter months, and except for the extra cost of power and light at the shed, which at the most cannot amount to more than a very few pounds. A certain extra expense may be necessary on manures, for all-the-year-round milking cannot be practised by using super alone. In any case I maintain that one-sided manuring must result, after a few years of intensive farming, in resulting stock troubles. The extra cost of manure, however, is more than made up by the increased production per acre and the cost of manure per pound butterfat is consequently much reduced."

107. General Conclusion :

The Commission considers that further information on the marketing and quality side of the problem would be required to justify a definite recommendation in favour of the general adoption of continuous milking. It is of the opinion that the question is primarily a marketing one to which the Dairy-produce Control Board should give close attention : and, if on full examination it appears that the practice is sounder than that of storing butter, efforts should be made to extend winter milking, which is now practised to some extent in the more favoured parts of the Dominion, to other parts. The Commission inclines to the view that an extension of the practice is desirable on general grounds, and is of the opinion that, if seasonal fluctuations in production were minimized, less speculation in New Zealand butter would be indulged in. It is only the insufficiency of the evidence regarding the effect of winter dairying on marketing and quality that has restrained the Commission from making a definite recommendation for the institution of measures designed to bring about the general adoption of the system. Unfortunately, the necessary evidence was not available in New Zealand.

DIVERSIFIED AND SUPPLEMENTARY PRODUCTION.

108. Introduction :

The fall in dairy-produce prices resulting in reduced incomes from dairying has led to discussions regarding the possibilities of augmenting dairy-farmers' incomes by means of other commodities that might be produced on dairy-farms. Whilst the proposal for enlarging the incomes of dairy-farmers in this way has some merit, it must be stated that the successful production of most of the commodities which can be suggested as suitable to supplement dairying requires highly specialized knowledge. In many cases it is unreasonable to expect that dairy-farmers who until now have devoted their whole attention to dairying can immediately adapt themselves to the production, on a competitive and profitable basis, of these commodities.

A number of witnesses who appeared before the Commission advocated a policy of greater diversification of production on dairy-farms, and also stressed the advantages to be gained from the fuller exploitation of supplementary production. In no case, however, were their recommendations supported by full information concerning the types of products which might profitably be produced on dairy-farms ; nor did the witnesses fully explore the possibilities of market outlets or the trade complications that might result from greater diversification and increased production of supplementary products. The subject must therefore be discussed in general terms, to indicate the limitations of and complications arising from any such policy.

109. Classification of Dairy-farms :

Dairy-farms can be classified in three broad types : (*a*) Specialized dairy-farms on which no diversification of production exists, but on which pigs are used for the consumption of skim-milk, whey, or farm-grown foodstuffs ; (*b*) farms where diversification is practised in varying degrees, such diversification being in the form of sheep-farming or mixed sheep-farming and cropping. On these farms the income from dairying compared with that from other sources ranges from comparative unimportance to major importance ; (*c*) small farms where dairying provides an income supplementary to small salaries or intermittent wages, or where it represents a diversification of intensive production.

Farms of types (*b*) and (*c*) can, in general, be viewed as diversified undertakings. In a great number of cases it is undoubtedly true that the diversification practised is sporadic rather than consciously planned, and production may fall far short of the maximum possible. In general, these types are not representative of the New Zealand dairying industry, and are not fundamental to the problem under discussion.

Farms of type (*a*) are most truly representative of dairying in the Dominion, and accordingly we are specially concerned with the possibilities of diversified and supplementary production on farms of this type. It must be borne in mind that there are certain factors governing the scope and elasticity of operations on these dairy-farms. The farms generally are limited in size, and the whole of their area or, in the case of semi-developed farms, the improved portion is at present fully stocked with dairy cows and replacement stock. In the majority of cases capital is not available for any programme of extension or development. The percentage of North Island dairy-farms which are equipped with sufficient horses and tillage implements to permit of an extensive policy of cropping is very small. Further, all dairy-farmers have endeavoured to reduce farm labour to a minimum compatible with reasonable efficiency, and the labour requirements of any additional activity would require to be considered.

Any policy directed to the extension of the range of products taken from a farm, or to the intensification of existing forms of production, will necessitate either the setting-apart for the purpose of some portion of the farm, or the use of additional capital or labour ; or it may require a combination of all three. No such policy can be sponsored unless market outlets and payable prices are assured. If any policy of diversification of production is found to be practicable, its acceptance by individual dairy-farmers will depend entirely upon the relation of the additional burden of cost likely to be incurred to the added income likely to accrue.

Owing to the limited area of most dairy-farms, it is not generally practicable to allocate any considerable area of individual farms for diversified production without unduly lowering the income from dairying. Therefore, land so used is likely to be small in area, and a policy of diversification to be successful must imply the intensive use of the land. This envisages the growing of heavy-producing crops which may be fed to stock, or, alternatively, cash crops such as cereals, fruit, or vegetables. The production of feed crops would be necessary if pigs, vealers, wool-producing rabbits, or poultry were to be fully exploited. Apart altogether from the general costs of producing suitable crops, their labour requirement is high in relation to the area grown. The care and feeding of the stock is specialized in the case of rabbits and poultry, and would involve additional labour or additional responsibility on labour already available. The question of pigs and pig products will be dealt with at a later stage, but the other items can be briefly discussed.

110. Vealers :

It has been demonstrated that vealers can be profitably raised on dairy-farms by the intensive feeding of whole milk and crops, and that the use of whole milk in this way is profitable when prices for butterfat are low. The outlet for vealers is, however, limited to the local market ; for veal, to be profitable, must realize fairly high prices, which are not obtainable in external markets for any appreciable quantity.

111. Rabbits :

There are limited possibilities in rabbit-farming for the production of specialized wool and pelts. This industry is well suited to family labour, which must, however, be highly technical to obtain the best results. The farming of suitable rabbits involves considerable capital expenditure for stock and plant. Unfortunately the market for rabbit wool is limited to the narrow requirements of the luxury trade, and the sale of pelts at a remunerative price depends on the vagaries of fashion.

112. Poultry :

On all types of farms, poultry production in New Zealand is essentially a side-line activity. The total production of eggs on dairy-farms, though large at the present time, could be rapidly increased. In most instances, poultry-production is run on an extensive or semi-extensive system, but if a more intensive system were practised, and use made of large quantities of skim-milk, flocks could be rapidly increased and enlarged. Dairy-farmers have realized the value of poultry, and, in view of the low cost of egg-production under the conditions of management adopted, can afford to accept a comparatively low price for their product. The local egg market, however, is adequately catered for by existing sources of supply, and any extension of production which depended on internal consumption as an outlet must affect the local price detrimentally. A small export trade to the United Kingdom has been built up during recent years, and any expansion of the poultry industry must depend on the possibility of increased exports. The trend of events in the United Kingdom indicates that such an expansion is very improbable, and a restriction of imports through the imposition of quotas is under discussion. The poultry industry offers an alternative product in the form of table poultry, the trade in which has never been exploited locally to any extent. At the present time, this commodity is a luxury and consequently its demand is limited by the price factor. It is unlikely that any substantial developments in local trade will occur unless table poultry can be marketed at lower prices. The practicability of developing a luxury export trade in preserved or frozen table poultry would require investigation.

113. Cash Crops, Fruit, and Vegetables :

The practicability of growing cereal cash crops on dairy-farms is confined to the production of maize, and this is possible only in suitable districts. Investigation might reveal the possibility of growing certain crops such as soya beans, peas, or specialized seeds. There is no scope for a development in vegetable-growing for the urban markets without dislocating the existing trade and thus impoverishing established market-gardeners. The growing of pip, stone, or citrus fruits requires a specialized knowledge of management. Small-fruits for local consumption are at present in plentiful supply at reasonable prices. It is also stated that the producers of apples, pears, and stone-fruits cannot obtain a remunerative return on their investments. The development of the citrus-fruit industry to supply fully the local market with those types which can be grown in New Zealand is a reasonable objective. This class of product would be well suited to dairy-farms in those districts where climatic conditions are favourable, and where dairy-farmers have the requisite special knowledge.

114. Special Crops :

Special crops such as tobacco, flax, and hops are not suitable for cultivation by the average dairy-farmer. Tobacco and hops are grown on farms in the Nelson-Motueka districts on which mixed farming is practised, but most other areas do not enjoy suitable climatic conditions. Moreover, it is doubtful if an outlet for the products could be found. Although most farms in the North Island can grow flax (*Phormium tenax*), this crop cannot normally be grown as a side-line.

115. Fat Lamb and Meat Production :

The opinion has been very generally held in the past that dairy-farmers should diversify their production by the utilization of their dairying pastures for the production of mutton and lamb. It has been contended that ewes can be run as followers to dairy cows, and that the capacity of farms to carry dairy cows is not affected thereby. This form of management has developed to some extent, and has given satisfactory results. If breeding ewes were available in sufficient numbers, such a system could be considerably extended. It is also practicable from a management viewpoint to devote a part of many dairy-farms wholly to intensive fat-lamb production. These areas could be made available by the immediate disposal of portion of the dairy herd, with a probable decrease in butterfat production; or, as a long-time policy, by a reduction of the herd, through concentration on high-producing dairy cows, which would allow butter-fat production to be maintained, together with a progressive introduction of breeding ewes on that portion of the farm made available for the purpose. In this way, three to four hundred thousand dairy cows could ultimately be replaced by ewes, resulting in the production of an additional one and a half to two million fat lambs. Such a policy cannot be recommended at the present time, for the Meat Producers Board is now faced with the problem of quotas, and the Dominion has nothing to gain nationally from embarrassing one section of the farming community in the endeavour to benefit another section. Similarly, the outlook for the chilled-beef trade is not encouraging. Dairying pastures are suitable for the production of high-grade beef for the chilled-beef market, but again the possibilities of penetration of this market depend on the policy adopted by the United Kingdom in respect of quantitative regulation.

116. Pigs and Pig Products :

The production of pig-meat through the full exploitation of pigs for the consumption of dairy-farm by-products should be looked upon as a feature of specialized dairying and inseparable from the production of butterfat. Therefore pig husbandry should not be viewed as a diversification of, or as supplementary to, dairying, but rather as an integral part of the Dominion's dairying industry.

It has been demonstrated on many farms that with rational feeding of skim-milk or whey, combined with green crops and grass, and limited quantities of concentrates, an annual production of from 40 lb. to 50 lb. of pig-meat per 100 lb. of butterfat is easily obtainable. If this standard of production were general over the whole of the dairying industry, the dairy-farms of the Dominion would produce approximately 80,000 tons of pig-meat per annum. Under such conditions, the cost of concentrates and of maintenance should not exceed 1d. per pound of meat, and, if pork realized 5d. per pound, the production of such a tonnage would add an average of approximately 1·6d. per pound to the butterfat pay-out.

If special grain and winter feed crops were grown on farms, the tonnage mentioned above could be exceeded without difficulty, but the net return then realized by farmers would depend on the relative prices of butterfat and pig-meat. An increase in production costs within reasonable limits would not be serious provided an unlimited market were available for the product. Until such a market is available, the principle behind pig-meat production on dairy-farms should be the full utilization of dairy by-products and the least possible cash expenditure commensurate with efficiency in production, and with the least possible labour disturbance in the farm organization.

If market conditions allowed of full development of pig-management, the dairying industry of the Dominion could be placed in a comparatively satisfactory position, even with low prices for butterfat.

The suggested annual output of 80,000 tons could be reached within one season, and, with an adequate organization of effort, a tonnage well beyond that figure could be attained within two or three seasons. An assured market for increased output does not at present exist, and a vigorous production policy cannot, in the meantime, be advocated.

When butterfat prices were at a remunerative level, pig-meat production approximated 25,000 tons per annum. Consequent upon the decline in dairy-produce prices, the output of pig-meat rose to approximately 40,000 tons during the past season, and the current season's production is estimated at approximately 50,000 tons. Local consumption of pig-meats in the form of pork and bacon is in the vicinity of 20,000 tons per annum, leaving approximately 30,000 tons available for export to the United Kingdom. During the past twelve months somewhat more than 20,000 tons were exported to the United Kingdom, and it is at present indicated that no appreciable increase can take place. The suggestions already made by the Government of the United Kingdom indicate that it desires to allot quotas for both porkers and baconers, the quotas to be subject to revision either seasonally or inter-seasonally. The adoption of any such principle would make it impossible for New Zealand to frame a policy of increased production, unless the initial quotas were higher than could be immediately filled. The Dominion of Canada is in a favourable position in this respect, owing to the quota arrangement made with the United Kingdom at the time of the Ottawa Conference.

In view of the market outlook, it is not at present possible to recommend a plan of advancement. Any action must await the announcement of the policy of the Government of the United Kingdom, and should scope then be given, arrangements should immediately be made by the appropriate body to attain the tonnage allotted. If the allotment is below our ability to supply, special methods of regulation of production will become necessary in order to safeguard the price position on the local market.

As previously mentioned, the expansion of pig-raising during the past two or three years has been accomplished under the stimulus of low prices for butterfat, rather than through any conscious recognition of the importance of pig-raising as a permanent and integral part of efficient dairy-farm management. The danger therefore exists that any rise in butterfat pay-out will be followed by a diminution in pig-raising.

Irrespective of butterfat prices and of the future production policy, which may be controlled by quantitative restrictions of supply to the United Kingdom, it is viewed as essential that pig-meats of high quality be produced in quantities which represent the maximum utilization of dairy-farm by-products, or the maximum allowed under marketing agreements.

The Commission is impressed with the present value of pig-raising as a source of income supplementary to butterfat-production, and considers it the only extensive source available for this purpose. The Commission is further impressed with the necessity of an efficient controlling organization being set up to ensure the consolidation of the present position, and to exploit any market possibilities of the future. The Meat Producers Board has materially assisted in the development of the industry up to the present time. It has given financial assistance to pig-recording clubs, and has also financed sporadic instruction. In addition, it has encouraged grading, and has arranged transport and shipping facilities for pig-meat.

The existing voluntary organizations cannot be effective, for they have no official standing and are handicapped by lack of finance. The organization envisaged by the Commission must sponsor an extensive instructional service to dairy-farmers—a service to direct all phases of pig-management. The instructional policy should be based on an authoritative survey of market requirements in respect of type, quality, and weight of pig-carcasses. The suggested organization should encourage and extend the existing system of pig-recording, this service being designed to provide a guide to breeding efficiency from both quality and fecundity viewpoints. In addition, it should make provision for an official and uniform grading system applicable to all pigs slaughtered, the standards set being based on both local- and export-market requirements. It is considered that the grading service could be arranged most satisfactorily through the Meat Producers Board. The controlling body should, in addition, exercise a supervisory function over the marketing of pig-meats.

Finance required for the administration of the industry should be provided from a levy on all pigs slaughtered, whether for the local or export trade.

117. Recommendation :

We therefore recommend that the Council of Production and Trade be given statutory authority to take immediate steps to set up a pig-industry development committee : the committee to consist of representatives of the Dairy-produce Control Board, the Meat Producers Board, producers' organizations, the Bacon Curers' Association, and the Government, and to be vested with the necessary authority. This committee should work in close co-operation with the Meat Producers Board, which should continue its present shipping functions in respect of pig-meats.

PART III.

SPECIAL PROBLEMS AND RECOMMENDATIONS.

PROBLEMS OF RURAL FINANCE.

General Review of Present Rural-credit System.

118. Provision of Rural Credit :

The credit requirements of farmers are broadly classified as being for long-term, intermediate, and short-term credit.

Long-term credit is needed to finance the purchase of land and the provision of the more expensive durable improvements ; intermediate credit for the purchase of stock and machinery and the provision of the less expensive and less permanent improvements ; short-term credit for costs of labour, farm requisites, other running-expenses, and the marketing of crops.

These requirements in New Zealand are met by many agencies. The principal public credit agencies are the State Advances Office (Rural Advances Board and Advances to Settlers Branch), the Public Trust Office, the Department of Lands and Survey, and the Rural Intermediate Credit Board. The principal private credit agencies are trading banks, stock and station agents, insurance companies, finance and loan companies, trustee savings-banks, private persons lending either directly or through solicitors, auctioneers, country storekeepers, farm-implement dealers, and other firms having business relations with farmers, and co-operative dairy companies.

The rural-credit operations of the State Advances Office, the Department of Lands and Survey, and the Public Trust Office are directed mainly, though not wholly, to the provision of long-term credit. The Rural Intermediate Credit Board, as its name implies, confines its operations to the financing of crop-production, the general improvement of land in occupation, the erection of buildings on occupied land, and the purchase of implements and stock. The advances made by these State institutions are usually secured by first mortgages over land and/or chattels and collateral securities of various kinds, including guarantees and promissory notes. Both the Public Trust Office and the Lands and Survey Department advance on flat and amortizable land mortgages, but the State Advances Office makes no advances on flat mortgages. The mortgagor has the right, unconditionally in some cases, conditionally in others, of repaying before maturity date the whole or portion of the moneys borrowed.

Investments by private persons provide one of the most important sources of land-mortgage credit. With few exceptions moneys are advanced on flat mortgages, the usual term of which is five years. Sometimes provision is made for enabling the mortgagor to reduce the principal moneys before maturity date. In this field of rural lending many loans are made on second and subsequent mortgages, and the advance often represents part of a vendor's equity.

The more important private institutions, such as trading banks, stock and station agents, insurance companies, finance and loan companies, and trustee savings-banks, also lend against the security of land, chiefly by way of first mortgages of the flat type. These institutions, however, are far more important as sources of intermediate and short-term credit, for it is necessary for them to keep their funds in a liquid form, and they are, therefore, reluctant to invest any large proportion of their resources in long-term fixed securities.

This multiplicity of credit agencies represents a system that has grown up piece-meal in response to special needs. The system was of great service to farming during a period of rapid development, and while prices were buoyant it succeeded in providing an abundant supply of credit for rural investment at rates that were not in general unduly high in relation to other ruling rates. In this respect, the operations of the State institutions have exercised a powerful influence on the terms and conditions of rural lending generally.

119. Weaknesses of Rural-credit System :

The unstable economic conditions of post-war years revealed many weaknesses in the system, and indicated the necessity for the development of a co-ordinated rural-credit mechanism. The basic weakness of the present system is that to a large extent its units function independently and competitively. In periods of rising prices, the independent and competitive nature of our rural-credit agencies stimulated land speculation, and so led to over-capitalization. In such periods the system has shown itself to be too accommodating. It has often led to risky rather than cheap finance, for most lending institutions have found it difficult or impossible to refuse to participate in a general scramble for farmers' accounts. The tendency, therefore, has been in the direction of over-finance and the frequent transfer of properties on the basis of small deposits and large mortgages. This tendency has been strongly reinforced by the powerful tradition of trading in farms for profit characteristic of many parts of New Zealand, and by the cheapness, simplicity, and efficiency of our land-transfer system.

120. Inelasticity of Present System :

If periods of prosperity have shown the system to be too accommodating, periods of depression have shown it to be too rigid. Independently of those cases of precarious finance where the farmer's equity has been too slight to withstand any appreciable fall in commodity prices, the inelasticity of charges on capital account has placed a heavy and growing burden on all farmers. The failure of interest-rates to adjust themselves quickly to movements in commodity prices has, in moderately stable conditions, caused no great hardship. The fluctuations of prices above and below the general

trend have to some extent at least been compensatory, and constant rates of interest have therefore represented fairly constant debt burdens over a period of years. In such circumstances the rough justice of the result was satisfactory to both mortgagor and mortgagee. Moreover, relatively constant rates of interest in relatively stable price conditions meant both simplicity of contracts and security of finance.

The events of the past few years have shown that rigid interest-rates combined with a steep fall in commodity prices cause extreme hardship and endanger the economic structure of farming. Farming has been the first industry to receive the impact of falling prices, and, on account of the large proportion of its capital which is fixed and the comparative slowness of its turnover, has had most difficulty in making adequate and rapid adjustments. The disparity between interest charges and gross income has consequently been more marked and more burdensome in the case of farming than in the case of most other enterprises ; and, despite the relief given through exchange depreciation and statutory reductions of interest, the continued fall in prices, particularly in those of dairy-produce, has made the economic position of farmers more serious than before.

121. Disparity in Interest Rates :

A further disparity is apparent. The margin between the rates of interest payable on first-class rural mortgage advances and the interest yield of gilt-edged securities has widened considerably. Similarly, the margin between bank-deposit rates and overdraft rates (which affect the rates charged on chattel securities) is wider than previously. This is indicative partly of the reluctance or inability of private and State lending institutions to make adequate adjustments to meet the situation and partly of lack of confidence in rural investment generally. Over a wide area of rural finance a vicious circle has been set up wherein falling prices and relatively rigid interest-rates have led to a reduced net income, this to a depreciation of the security, this to a firming of interest-rates, and this to a further depreciation of the security. The essential trouble here is that financial institutions have found themselves unable to take the initiative in an attempt to preserve the security through lowering interest charges, but have preferred (in some cases have been compelled) to adopt a policy of passive resistance.

122. Amortization :

Another important weakness of the present credit system is the prevalence, outside the State and some of the larger private lending institutions, of the flat type of land mortgage. The evidence placed before the Commission is conclusive as to the superiority, from the borrower's point of view, of the amortizable type of loan. Such loans are normally for longer periods than flat mortgages, and they therefore avoid frequent and often costly renewals ; they provide a form of contractual saving which progressively increases the farmer's equity in his land and protects him from the full effects of a fall in commodity prices ; they enable the loan to be paid out of income without undue hardship if the period of amortization is sufficiently long : and where additional instalments may be paid at any time they enable the farmer to use small surpluses to reduce his loan or to make advance payments as an insurance against lean years. From the point of view of the lender, amortization progressively widens the margin of security in periods of stable prices and protects it wholly or partly in periods of falling prices.

Amortizable loans, however, are not a convenient form of advance for private lenders or small lending institutions owing to the inconvenience of reinvesting the small instalments periodically accruing, and the difficulty of devising an adequate method of supervising their securities over long periods. Large institutions can meet both difficulties readily enough, but the private investor dislikes both the inconvenience and remoteness of control involved in amortization. For these reasons amortizable loans have found little favour outside the State and some of the larger private lending institutions. Moreover, it is unlikely that private funds will be successfully tapped for rural investment on an amortizable basis until there exists a suitable rural mortgage institution with powers to issue bonds against the collective security of farm lands.

Amortization may be subject to two other disadvantages. In the first place the loan may be for a comparatively short period, in which case the periodical instalments will prove burdensome in periods of falling prices. In the second place, the rate of interest fixed on a long loan may cease to bear a normal relation to rates of interest charged on the renewal of flat mortgages. Both these possibilities have been realized in practice, and both need consideration in any contemplated adjustments in the credit system.

123. Finance by Dairy Companies :

A special problem is presented in the financing of dairy-farmers by co-operative dairy companies. In most dairying districts there are finance companies which make advances to farmers upon mortgage and chattel security, but in some cases farmers are also financed by co-operative dairy companies, either directly or by finance companies which are off-shoots of co-operative dairy companies. Such companies may employ the facilities provided by the Rural Intermediate Credit Board.

Co-operative dairy companies adopt no uniform practice in financing dairy-farmers. The matter is governed by the provisions of the memorandum and articles of association of individual companies, which may or may not provide the necessary authority, and by the policy decided upon by the directors of each company. Even where the memorandum or articles of association provide no authority for financing farmers, a provision in the Rural Intermediate Credit Act nevertheless permits a company to enter into guarantees. Generally, however, the scope of the authority of the directors is wide enough to permit the company to engage in financial operations, and some co-operative companies have made a practice of accepting moneys on deposit for the purpose of providing the necessary funds.

It is unusual for co-operative dairy companies to have capital funds available for financing suppliers. In most cases, therefore, companies obtain the necessary funds either by borrowing on overdraft from a bank or by accepting deposits from suppliers. The obvious danger in these methods is that the company's liabilities to the bank or to its suppliers are on demand. This may prove, and has proved, a source of embarrassment to companies in times of financial stringency.

The view has been expressed that co-operative dairy companies should confine their activities to the manufacture and marketing of dairy-produce, leaving the provision of finance to specialized financial institutions. The responsibilities of directors to their supplier-shareholders, as agents, trustees, or managing partners, are such that it is questionable whether they should undertake the risks involved in assisting a section of suppliers unless specific authority has been given, since any losses made must be borne by all. Should this happen, those supplier-shareholders who have not received assistance might pertinently ask the directors to justify, in terms of their trusteeship, this extension of the scope and operations of the company.

A considerable volume of evidence has been received by the Commission to the effect that many companies offer liberal finance to dairy-farmers who are supplying other companies, as a device to attract them from their present supply-company. The evidence shows also that competitive canvassing of suppliers and promises of liberal finance are most apparent immediately before the commencement of a new season, when under the present dairy regulations suppliers may change from one company to another. The use of finance as a competitive weapon not only adds to the risk of dairy company finance but also seriously affects the stability of companies that either do not finance suppliers at all or finance them on a sound basis, and further it accentuates the problems of overlapping which have elsewhere been discussed.

The Commission is of the opinion that co-operative dairy companies which desire to undertake finance activities should form separate subsidiary finance companies for the purpose, and that the use of finance as a competitive weapon should be discouraged. This latter objective will be secured if the recommendations of the Commission in regard to the transfer of suppliers from one factory to another are adopted.

124. Summary :

The following analysis indicates several important conclusions. First, in times of prosperity easy finance is not necessarily good finance, since it stimulates land-speculation, and the benefits of cheap finance in such times may be cancelled out through the process of capitalization. Second, in times of steeply falling prices rigid rates of interest out of alignment with commodity and money prices tend to depress unduly the lending-value of land and aggravate the severity of the process of deflation.

The maladjustment of rates of interest on rural investments has been brought about partly by restrictive legislation designed as a necessary measure of relief to protect farmers from the full force of severe fall in produce prices. The legislation has had the additional effect of freezing farm finance. While in the circumstances this legislation was necessary and has been of great general benefit to both mortgagee and mortgagor, it has tended to prevent decisive adjustments and has made it practically impossible for many farmers to refinance on lower terms of interest. As a result, confidence in rural investments has been impaired. In our judgment, this necessary confidence will not be restored and cheaper rural finance will not be generally available until the mortgage situation is made more fluid and until mortgagees are provided with greater security and greater freedom from restriction than exist at present.

The main objectives in the readjustment of rural finance are—First, the development of a more co-ordinated and more elastic system designed to give greater negotiability to farm mortgages, greater security to rural investors and more effective finance to rural borrowers ; second, the devising of means which will impede the process of land-speculation in good times while protecting the security in bad times ; third, the encouragement of amortization by making the system attractive to private as well as institutional lenders ; and fourth, the provision of a way of escape from the present standstill arrangements under relief legislation. In a later portion of this section we make recommendations designed to realize all these objectives. We now proceed to consider the legislative methods that have been adopted in the endeavour to relieve the financial position of farmers.

Legislation for Financial Relief.

125. Mortgagors and Tenants Relief Act :

The first step taken to correct the maladjustment between costs and income was the passing of the Mortgagors Relief Act of 1931. By that Act a mortgagee was restrained from enforcing his rights against a mortgagor until the mortgagor had had an opportunity of applying to the Supreme Court for relief. The Court was required to consider, *inter alia*, the effect of the continuance of the mortgage upon the position of the mortgagee, the inability of the mortgagor to redeem the property, the conduct of the mortgagor in respect of breaches of mortgage covenants, the relative hardship inflicted on the mortgagor by permitting enforcement of the rights of the mortgagee, or on the mortgagee by relieving against enforcement of his rights, and the extent to which the default of the mortgagor had been caused by the economic conditions brought about by the depression. If the Court decided that relief should be granted to the mortgagor, it was empowered to make an order, subject to such terms and conditions as it thought fit, prohibiting the mortgagee from exercising his powers under the mortgage for a period of not more than twelve months. Power was given to extend the period on the application of the mortgagor, subject to such further terms and conditions as the Court might think proper.

By an amending Act passed during the same session of Parliament, the Court was empowered, in determining any application for relief in respect of mortgages of farm lands, to postpone for not more than two years the due date of principal and interest payments, to reduce the rate of interest payable, and to remit arrears of interest wholly or in part. The same amending Act made provision for the setting-up of Adjustment Commissions, to which were entrusted the duties of investigating and reporting upon applications made to the Court for relief. The Commissions were also empowered to assist mortgagors and mortgagees to make voluntary arrangements for the modification of their respective rights and obligations.

Three further amending Acts were passed in the session of 1932–33. These amendments enabled a mortgagor to apply for relief, even though the mortgagee had not taken any steps to enforce his rights under the mortgage. The Court was empowered to extend the term of a table mortgage for a period not exceeding two years and to postpone the due dates of payment of instalments of principal and interest, and to relieve, for such period as it deemed proper, against the enforcement by action in any Court of the personal covenant expressed or implied in any mortgage. The special provision contained in the 1931 Amendment Act relative to mortgages of farm lands was extended to cover all mortgages of land.

The first Amendment Act of 1932–33 empowered the Court, on the application of a lessee, to reduce rent for a period not exceeding two years, and to remit arrears of rent, and further to restrain a lessor from exercising his rights of distraint and re-entry without the leave of the Court. The second Amendment Act of 1932–33 extended the application of the principal Act to mortgages that had been varied by the parties before or after the passing of the Amendment Act and to replacement mortgages, and gave further protection to guarantors of mortgagors and lessees. It also enabled the Court to join a stock mortgagee as a party to an application for relief made by a mortgagor of farm lands, in order that inquiry might be made as to whether the stock mortgagee had exercised his powers in a harsh or unconscionable manner to the disadvantage of the mortgagor or mortgagee of the land. The third Amending Act of 1932–33 debarred mortgagors and lessees from contracting out of the benefits of the relief legislation, and restrained lessors from enforcing payment of rent by means of judicial process without the leave of the Court.

The Mortgagors and Tenants Relief Act, 1933, consolidated and amended the existing legislation. The most important of the new provisions brought mortgages of stock fully within the scope of the Act, and enabled the Court, on notice being served on a stock mortgagee by any person having an interest in land in respect of which an application for relief was made by a mortgagor or lessee, to treat the application as being an application for relief in respect of the stock mortgage as well as in respect of the mortgage or lease of the land. In such cases the Court was empowered to "budget" the farmer and make an equitable allocation of the income derived from the land among the persons entitled to share therein. Another provision enlarged the protection already given to applicants for relief under the Act against the ordinary processes of law for the recovery of debts, by extending it so as to cover claims by creditors other than lessors and mortgagees of land and stock.

126. National Expenditure Adjustment Act, 1932 :

By the provisions of the National Expenditure Adjustment Act, 1932, a general reduction in rents and interest rates was made. The standard reduction was at the rate of 20 per cent., but, in the case of interest, it was provided that the process of reduction was not to operate so as to bring the net interest-rate, in the case of a mortgage of land, below 5 per cent. per annum, and, in the case of a mortgage of chattels, below 6½ per cent. per annum.

127. Exchange-rate :

In January, 1933, an alteration of the exchange-rate with London from 110 to 125 was made. The rate now stands at 124. The altered rate benefits the dairy-farmer by increasing his factory pay-out for butterfat. For instance, when butter is at 80s. in London, the effect of the exchange premium is to increase the butterfat pay-out of a butter-factory from 6·88d. to 8·99d. per pound, and, when cheese is at 50s. in London, the effect of the exchange premium is to increase the butterfat pay-out of a cheese-factory from 8·23d. to 10·85d. per pound. The benefit of the exchange-rate is spread over the dairy-farmer's whole income, for the internal prices of butter and cheese, and practically all the produce of a dairy-farm, are a reflection of export prices. On the other hand, the burden of the exchange-rate affects only a minor portion of his expenditure.

128. Comment on Relief Legislation :

The adjustments brought about by the National Expenditure Adjustment Act and by the alteration of the exchange-rate represented an attempt both to lower farm costs and to raise farm income, and they undoubtedly helped to improve the net financial position of farmers. In the case of the mortgagors and tenants relief legislation, however, the position is not so clear and requires closer examination. The legislation was undoubtedly necessary to prevent panic deflation of land-values and the dispossessing of many farmers whose position was basically sound, but who were for the time being unable to meet their obligations in full. Though most mortgagees would doubtless recognize the unwisdom of a general liquidation of mortgage securities under panic conditions, it is certain that without the legislation a large number of forced sales would have taken place, with the consequent bankruptcy of a large section of the farming community, and a general and excessive depreciation of the value of securities over land. The operation of the relief legislation has had the effect of giving protection and a breathing space to deserving cases, and of maintaining production on a large aggregate area of land that would otherwise have ceased to be productive. The budgeting system, too, has been a benefit to many farmers

who formerly had only a very hazy idea of the relation of their expenditure to their income. Another advantage of the legislation was the encouragement it gave to the making of voluntary arrangements between mortgagors and mortgagees. The system under which relief has been afforded by the legislation has had the great merit of being flexible, and of permitting each case to be dealt with individually on its merits.

129. Disadvantage of Continuance of Relief Legislation :

The legislation, however, was intended only as a temporary measure, and its protracted continuance is fraught with serious possibilities. There is a general disinclination to invest in mortgages of farm lands, because of the application of the legislation to new mortgages. The definition of a " replacement mortgage " is very wide, and the facts that a new mortgage is for a different amount, that the rate of interest is different, that it is secured over a different property, and even that it is given by and to different parties, do not prevent it from being classed as a replacement mortgage. It is only in very exceptional cases that a dairy-farm is unmortgaged, and it necessarily follows that practically every new mortgage of dairying land is a replacement mortgage. The point is important, since there are many millions of pounds now on deposit with the banks which would be readily available for investment in mortgage securities at a reasonable rate of interest if lenders could be certain that they would not be subject to restrictive legislative provisions.

Another disadvantage of the protracted continuance of the relief legislation is its effect in postponing a definite and permanent rearrangement of farm finance. Land-values have not been allowed to find their true level, which, however, is not a panic level or a depression level, but a level based on reasonably efficient production at the lower level of prices that may be expected to be maintained over a period of years. The availability of mortgage finance at lower rates of interest will ease the drop in land-values, for low interest-rates tend to maintain land-values by reducing the charges against the income derived from the land. Moreover, we are of the opinion that the definite rearrangement of farm finance will be impeded unless a clear line of demarcation is drawn between the efficient farmer and the inefficient farmer, and between the land that is hopelessly overmortgaged and the land that can be refinanced. In another part of this report, we recommend the adoption of a scheme of rural-mortgage finance under which farmers who have a reasonable prospect of making good will be refinanced on more favourable terms than are possible at present, which will enable the protection of the Act to be withdrawn from them. The scheme is designed to assist mortgagees as well as mortgagors, for mortgagees whose securities are at present unrealizable will be afforded a measure of relief. It is thought that in the majority of cases a mortgagee will make voluntary concessions to an efficient and deserving mortgagor, in order that both mortgagor and mortgagee may derive an ultimate benefit from the scheme. The adoption of this or a similar scheme will make it possible to withdraw the protection of the relief legislation in cases in which, owing to the inefficiency of the farmer or the unsuitability of the land, or both, there is no possibility of refinancing. In cases such as these, the true position is either that the mortgagor has been potentially insolvent from the beginning, through having purchased, with insufficient capital and at an unduly high price, land that could not pay its way if produce prices did not remain at a consistently high level; or that he has been incompetent or extravagant, and has not built up a reserve fund in the years of high prices and prosperity.

130. Suggested Amendments to Mortgagors' and Tenants' Relief Act :

Two minor matters arising out of the operation of the Mortgagors and Tenants Relief Act, 1933, were brought under the notice of the Commission. The first relates to the position of a stock mortgagee under section 11. This section, in our opinion, requires amendment not only in the interests of auctioneering and other firms financing farmers for the purchase of stock and supplies, but also in the interests of farmers who are under the relief legislation and who require further advances to enable them to carry on their farming operations efficiently. As the section now operates, it appears that a firm which, for instance, advanced moneys on the 1st August, 1934, for the purchase of stock to a farmer already under security to the firm and subject to relief legislation cannot be sure that it will obtain full benefit from either the extra income earned by the stock or from proceeds of sale should the stock be sold before the 31st July, 1935. It is represented that both the additional income earned by the stock and the proceeds from the sale of stock may be paid into the common pool, and the firm share *pro rata* with other creditors. It is suggested that this arrangement fails to distinguish between money already advanced to farmers and locked up mostly in land, and money which must be more or less continuously advanced to farmers to enable them to finance their current farming operations. The result is that a farmer who is under relief may find it impossible to obtain the extra stock needed to cope with seasonal growth or with special crops which he may have available.

We suggest that this anomaly should be removed by providing for distinctive treatment of new advances which are deemed necessary for the maintenance of efficient farming.

The second matter relates to the protection given by section 16 against the enforcement of claims by unsecured creditors. The section requires the leave of the Court to be obtained before a judgment can be proceeded upon for an amount exceeding £20. This applies to debts incurred both before and after the passing of the Act. This is a desirable provision, but is open to the objection that it adds to the risks of commercial and trading advances, since a person may obtain credit while intending subsequently to apply for relief. Under the section the trader cannot take proceedings to enforce his judgment without the leave of the Court, despite the fact that he may have been misled in regard to the ability or intention of the debtor to pay. It is considered that this unsatisfactory position could be met if it were made clear that the leave of the Court to proceed on a judgment would invariably be granted when it was shown that the debt was incurred in circumstances that, though not amounting to fraud, were such as to show that the debtor could not reasonably have expected to pay the debt within a reasonable time.

131. Necessity for Unfreezing Mortgage Finance :

Our view is that an examination of the present position reveals a state of suspended farm-debt and frozen mortgage finance that calls for early and positive action. The inertia of the system is disheartening to mortgagors and mortgagees alike, and is destructive of confidence. The relief legislation was undoubtedly necessary, and we are satisfied that it has been of great value both to mortgagors and to mortgagees; but such expedients, while having a buffer value, are ultimately obstructive to genuine recovery and sound finance. The choice lies between a complete abandonment of the system, which, because of the serious position that would result, cannot be recommended, and a rationalization of the system, which will enable mortgagors whose position is basically sound to be refinanced on a permanent and inexpensive basis. We recommend the adoption of the latter alternative, and we further recommend that the protection given to mortgagors whose position is basically unsound be withdrawn after the expiry of the existing legislation. The withdrawal of protection in these cases will not necessarily result in the dispossession of the mortgagors, for it is probable that many mortgagees will prefer to compromise with their mortgagors rather than risk making a greater loss through a forced sale. In this connection, it appears to us that the continuance of the relief legislation tends to prevent the making of permanent settlements, because mortgagees are inclined to regard the legislation as a temporary expedient only, and prefer to delay action until the situation is more clearly defined.

Before stating in greater detail the proposals of the Commission to remedy the major defects which have accompanied present methods of relief and to provide a more satisfactory system of rural credit, it is necessary to make a more careful analysis of the present financial position of dairy-farmers. Such an analysis reveals the main debt features and suggests lines of appropriate policy.

ANALYSIS OF FARMERS' FINANCIAL POSITION.

132. General Movement of Costs and Prices :

It has already been shown that the export price-level for all pastoral products has been reduced below that of 1914. This in itself is disturbing, but would not be serious were it not for the acute price rises which took place between 1914 and the commencement of the present depression, and the process of capitalization which accompanied these inflated produce prices subsequent to the war. The apparent prosperity of the decade ended in 1929 was inevitably accompanied by high costs for goods and services, and although prices now approximate the 1914 level, costs have lagged to such an extent that the disequilibrium presents a difficulty which cannot be adequately met by increased output of saleable produce. The following index published by the Government Statistician is quoted to illustrate the position, but the basis of the farm expenditure index may be accepted as an approximation only (1914 = 1000) :—

Year.	Farm-expenditure Index.	Pastoral and Dairy-produce Export-price Index.
1914	1000	1000
1922	1543	1235
1923	1593	1479
1924	1586	1649
1925	1582	1748
1926	1555	1407
1927	1574	1396
1928	1642	1553
1929	1636	1492
1930	1628	1168
1931	1490	881
1932	1250	795
1933	1150	792
1934 (January to July)	..	948 to 996

It will be noted from the above that the farm-expenditure index is showing a rapid fall, and that the export price index for the seven months of 1934 indicates that the general level of pastoral-and dairy-produce export prices is not far below the 1914 figure. Whilst the general position thus shows a greater degree of equilibrium, it must be recognized that the improvement in export prices is accounted for wholly by the recovery of commodities other than dairy-produce, and it is doubtful if the position will be maintained. It must also be remembered that the export-price index is influenced by the rate of exchange.

Although certain adjustments of farm mortgages took place subsequent to the 1921 temporary drop in produce prices, the load carried by the dairy industry in the form of mortgages on land, stock, and plant, short-term indebtedness, and time-payment commitments, was of such dimensions that individual farmers fell into financial difficulties very rapidly once butter and cheese prices began to fall in 1929–30. The outstanding feature of the last five seasons has been the remarkable effort made by farmers to meet their commitments by a rapid increase in volume of output, but the velocity of the downward trend of prices has more than offset the income represented by the increased output

from individual farmers. The collective position of the industry is as follows (1928–29 season being taken as 100) :—

Season.	Average Pay-out per Pound Butterfat Index.	Volume of Production Index.	Gross Dairy-farmers' Income Index.
1928–29	100	100	100
1929–30	88	109	96
1930–31	63	111	70
1931–32	60	118	71
1932–33	48	137	66
1933–34	49	148	73

It is apparent, therefore, that with approximately a 50-per-cent. increased output within five seasons the gross income is 27 per cent. less than in 1928–29. This can be further illustrated from the records of dairy companies, a typical example of which is given below :—

Season.	Number of Suppliers.	Average Butterfat per Supplier.	Gross Receipts per Supplier.	Percentage Variation.	
				Butterfat.	Receipts.
		lb.	£		
1928–29	280	8,000	633	..	..
1929–30	315	9,275	639	+15·9	+ 0·9
1930–31	360	9,574	491	+19·7	—22·4
1931–32	420	9,452	466	+18·1	—26·4
1932–33	460	11,255	441	+40·7	—30·3
1933–34	468	12,096	454	+51·2	—28·3

During the period under discussion, the costs of producing a pound of butterfat on the farm have undoubtedly been reduced, and the gross charges per pound of butterfat on account of cream-collection, processing, and marketing have also been lowered. In addition to reductions in cost of materials used in production and in cost of manufacture, the burden of fixed charges has been lightened by being spread over a greater volume of output. The reduction of costs of collection, processing, and distribution has definite limitations, however, and increased production unavoidably necessitates increased gross expenditure.

133. Ability of Farmers to meet Debt Charges :

The facts affecting the financial position of dairy-farmers as outlined above can now be studied in greater detail. In the absence of a complete census of the debt position of farmers, it is not possible to analyse the repercussions of low prices upon the security of mortgagees and lending institutions as fully as is desirable, but a considerable amount of evidence has been given dealing with the inability of farmers to meet their debt charges in full. From this evidence it is apparent that the financial position of dairy-farmers has become increasingly difficult during recent years. It must be stressed that the position disclosed relates only to first mortgages and rents, and it is impossible to estimate the extent to which farmers are unable to meet their obligations under subsequent land mortgages, stock and chattel mortgages, short-term commitments, and bank overdrafts.

The State Advances Office and the Department of Lands and Survey probably represent between them the largest proportion of dairy-farmers' first land mortgages, holding as they do either mortgages or leases over some 22,196 holdings devoted mainly to dairying, in addition to many others classified as partly dairying. The former class only will be considered.

A. Department of Lands and Survey.

The Department of Lands and Survey has endeavoured to meet existing conditions by the use of its statutory powers under which it is able to remit and postpone rent and interest. Concessions in these directions have been granted following investigation of the financial position of individuals or groups of individuals according to their merits. The Department has also given relief through the suspension of principal payments falling due under table mortgages and the extension of such mortgages. The Commission is of the opinion that the Department does not exert undue pressure in regard to arrears outstanding, so long as it obtains a fair percentage of the revenue available for distribution.

The Department has 11,974 tenants and/or mortgagors on properties devoted mainly to dairying, the properties concerned aggregating 1,443,497 acres. These properties have a first debt load of £10,286,692, or £860 per farm, or approximately £7 2s. per acre, made up of capital value of leases and deferred-payment licenses and mortgages.

The average annual interest and principal charge per holding amounts to £49 17s., whereas the average arrears of rent and/or principal and interest per holding, assuming that all farmers concerned are in arrears, would be approximately £49 8s. Actually, of the total 11,974 farmers concerned, 5,906, or 49·3 per cent., are in arrears, the total arrears in respect of rent, instalment principal, and interest as at 31st March, 1934, amounting to £591,574, or £100 3s. per farmer. This balance of arrears is the amount carried forward subsequent to the writing-off of approximately one-seventh of the rent and interest accruing for the financial year 1933–34. The adjusted arrears as at 31st March, 1934, show an increase of 29·2 per cent. over the sum carried forward from 1933, thus indicating the progressive incapacity of mortgagors and/or tenants to meet their liabilities to the Department, even though they are under reasonably close supervision by the Department's field staff.

B. State Advances Department.

The State Advances Office has no statutory power to write off interest in respect of loans made to farmers, but has endeavoured to meet the position where mortgagors are making reasonable endeavours to meet their commitments.

The methods of alleviation adopted are—

(i) A postponement of principal instalments :
(ii) An extension of the term of the loan if the existing term does not exceed 36½ years :
(iii) The capitalization of arrears of interest.

The State Advances Department has 10,222 mortgagors who are essentially dairy-farmers, with an outstanding balance of principal liability aggregating £11,057,838, or approximately £1,081 per farmer, or £1,122 with arrears of interest added.

The net annual liability per farmer in respect of interest and principal on this debt is £80, whereas the average arrears of interest and principal per mortgagor would be £57 if all mortgagors were in arrear. Of the total 10,222 farmers concerned, 4,665, or 45·6 per cent., are actually in arrear with the Department, the total amount of arrears being £582,440, or £125 per farmer.

Whilst the number of mortgagors in arrears as at 31st March, 1934, had increased by only 1·5 per cent. during the year, the aggregate amount of arrears had increased by 21·9 per cent., illustrating the cumulative difficulties being faced by farmers indebted to the Department. The increase in arrears during the financial year 1933–34 amounted to 13 per cent. of the total annual amount due as interest and principal.

The State Advances Department is placed in a difficult position, for it has no power to write off interest at its discretion. Moreover, the provision enabling mortgagors to pay off mortgages tends to private refinancing by mortgagors with ample security when lower rates of interest are procurable.

C. Public Trust Office.

The Public Trustee holds mortgages over 1,493 properties used for dairying purposes, the greater number of which are on a long term amortized basis. In common with other lending institutions, the Public Trust Office has found it necessary to meet its mortgagors by various forms of concessions during the past four years. Where mortgages are on an instalment basis, postponements of principal have been made and postponement of interest has also been allowed in certain cases.

The Public Trust Office is not comparable with other State lending institutions. The margin of security demanded is higher. Loans from the Common Fund of the Public Trust Office are limited to 60 per cent. of valuations made by the State Valuation Department, and the Public Trust Office employs check valuers where it thinks fit. In actual practice, advances are made to approximately 50 per cent. of such valuations, and the Public Trustee in his evidence before the Commission stressed the fact that all his securities are carefully selected before being referred to his Loans Board.

Of the 1,493 dairy-farm securities held by the Public Trustee, 74 per cent. have met their mortgage interest in full, 387 farmers, or 26 per cent., being in arrear with interest to some extent. Of the 387 mortgagors, 200 are not more than one-half-year's interest in arrear, leaving 187 farmers, or 12·6 per cent., with an accumulation of unpaid interest. Waikato securities in this office are mortgaged to the extent of £13 per acre only, and are under close supervision. Nevertheless, 22·5 per cent. of these mortgagors are to some extent in arrear with interest. Of 913 mortgages held over dairy-farms in the best dairying districts in New Zealand, 23 per cent. are in arrear to some extent, and 9·8 per cent. of such loans are in arrear to the extent of more than one-half-year's interest.

The inability of 26 per cent. of farmers under mortgage to the Public Trustee to meet their liabilities on their first mortgages promptly and in full depends on such factors as farming ability, the weight of subsequent mortgages, the quality of stock, the proportion of unimproved land, the general suitability of land for dairying, and the extent to which long-standing trouble has been aggravated by present conditions. The situation thus disclosed is of great significance in view of the fact that Public Trust securities are chosen with greater discrimination than the average mortgagee normally exercises. It can fairly be deduced that, in general, first mortgages on dairy-farms generally are not less in arrear than the 1,493 held by the Public Trustee, and probably approximate more nearly to the less satisfactory position disclosed by the Department of Lands and Survey and the State Advances Department. Where second and subsequent mortgages are given over dairy-farms the ability of the mortgagor to meet interest charges becomes lessened unless the property is of a production capacity well above the average.

134. Causes of Financial Embarrassment :

At any price-level, the ability of the dairy-farmer to provide for adequate maintenance costs and working capital, to pay wages or to provide a reasonable reward for his own and his family's labour, to meet interest and to provide for capital repayment on mortgages and other commitments, depends

entirely on the extent of the capital commitments and on efficiency of production. The price-level for dairy-products is below that of 1914, and is more out of harmony with the farm-expenditure index than are prices of meat and wool. But for this fact, it might well be argued that the increased production of butterfat should place dairy-farmers in a position comparable with that of 1914.

The present disparity between dairy-farmers' incomes and their total costs is due, at the present level of prices, to the existing weight of mortgage interest, heavy local-bodies' rates, outstanding liabilities in respect of equipment, stock and chattels mortgages, and commitments of a private nature generally. This load has grown during a period of optimism consequent upon high prices.

The frequent transfer of properties from 1918 onwards was accompanied by an inflation of land-values and consequently of the mortgage load. The amount of cash paid by purchasers was in many cases small. In many cases, too, properties were exchanged without a cash deposit. Frequently, the object was to resell at a higher price rather than to farm the property. These speculative transactions were generally accompanied by heavy stock and chattels mortgages. Hence, the ultimate holder of the property often found it difficult or impossible to reduce his mortgages from income, particularly when prices receded. As an indication of the frequency of transfers in the North Island subsequent to the war, the Land District of Taranaki may be taken as reasonably typical. The total number of farm holdings in the Land District of Taranaki is 6,326, with an aggregate area of 1,211,808 acres of improved land. From 1918 to 1923 inclusive 6,428 transfers of rural properties were registered—a number equal to the present holdings in the district and embracing a total area of over 1,000,000 acres. From 1918 to the present date, 12,386 transfers have been registered for the district, embracing approximately 2,000,000 acres. It is safe to assume that many of the present holdings have not changed hands within the past sixteen years, and therefore a large number must have been transferred more than once during that time. This movement has led to a state of chronic instability, which can best be expressed in the words of a witness well qualified to give a sound opinion :—

> "In Taranaki and probably throughout New Zealand a common and perhaps almost universal practice has been to acquire land by the payment of a small cash deposit ranging from, say, 10 to 30 per cent., the remainder of the purchase-money being partly raised and partly 'left' on mortgage. Most of these transactions have been from the beginning unsound and a potential source of insolvency. Even with the continuation of what up to 1929 were regarded as reasonably stable conditions, the owner (so-called) was unable to meet his capital obligations when due. In a large number of cases he could not rely upon any accumulation of savings or profits, and he could not refinance because no lender would advance 90 per cent. or even 70 per cent. of the value of the security. The limit of advance which could reasonably be relied upon was two-thirds of a mortgagee's valuation; and, assuming stable conditions, this 66⅔ per cent. is probably no more than 50 per cent. of the owner's valuation or purchase price. This 'potential insolvency,' as I call it, remained concealed for many years, simply because the rising wave of prices allowed an owner to sell out, or to secure a higher valuation, or to obtain a renewal of his mortgages. A subsidence of the wave has now revealed the true position, and the point is that the depression has not primarily caused the present insolvency of so many, but is rather the searchlight which has revealed it. This fact appears to have escaped general notice or has been conveniently overlooked by those interested from the mortgagor point of view."

A review of conditions antecedent to the depression shows that the present position is due to a number of contributory causes, the relative significance of which cannot be determined. However, the problem of maladjustment confronting us is an immediate one and must be studied as it directly affects the financial stability of farm units.

135. Factors affecting the Cost of Production of Butterfat :

The cost-factors relating to butterfat production can conveniently be classified under three groups :—

(1) Maintenance, which includes upkeep of farm and plant, plus rates :
(2) Labour reward, whether paid or represented by the cost of living of the farmer and his family :
(3) Interest on capital employed.

The total costs within each of these groups are highly variable from farm to farm. Further, farms having low costs in any one group may have low, moderate, or high costs in the other groups. There is no necessary consistency in individual cases in the level of costs throughout the various groups. However, the degree of variation existing in each group can be assessed within reasonable limits for the major proportion of the dairy-farms in the Dominion. The limits of reasonable variation are—

(1) Maintenance costs vary from £2 10s. to £5 per cow :
(2) One male labour unit milks from fifteen to thirty-five cows :
(3) Capitalization per cow varies from £40 to £150 :
(4) A further variate affecting costs is butterfat production, which shows a herd average range from 150 lb. to 360 lb. of butterfat per cow.

For the purposes of this discussion, we are using the standard variations set out above, a labour reward of £100 per annum per male unit, and a 5-per-cent. rate of interest on total capitalization. On this basis the most efficient combination of labour, average herd yield, maintenance costs, and capitalization would result in a cost per pound of butterfat of as low as 4·89d. With the same degree of efficiency in labour and herd yield, but with higher maintenance costs and capitalization, the cost per pound of butterfat may rise as high as 10·22d. With the least efficient combination of labour, herd yield, maintenance costs, and capitalization, the cost per pound of butterfat may reach as high as 25·54d. With the same degree of inefficiency in labour and herd yield, but with lower maintenance

costs and capitalization, the cost per pound of butterfat may not exceed 14·87d. We therefore find an extreme range of cost per pound of butterfat between 4·89d. and 25·54d. according to the variation and interaction of the various cost factors. This illustrates the remarkably varied conditions which we are called upon to consider. The wide variation in individual cost items and in aggregate costs makes it difficult to attach any specific meaning to the statement that production costs exceed the pay-out received by farmers.

The collective evidence of farmers' returns of income and expenditure submitted to the Commission indicates that the minimum cost for maintenance, working-costs, and labour on highly productive farms managed with at least average efficiency is 8d. per pound of butterfat. Detailed records for the 1933–34 season from 197 farmers supplying one company in the Waikato are of particular significance. The cows milked on these farms aggregate 12,686, the total area being 25,312 acres. The area concerned is part of a good dairying district. A large percentage of the farmers are the original owners and a number of them have no mortgage indebtedness on their properties.

The average production for the 197 farms is relatively high both per cow and per acre, the per-cow production being 247 lb. of butterfat for the season and the per-acre production 124 lb. of butterfat over the whole area. In computing these costs, £100 per annum has been allowed as labour reward where family labour only is used, while in other cases the actual amount of wages paid was taken. The position disclosed is as follows:—

Groups.	Butterfat per Acre Range.	Farms in each Group.	Average Area per Farm.	Average Cows per Farm of 100 Acres.	Average Butterfat per Cow.	Per-pound-butterfat Costs.				
						Labour.	Interest paid on Land.	Maintenance.	Depreciation on Buildings, Stock, and Plant.	Total.
	lb.		Acres.		lb.	d.	d.	d.	d.	d.
Group 1 ..	200 and over .. (average, 226)	24	78	74	309	3·33	2·0	2·5	1·5	9·33
Group 2 ..	180–200 .. (average, 187)	26	102	69	274	3·6	2·08	3·0	1·5	10·18
Group 3 ..	160–180 .. (average, 169)	19	93	64	264	3·19	2·13	3·0	1·5	9·82
Group 4 ..	140–160 .. (average, 149)	29	123	58	252	3·62	2·33	3·0	1·5	10·45
Group 5 ..	120–140 .. (average, 130)	25	137	51	251	3·46	2·15	3·0	1·5	10·11
Group 6 ..	100–120 .. (average, 110)	27	128	49	227	3·97	2·79	3·0	1·5	11·26
Group 7 ..	80–100 .. (average, 88)	22	154	44	208	4·2	2·78	3·0	1·5	11·48
Group 8 ..	80 and under .. (average, 61)	25	210	31	201	4·22	2·55	3·5	1·5	11·77

It will be seen from the foregoing table that only two groups have an average cost below 10d. per pound of butterfat, whilst the average for the 197 farms is in the vicinity of 10·57d. per pound. These costs exclude interest and capital repayment on stock and chattels mortgages.

Evidence submitted in relation to some twenty farms situated in Taranaki shows that in only one case could liabilities be met in full on the past season's workings. The North Taranaki Mortgages Adjustment Commission estimated from its experience that 80 per cent. of dairy-farmers in Taranaki would be able to meet their liabilities and maintain production with a butterfat pay-out of 10d. per pound, provided that some additional return were procured from pigs, but that the remaining 20 per cent. would require relief from the burden of interest and/or rent.

136. Special Survey by Department of Agriculture:

To enable the Commission to obtain a more comprehensive review of the farmers' position, the Department of Agriculture undertook a survey of 550 farms situated in the main dairying districts of the North Island. Records which apply to the 1933–34 season were collected by field officers from farms wholly devoted to dairying, where milking-machines were used. Farms where share milkers were employed or where hand-milking was practised, or where pedigree herds were milked, were excluded from the survey. The survey also excluded farms of low carrying-capacity — that is, farms where less than one cow to three acres was carried. It may therefore be accepted that the farms surveyed are of the medium and better class, and that their management is at least of average efficiency. The field officers in their respective districts chose those farms where the owners were able to give reasonably accurate records of butterfat returns and expenses.

From the descriptive details given in Table 19 of the Statistical Appendix, it will be seen that the records are grouped in well-defined dairying districts, with a collective grouping for the Auckland Province into North and South Auckland. The main descriptive features are as follows:—

(1)	Total cows milked, 1933–34	31,636	
(2)	Total area of farms (acres)	68,250	
(3)	Butterfat per acre range (in pounds) by groups	74·93	to 165·91
(4)	Average production of butterfat per acre (in pounds)	117·73	
(5)	Butterfat per cow (in pounds) range by groups	211·3	to 296·6
(6)	Average butterfat per cow (in pounds)	254	
(7)	Cows carried per 100 acres—range by groups	35·45	to 61·54
(8)	Average number of cows carried per 100 acres	46·35	

The figures given above show that the farms under review have herds of above the New Zealand average in production, the Dominion figure for the 1933–34 season being 235 lb. of butterfat per cow over all cows milked. Similarly, the number of milking-cows per 100 acres is considerably above the average. These factors of higher yields and heavier carrying-capacity result in an average per-acre yield approximately 38 per cent. above the estimated Dominion average. These basic facts must be kept in mind when studying the resultant costs hereafter discussed.

In the discussion of total expenses connected with dairy-farms, interest charges have been purposely excluded owing to the variations which are found between individual farms. This charge is treated separately in succeeding sections, on the principle that income should first be allocated to the requirements of farm maintenance and labour reward, the surplus being available for interest and/or rent charges.

137. Costs (in Pounds) per Cow, by Districts:

Expenses, which are detailed in Table 20A of the Statistical Appendix, are broken into groups under the headings of main working-costs, which cover costs of farm upkeep, and milking-expenses in the shed; depreciation on plant and buildings; sundry overhead items, and stock-food purchased. Although, as is to be expected, the total expenses per cow for the various districts do not show great variation from the average for the whole, individual farms within districts vary materially from district averages, and certain districts collectively show fluctuation in certain items or groups of items.

138. Costs (in Pence) per Pound of Butterfat:

Total costs per pound of butterfat produced, as detailed in Table 20B of the Statistical Appendix, show somewhat greater variability between districts than do costs per cow, this being a reflection of the variable average per-cow production in different areas. The extreme range of variability between districts is somewhat over 1d. per pound of butterfat, with an average cost of 4·093d. per pound for the 550 farms covered by the investigation.

The variability of cost factors can best be studied on a percentage basis as set out in Table 20C of the Statistical Appendix. This table applies to costs per cow and per pound of butterfat as given in Tables 20A and 20B of the Statistical Appendix, and shows the percentage of each item within each main group, and the percentage represented by each group in the total cost.

The two major items of main working-costs are shown to be fertilizers and milking-shed power, which account for 53·25 per cent. of the total. The item "fertilizers" shows extreme fluctuations between districts, depending on the locality and on soil type. Any variation in milking-shed-power costs is mainly accounted for by the type of power used, or by different electric-unit costs in different districts. In addition to these two main items, local-body rates represent an important cost which also shows great variability. In most instances this is due to special rates and to drainage rates in particular.

139. Income and Costs per Acre, by Districts:

In discussing farmers' income and their ultimate financial position, certain additional factors must be considered, namely:—

(1) *Value of Butterfat produced.*—For the purposes of this discussion, pay-out is taken at a flat rate throughout. This enables any adjustment to be made should the figure used be considered unsuitable for any district. The figure taken is 9·25d. per pound of butterfat.

(2) *Returns from Pigs per Pound of Butterfat.*—These returns vary by farms and by districts, but a flat return of 1d. per pound of butterfat has been selected as reasonably typical.

(3) *Labour Reward.*—Actual costs for casual labour and for contract work on farms are included in working-costs, but reward to permanent labour must be assessed. In these computations an allowance of £100 per annum per male unit permanently employed has been used.

(4) *Capitalization.*—The total capital shown is made up of the Government capital value of land and improvements, plus an assessed value of stock, implements, and plant.

The position on a per-acre basis is shown by districts in Table 20D of the Statistical Appendix, the above standards being used in every case. The gross income per acre varies in direct relation to per-acre production, which ultimately affects the balance available to meet interest. This balance capitalized at a given interest rate represents the maximum capitalization which a farm can at any time support. Although Government valuations shown bear some relationship to the interest-earning capacity of farms surveyed in the various districts, in low-production areas capital values are above the capacity of the farms, whereas in high-production areas capital valuations can usually be met.

When, however, the capital value of stock, &c., is added to the Government valuation of land and improvements, there are only three districts where it is possible to pay interest on full capitalization—namely, Mid-Waikato, Eastern Waikato, and Bay of Plenty, where the average levels of per-acre production are approximately 141 lb., 166 lb., and 145 lb. respectively. The average balance available for payment of interest in respect of the whole 550 farms is not quite adequate to meet standard interest charges on the full capitalization.

140. Income and Costs per Pound of Butterfat :

In Table 20E of the Statistical Appendix the income and expenditure position is shown by districts on the basis of 1 lb. of butterfat. These results coincide with the per-acre results, and illustrate that the average interest load which should be carried is 3·479d. per pound, whereas the surplus for interest amounts to 2·769d. only.

These facts on a percentage basis are shown in Table 20F of the Statistical Appendix.

The discussion up to this stage has dealt only with district averages and the variations between districts in respect of production, and of income and expenditure. The district averages shown give no indication of the variability of costs from farmer to farmer. It is therefore necessary to treat the data collectively to show the full range of per-acre production and the consequent income and expenditure position.

141. Income and Costs per Acre according to Per-acre Production:

In Table 21 of the Statistical Appendix the whole 550 farms are grouped in order of their individual per-acre production, each group having a limited range of 25 lb. of butterfat, and the costs and capitalization of each group are ranged accordingly. The percentage of farms falling within each group is as follows :—

Per Acre.	Per Cent.
Under 75 lb.	12·4
75·00 lb. to 99·99 lb.	15·8
100·00 lb. to 124·99 lb.	19·6
125·00 lb. to 149·99 lb.	19·0
150·00 lb. to 174·99 lb.	15·4
175·00 lb. to 199·99 lb.	9·6
200·00 lb. to 224·99 lb.	5·3
225·00 lb. to 249·99 lb.	1·8
250·00 lb. and over	1·1

The outstanding features of this analysis based on per-acre production are—

(1) Total working-costs per acre increase as per-acre production increases.
(2) Labour reward per-acre increases as per-acre production increases.
(3) Working-costs and labour reward per acre do not increase so rapidly as gross income per acre, thus leaving an increasing amount available for interest as per-acre production increases.
(4) The per-acre balance available for interest, capitalized at 5 per cent., shows a movement between £3·78 and £99·08 within the extremes of production.
(5) Government capital value shows an increase as per-acre production increases.
(6) Total capital shows an increase as per-acre production increases.
(7) The comparatively heavy Government capital value placed on the lower-production farms makes it impossible for complete interest charges to be met under the conditions prescribed, until a per-acre production of approximately 175 lb. of butterfat is reached.

142. Influence of Per-acre Production on Costs and Interest-earning Capacity :

When costs are studied in relation to the level of per-acre production as set out in Table 22 of the Statistical Appendix, the effect of increased output in reducing costs of butterfat per pound becomes apparent. As previously stated, total per-acre costs increase with an increase in per-acre production, but less rapidly. This results in a marked lessening of cost per pound of butterfat. The same comparison is applicable to labour costs. In both cases, therefore, an increased surplus is available for interest. The position is set out in the following table :—

Costs of Butterfat-production in relation to Per-acre Production.

Per-acre Range (Pounds).	Total Working-costs (Pence per Pound).	Labour Costs (Pence per Pound).	Total Costs (Pence per Pound).
Under 75	5·014	4·439	9·453
75·00– 99·99	4·335	3·841	8·176
100·00–124·99	4·171	3·516	7·687
125·00–149·99	4·058	3·147	7·205
150·00–174·99	3·806	3·164	6·970
175·00–199·99	3·813	3·041	6·854
200·00–224·99	3·640	2·885	6·525
225·00–249·99	3·438	2·671	6·109
250·00–Above	3·498	2·490	5·988

Table 23 of the Statistical Appendix gives the percentage position of the last two aspects discussed.

143. Size of Herd in relation to Income and Interest Surplus :

When the price-level of dairy-produce drops materially, the size of the individual farm unit becomes of paramount importance. Small farms and small herds are generally associated with the uneconomic use of labour, and with heavy capital charges on account of buildings and improvements in relation to their gross production capacity. Even when prices are at a high level, such undertakings usually provide a comparatively low living income for the owners, but with falling prices most of them become progressively uneconomic. When tabulated according to the size of herds, the records of the farms under review illustrate this point most strikingly. The details given in Table 24 of the Statistical Appendix show the position on a per-acre basis as follows :—

(1) Butterfat production per acre does not vary materially with variation in size of herd, and therefore gross income per acre as affected by herd size is comparatively stable.
(2) Total working-costs per acre are higher where small herds are milked.
(3) Labour costs per acre are heavier in the case of small herds, because a minimum labour reward is necessary irrespective of the number of cows milked per labour unit.
(4) The resultant per-acre surplus available for payment of interest progressively declines as the size of herds declines.
(5) On farms of comparable butterfat-production capacity per acre, Government capital value tends to be higher in the case of small areas.
(6) Capital value of plant and stock per acre is necessarily higher on farms carrying small herds.

The combination of high working and labour costs and high capitalization places the owners of small herds in a very difficult position even where per-acre production is relatively high. In so far as these records go, and under the conditions prescribed, the result is that herds of fewer than 70 cows do not produce sufficient income to meet all liabilities in full.

144. Income and Costs per Pound of Butterfat according to Size of Herd :

Table 25 of the Statistical Appendix shows the same grouping of herds, and the effects of herd size on income and expenditure expressed on a per-pound-of-butterfat basis. It will be observed that the trend in working and in labour costs, and in the surplus available for the payment of interest, is in the same direction as that shown in the per-acre comparison. This would indicate that the smallest herd group could not meet in full its working-costs and interest on capitalization, unless butterfat rose by approximately 4d. per pound—that is, pay-out would need to be 13·25d. per pound. The position is set out in the following table :—

Cost of Butterfat-production in relation to Herd Size.

Herd-size Range.	Total Working-costs (Pence per Pound of Butterfat).	Labour Costs (Pence per Pound of Butterfat).	Total Costs (Pence per Pound of Butterfat).
Under 31	4·933	4·830	9·763
31– 40	4·705	3·962	8·667
41– 50	4·124	3·566	7·690
51– 60	4·386	3·604	7·990
61– 70	4·113	3·347	7·460
71– 80	3·719	3·128	6·847
81–100	3·634	2·909	6·543
100–Over	3·623	2·656	6·279

145. Incidence of Small Herds :

The position with regard to small herds as disclosed above is very significant in view of the prevalence in New Zealand of small herds. The total number of suppliers to butter, cheese, and dual-plant factories for the year ended 31st March, 1934, was 71,837. An estimate of the distribution of herds according to size and based on the latest official figures shows that nearly 50 per cent. of the herds in the Dominion average no more than four cows per herd. The details are as follows :—

Herd Range.	Percentage of Total Herds represented.	Average Size of Herd.	Percentage of Total Cows in Milk represented.	Percentage of Total Butterfat represented.	Percentage of Total Area devoted to Dairying represented.
1– 9 ..	44·0	4·0	7·2	7·1	7·3
10–19 ..	10·7	14·0	6·1	6·8	6·2
20–34 ..	18·8	26·6	20·7	21·7	20·7
35–49 ..	12·0	41·1	20·4	20·8	20·4
50–74 ..	8·8	60·3	22·0	21·9	21·9
75 and over ..	5·7	99·3	23·6	21·7	23·5
	100·00 = 75,000 herds.	Average = 24·2	100·00 = 1,816,000	100·00 = 426,699,242 lb.	100·00 = 5,000,000 acres.

It is evident that practically all of the farms represented in the tabulation are supplying milk or cream to factories, but obviously a large number of owners are not wholly dependent for a living on the proceeds from cows. It is estimated that there are some 34,000 dairy-farms in the Dominion on which the owners depend wholly or mainly upon the sale of dairy-produce for a livelihood.

Under favourable price conditions, and with the provision of working and developmental capital, it can be accepted that many of the farms at present uneconomic due to the size of herd carried, could be brought to a more economic level by the adoption of a sound developmental policy. The partially developed dairy-farm presents one of the most difficult problems arising out of the present depression, and demands careful consideration in any plan of reorganization or adjustment. In most such cases, the State is the mortgagee, and the protection of capital necessitates greater production and possibly the provision of additional capital. Even a partial attainment of this end, resulting in increased production, may, however, create a supply position contrary to future policy. From a national point of view the alternative would entail the irrevocable loss of much of the capital invested. In this event that portion of the capital which ceased to be productive would, in so far as it represented State-borrowed funds, become a dead-weight debt on the community. Undoubtedly the most tragic aspect of these cases is the psychological effect of an overload of debt with but slender chance of its liquidation from current income, the loss of assumed equity built up through years of effort, and in many cases privation on the part of the farmer and his family, and an expectation of a protracted period of low standards of living and loss of ambition.

146. Summary and Conclusions regarding Financial Position of Farmers :

On the evidence of State Departments, finance, farming, and other witnesses, and from the survey of 550 dairy-farms which on the average can be considered as being above the general standard of dairy-farms of the Dominion, it is found that—

(1) It is likely that at least 50 per cent. of the dairy-farmers of the Dominion are, in varying degree, unable at the present time to meet their financial commitments :

(2) Arising from the special survey made by the Department of Agriculture of 550 dairy-farms, the following conclusions are reached :—

(*a*) That in fact the 550 dairy-farms are on the average above the general standard of the dairy-farms of the Dominion. This is shown by the facts that, while the average butterfat production per cow for the Dominion is 235 lb., the average per cow of the farms surveyed is 254 lb. ; that while the Dominion average number of cows milked per 100 acres is approximately 24, the survey average is approximately 46 ; and that while the Dominion average butterfat production per acre is approximately 85 lb., the survey average is approximately 118 lb. Thus, conclusions reached from this survey are likely to understate rather than overstate the present economic disabilities of the average dairy-farmer.

(*b*) That the production-cost per pound of butterfat falls rapidly as the per-acre production rises.

(*c*) That even where the butterfat-production standard per acre is high, farmers with a small total butterfat output due to the small size or inferior quality of the herd carried show an insufficient surplus available for the payment of their relatively high interest charges, because their labour, working, and living expenses absorb too high a proportion of the gross income.

Subject to this important reservation, the survey discloses that—

(i) If a farm proposition is required to pay full interest at 5 per cent. on total capital at Government valuation in respect of land and fixed improvements, and on the assessed value of stock, plant, equipment, and all other improvements after meeting all costs connected with the farm, including the maintenance of production, then the necessary per-acre production is 175 lb. of butterfat or better ; and

(ii) In the same conditions as herein laid down, a herd of not less than 70 cows is required.

It should be noted, however, that the evidence of farmer witnesses shows that, in practice, full interest is seldom allowed and costs seldom fully computed. Many farming propositions which, according to the standards laid down for the purposes of this survey, would be found unprofitable, would be considered payable enterprises by farmers, because in many cases they make allowance only for interest on the actual debt owed, and seldom make adequate allowance for labour reward and for farm-upkeep.

147. Effect of Lower Interest-rates on Financial Position of Farmers :

The conclusions reached in the foregoing analysis have been based on an average interest-rate of 5 per cent. The Commission, however, is of the opinion that 5 per cent. is, in the present circumstances, an excessive rate of interest to pay on farm securities, and that the maintenance of such a rate is a serious impediment to the recovery of farmers from their present financial difficulties.

It is important that an estimate be made of the probable effect of an interest reduction on the economic position of farmers, since the Commission's financial recommendations are largely designed to enable farmers to finance at current rates of interest.

For the purposes of such an estimate, an interest-rate of 3½ per cent. has been substituted for the rate of 5 per cent. used in the survey of 550 farms; but the amounts of capitalization, working-costs, and labour reward have in no way been altered. On this basis the following results are obtained:—

(1) That with an interest reduction from 5 per cent. to 3½ per cent., the minimum per-acre butterfat production necessary to enable a farmer to meet his commitments in full is reduced from 175 lb. to 100 lb. This would mean that where per-acre production is the decisive factor, 72 per cent., instead of 18 per cent. of the 550 farmers included in the survey would be able to meet their commitments in full.

(2) That with an interest reduction from 5 per cent. to 3½ per cent., the minimum herd number required to enable a farmer to meet his commitments in full is reduced from 70 cows to 40 cows. This would mean that where herd size was the decisive factor, 68 per cent., instead of 22 per cent., of the 550 farmers would be able to meet their commitments in full.

In view of these facts, the Commission considers that were farmers enabled to refinance on more favourable terms and at lower rates of interest, a large number of those now in financial difficulties would be re-established on a more secure basis. In other cases, it is apparent that some help in addition to interest-rate reduction is required, while in still other cases the finances are so unsound at any level of interest-rates that it is unwise to allow the present unsatisfactory position to continue. With these considerations in mind, the Commission has investigated the merits of various methods of relief and has finally found in favour of the Rural Mortgage Corporation proposal outlined later in this report, on the grounds that it is the most likely to meet the varied requirements of the situation.

Alternative Means of Relief.

148. Proposals for Financial Relief:

The Commission found that the only available alternatives for providing substantial immediate relief to dairy-farmers were either some form of subsidy or some form of refinancing. This conclusion was reached once the Commission had agreed as to the inadvisability of further statutory reductions of interest and the impropriety of statutory reductions of principal.

149. Objections to Proposal for Subsidy by way of Gift:

The only merit of the proposal to grant a subsidy by way of financial relief is its directness. Assuming that the necessary sum could be found, the payment to farmers of any agreed amount per pound of butterfat would immediately ease their present difficulties.

The Commission, however, considers that the objections to the proposal are too weighty to justify the making of any recommendation in its favour. In the first instance, any method of relief which is general and which therefore makes no distinction between farmers able to pay and those not able to pay, is inequitable both to the recipients and to the taxpayers who are called upon to provide the necessary funds. The causes of financial embarrassment as well as the degree of it vary so much from case to case that a "blanket" subsidy inevitably provides more assistance than some require or deserve and less assistance than others require or deserve, and it confers a bonus on those who need no assistance at all. Admittedly this objection can be raised and has been raised against the general application of such measures as exchange depreciation and statutory interest reductions. The Commission considers that methods of relief should, in the future, be designed to give consideration to the claims and merits of individual cases.

It is impossible, however, to apply a subsidy according to the particular needs of claimants without undertaking an elaborate investigation into individual cases and setting up costly machinery for the purpose. Even were this done a fundamental difficulty would arise in any effort to distinguish between necessitous and non-necessitous cases. Inevitably decisions would need to be arbitrary in nature, and unfairness and injustice could not be avoided. Thus some cases would prove necessitous through sheer inefficiency, but nevertheless would be eligible for assistance that would be denied to a man who had kept himself above the bread-line through efficiency or possibly by overworking himself and his family. The effect would be to place a premium on inefficiency and a penalty on thrift and hard endeavour. The attempt to discriminate adequately between claimants for relief could thus never be entirely successful, while the costs of any scheme substantially different from a "blanket" subsidy are likely to be disproportionately high.

More important economically than either of the above objections is the fact that no subsidy scheme could provide effective control over the farmer's use of the funds received or over the efficiency of his farm-management without becoming administratively top-heavy. If the subsidy were used for consumptive or personal purposes only, as might be the case, it would contribute nothing towards the reduction of farmers' mortgage liability and would therefore be valueless in hastening the desired escape from the prevailing state of debt-suspension. A subsidy from taxpayers, without any machinery of supervision, could have no assured effect in increasing efficiency of production, and might therefore prove valueless as a permanent contribution to the farmer's economic improvement. The general effect, we suggest, would be to impose an unfair burden on taxpayers to provide no more than a temporary amelioration of the farmer's financial difficulties.

The Commission attaches great importance to the need for assisting farmers in financial difficulties not only by monetary means, but also by way of helpful advice and budgetary supervision directed towards greater farm efficiency; but it is impressed also with the need of protecting the taxpayer from tax charges which serve no sound purpose. A subsidy in the form of an uncontrolled gift satisfies none of the requirements of sound relief, and ultimately benefits neither receiver nor giver.

150. Objections to Proposal for Subsidy by way of Loan :

It has been suggested that a subsidy need not be in the form of a gift, but could be granted as a loan to be repaid when higher butterfat prices made repayment possible. The suggestion here is that the loan would be secured on the general assets of the dairy industry as a whole. The Commission is unable to believe that such a loan could be justified even if it could be successfully raised. It is impossible to predict the future course of butterfat prices, and therefore impossible to be sure when the loan could be repaid, or indeed if it could ever be repaid.

This last objection is given additional weight when the amount of the necessary loan is considered. At the present level of butterfat-production each penny of subsidy means an aggregate sum of approximately £1,750,000. Hence a subsidy of 2d. per pound of butterfat, the figure most persistently advocated, would mean a charge of £3,500,000 annually for as long as butterfat prices did not rise above their present level. Any fall in butterfat prices would mean a corresponding increase in the total sum to be provided if it were desired to maintain butterfat pay-out at a standard level. If there is no early improvement in market conditions, the aggregate liability of the industry for loans raised might rapidly assume huge dimensions ; and if recovery is sufficiently long-delayed, the liability would be passed on to a new generation of farmers. Indeed, a more immediate inequity would arise, since every new purchaser or lessee of dairy land would become liable for the charge, even though he had not participated in the benefit.

The Commission has borne in mind also the possibility in the near future that the rate of production may have to be controlled should quantitative restrictions be placed on the export of our dairy-products. It is evident that in such an eventuality any subsidy scheme which makes no provision for the effective supervision of farming and farm production would seriously accentuate the problems of overproduction. In a national scheme of production-control, any subsidy proposal, being essentially unselective in its incidence, would stimulate the continued and increased production of butterfat from all properties irrespective of their suitability for the purpose.

Finally, the Commission considers that any subsidy which is virtually a sustenance payment would be viewed with disfavour by the United Kingdom. Hitherto, New Zealand has refrained from this expedient despite its widespread adoption elsewhere. This restraint on New Zealand's part represents, in our opinion, so much potential bargaining-power, and this may prove of great value to us when a review of the dairy-produce trading position is made at the expiry of the existing trade agreements between the United Kingdom and other countries. The risk involved in abandoning at this date our policy of unsubsidized export is too serious to be undertaken on behalf of a proposal which has no outstanding merits of its own.

151. Guaranteed Price :

Proposals for a "guaranteed price" for butterfat were also presented to the Commission. The basic idea is that, irrespective of the external-market price for dairy-products, the New Zealand farmer should be guaranteed a price for his butterfat at least sufficient to cover his sustenance and replacement costs. In a period of low external prices the guaranteed price would require the payment of a subsidy to producers at least sufficient, after maintenance had been provided, to bridge any gap between income and replacement costs. In periods of high external prices producers would pay back the amount of subsidy previously received, and perhaps—although the evidence is indefinite on the point—a sum in addition to establish an insurance fund.

152. Objections to Proposal for Guaranteed Price :

The initiation of such a scheme at the present time would involve the immediate payment of a subsidy and therefore is open to the objections already cited. On general principles we consider that equalization schemes of this sort cannot successfully be launched unless an "insurance" fund has already been accumulated. The proper time to make the experiment would therefore appear to be in a period of high or rising prices when farmers have surpluses available for disposal. The establishment of an equalization fund, assuming that in prosperous years it were practicable, would serve not only as a guarantee of repayment, but would also enable the industry as a whole to meet some or all of its deficits in bad years and so diminish or waive entirely its claims for community assistance.

Whether administered by the industry or by the community, the scheme has a special and probably insurmountable difficulty. The basis of the scheme is found in the contention that at present prices gross income does not cover gross expenses. This, however, is true only of farms where costs of production are relatively high. Where costs are relatively low and other conditions favourable, farmers can cover gross expenses even at present butterfat prices. But if the scheme is to embrace all farmers at present in financial difficulties, the guaranteed price must be based on maximum costs of production. If the scheme is not intended to be all-inclusive, an arbitrary decision would need to be made as to the cost of production to be taken as fair or typical. An all-inclusive scheme would penalize the community or the more prosperous or efficient section of dairy-farmers to protect the less prosperous or inefficient. A restricted scheme would provide too much room for contention.

The Commission considers that proposals of this kind, however attractive they may appear on the surface, are inherently unsound and hedged round with serious administrative difficulties, and that any experimentation with them cannot be recommended.

RURAL MORTGAGE CORPORATION.

153. Introduction.

In view of the objections to proposals involving direct assistance to producers by means of a subsidy or a guaranteed price, the Commission directed its attention to evolving some form of long-term rural

finance that would achieve the desired objectives and be generally acceptable as not violating established principles. It recognized that any scheme that it formulated must afford protection to mortgagees as well as relief to the mortgagors, must be permanent and continuous in nature, and must aim at restoring confidence in investments in rural securities.

154. Justification for Re-organization of Rural Finance:

We take the following propositions as having been established in the preceding discussion :—

(1) At prevailing price-levels for primary products a considerable percentage of our farms cannot carry their full present interest burden, even where the quality and productivity of the land and the efficiency of management are of a high standard. In many such cases an attempt to meet interest charges in full trenches on the requirements of the farm for adequate maintenance and development and consequently leads to deterioration of properties that in the national interest should be maintained in full production.

(2) The necessity for relief from an undue burden of interest charges rests on the ground that for a considerable period prevailing rates of interest on rural investments have failed to move in sympathy with the current rates of interest on other investments and the prices of primary produce. While it is usual for adjustments in interest-rates to lag behind price movements, the present maladjustment in the case of rural-mortgage interest-rates is so great as to undermine the efficiency and retard the development of much land that is nationally indispensable for production purposes at any level of prices.

(3) The lack of equilibrium between the prevailing rates of interest on rural investments and the prevailing levels of interest-rates generally and of primary-produce prices has been induced by several factors. We have drawn attention to the fact that the restrictive legislation that was designed as a necessary measure of relief to protect farmers from the full force of a severe fall in produce prices has had the additional effect of freezing farm finance. We are satisfied that, though this legislation has, in the circumstances, been of great general benefit to both mortgagee and mortgagor, it has tended to prevent decisive adjustments and has made it practically impossible for many farmers to refinance at lower rates of interest.

(4) Partly as a result of the continuance of the mortgagors relief legislation, confidence in rural investments has been impaired. In our judgment, this necessary confidence will not be restored and cheaper rural finance will not be generally available until the mortgage situation is made more fluid and until mortgagees are provided with greater security and greater freedom from restriction than exist at present.

(5) Apart from the effect of relief legislation in impeding refinancing on cheaper terms, interest-rates have been maintained at an unduly high level through the inability or reluctance of private and State lending institutions fully to meet the situation. In the case of some State Departments, however, freedom to reduce interest-rates has been limited by their own obligations in regard to loan-moneys.

(6) The lack of confidence in the investment future of rural lands, the restrictive effect of relief legislation, and the reluctance or inability of our major lending institutions to make adequate interest reductions have had the cumulative effect of maintaining interest-rates on rural investments at an unduly high level.

155. Requirements of Effective System :

It is a requirement of an adequate system of rural finance that the necessary capital should be available at a rate of interest that is not far above the rate of return on gilt-edged securities. This requirement, in its turn, necessitates the provision of a sound security in order that the margin over the gilt-edged rate may be kept stable at a level that will cover costs of administration and provide a reserve against possible losses. It is desirable also that investors who prefer to lend their capital on the security of broad acres rather than to invest in other securities should be enabled to do so with confidence and without fear of restrictions being imposed on them ; and, further, that such investors should be afforded an opportunity of investing, if they wish, in *bloc* securities over land, thereby avoiding the risk of losses on individual mortgages and relieving themselves of the necessity of supervising their investments. We have in New Zealand no organized mortgage market, and mortgages accordingly possess little negotiability. A system of mortgage-bond finance such as we have in mind, would enable mortgagees to realize upon their securities more readily than at present, and make mortgage investments more attractive.

156. Table Mortgages :

In this connection, we are firmly of the opinion that the most suitable form of mortgage finance for farmers is long-term amortizable mortgage credit. Short term " flat " mortgages in the majority of cases cannot be paid off at the expiration of their terms, and successive remortgaging is always costly and sometimes impossible to arrange. A system of long-term amortizable mortgage credit enables the farmer to have his mortgage indebtedness definitely arranged on a permanent basis ; and the small annual repayments gradually increase the value of his equity, and make it possible for him, in the event of a succession of lean years, to arrange for a postponement of principal instalments or an extension of the term of his mortgage. As we have previously pointed out, however, long-term amortizable mortgages are not a suitable form of investment for the private investor, for the annual repayments of principal are not sufficiently large to be conveniently reinvested ; and the length of

the term, in the absence of a mortgage market, involves the tying-up of the investor's capital for a longer period than is usually desired. A system of long-term financing of farmers through a Rural Mortgage Corporation, which will enable private investors who desire to realize on their mortgages to exchange them for bonds carrying current interest-rates, and will also provide an outlet for the capital of persons who wish to invest in a form of collective mortgage security, appears to be the most suitable.

157. Necessity for Variable Interest-rates for Rural Mortgages :

An objection to long-term mortgages at fixed rates of interest is that they are unsatisfactory to investors when rates of interest are low, and unsatisfactory to borrowers when rates of interest are high. In the one case, the mortgagee is required to accept a rate of interest that is probably lower than the average of the rates current during the term of his mortgage ; and, in the other, the mortgagor is required to pay a rate that is probably higher than the average, and he may be unable to maintain his payments if commodity prices fall for a period of years. There is therefore a case for the establishment of a system of long-term mortgage credit, bearing variable rates of interest in conformity with the current rates earned by investment capital.

Although the provision of variable interest-rates for mortgages and for mortgage bonds is somewhat novel, it is submitted that such a proposal is eminently sound. When it is remembered that an investor who buys shares in a trading company has to take an interest or dividend return which varies according to the profit-earning capacity of the company, there can be nothing unreasonable in the provision that the interest return on a mortgage investment should be varied at stated intervals in conformity with the general current rates of interest.

158. Essentials of Rural-credit System :

An adequate long-term mortgage credit system that will enable the present difficult position to be met, and that will be suitable for future needs, should meet the following requirements :—

(*a*) It should be sufficiently elastic to permit a closer approximation of interest-rates on rural securities to the rates of interest on other securities, and consequently to the prevailing levels of produce prices. It is not suggested, of course, that the general level of interest returns on securities other than mortgages rises or falls simultaneously with, or to the same extent as, the general level of prices of primary products, but the response is more rapid.

(*b*) It should be designed to minimize as far as possible speculation in land in times of prosperity, and to stabilize land-values. Excessive inflation of land-values in periods of rising prices and panic depreciation of land-values in periods of falling prices are fruitful causes of financial disaster.

(*c*) It should make an effective discrimination between suitable and unsuitable cases for accommodation, and make it possible to end the present state of debt suspension.

(*d*) It should protect economic farming propositions by providing an efficient method of budgetary supervision in cases where existing mortgages cannot be realized in full, and provide for control of that portion of the farmer's indebtedness which cannot, at the present level of prices, be liquidated immediately.

(*e*) It should aim at a wider adoption of the principle of regular amortization of mortgage debts. Short-term "flat" loans should, as far as possible, be restricted to cases in which it is reasonably probable that further accommodation will not be required at the expiration of the mortgage term.

(*f*) It should enable a mortgagee to realize such portion of his present mortgage as is sound at the present level of prices, and it should also provide a form of investment in collective securities over land, which would have the advantage of negotiability and be otherwise attractive to investors.

159. Recommendations for Establishment of Rural Mortgage Corporation :

We therefore recommend the establishment of a rural mortgage organization to be known as the New Zealand Rural Mortgage Corporation. In order that the Corporation may be soundly informed on matters relating to primary production and finance, it is suggested that the governing body should include one or more representatives of the directorate of the Reserve Bank and the Chairman of the Council of Production and Trade.

District Rural Mortgage Commissions should be set up by the Corporation as required. It is thought that in the initial stages the existing Mortgage Adjustment Commissions, which have gained much valuable experience, would be able to act usefully as District Commissions. They would continue to be vested with their existing powers for the remainder of the currency of the Mortgagors and Tenants Relief Act, and would have conferred on them such additional powers as were thought necessary to enable them to give effective assistance to the Corporation. It may be necessary to set up additional Commissions and to appoint additional members to the existing Commissions. District Commissions should have seconded to them sufficient staffs of officers to provide valuation, supervisory, and budgetary services. These officers should be drawn from the existing field staffs of the State Departments of Agriculture, Lands and Survey, State Advances, and Valuation.

160. Functions of Rural Mortgage Corporation :

We recommend that the functions of the Corporation be as follows :—

(1) To establish a system of long-term-mortgage credit for farmers approved by the Corporation.

(2) To issue bonds in exchange for existing mortgages and to obtain funds for lending on new mortgages from the sale of bonds, such bonds to be perpetual but redeemable by purchase by the Corporation.

(3) To decide at adjustment date the rate of interest payable on bonds, the rate to be fixed at such a level as to ensure that bonds will command par value at that date. Bonds issued at any time between adjustment dates will carry such rates of interest as will enable the bonds to be sold at par, such rates to be adjusted at next regular adjustment date to conform to the general rate. (Adjustment date means a date recurring triennially on which the interest-rates payable on bonds and the interest-rates to be paid by mortgagors are respectively to be decided by the Corporation for the succeeding term of three years.)

(4) To fix at each adjustment date the mortgage interest-rate payable in respect of all mortgages held by the Corporation at that date, such interest-rate to be higher than that payable on bonds by a margin sufficient to cover costs of administration and to provide a reserve fund. Mortgages taken at any time between adjustment dates will bear such rates of interest as will provide the same margin over the interest-rates on bonds issued at that time, and these mortgage interest-rates will be subject to adjustment at the next regular adjustment date to conform to the general rate.

(5) To prescribe from time to time such annual amortization-rates as it may deem desirable.

(6) To accept repayment on any interest date, without notice, of sums of £25 or multiples thereof on account of principal.

(7) To purchase its own bonds with repayment-moneys and reserves.

161. Applications for Loans or Accommodation :

We recommend that the following procedure be adopted :—

(1) Upon the coming into force of the necessary legislation, the Corporation will give notice that applications will be received from mortgagors and mortgagees who desire to take advantage of its facilities.

(2) The Corporation will not be empowered to grant an application in respect of any mortgage the term (or extended term) of which has not expired unless (*a*) the opposite party consents, or (*b*) the Court is satisfied that the mortgagor is entitled to relief under the Mortgagors and Tenants Relief Act. Notwithstanding anything hereinbefore contained, the term (or extended term) of a mortgage shall be deemed for the purposes of this legislation to have expired (*a*) at the expiration of twelve months from the date on which the mortgagor gives notice to the mortgagee of his desire to have the security taken over by the Corporation, or (*b*) at the expiration of such shorter period of notice (if any) as may be expressed in the mortgage deed. In any such case, the Corporation may receive and grant an application before the expiration of the period of notice, but must not complete the transaction until the period has expired.

(3) Any mortgagor who has not made application within a time to be prescribed will not be protected or eligible for protection under the Mortgagors and Tenants Relief Act, but applicants whose applications have been received within the time prescribed will remain protected until their applications have been decided by the Corporation.

162. Consideration of Applications and Classification :

Before granting any application the Corporation will refer it to the appropriate District Commission, which will appraise the security offered by the applicant, and classify it as either—(A) Security suitable for accommodation ; or (B) security unsuitable for accommodation.

Class (A) above may be broken into three groups :—

(I) Properties where a valuation discloses that the full amount of existing mortgages may safely be taken over by the Corporation at the prescribed rate of interest :

(II) Properties where a portion only of existing mortgages can safely be taken over by the Corporation as above, but where the residue of the applicant's liabilities, whether secured by mortgage or not, appears to be capable of liquidation within a reasonable time. In such a case, the portion of the mortgage debt or debts that cannot safely be taken over in exchange for bonds will be placed by the Corporation in a suspense account, provided the mortgagee or mortgagees concerned consent to the basis of settlement that the Corporation is prepared to adopt. Where consent is withheld the report of the District Commission setting out the proposed basis of settlement will be submitted to the Court, which will take into consideration all the relevant circumstances and have regard to the public interest and the interests of the mortgagor and mortgagees respectively ; and if the Court considers it equitable so to do and is satisfied that there is a likelihood of the portion of the mortgage debt or debts so placed in a suspense account being liquidated within a reasonable time, it will make an order approving the basis of settlement. The applicant will then be budgeted in much the

same manner as under the present system of budgeting adopted by the Mortgage Adjustment Commissions, in order to liquidate (*a*) the portion of the mortgage debt or debts placed in a suspense account and (*b*) his other liabilities. The applicant's other liabilities are an important consideration, for it is futile to readjust his mortgage position if his other liabilities are unmanageable and likely to lead to bankruptcy:

(III) Properties as in (II) above, but where a compromise with mortgagees and/or creditors other than mortgagees is necessary to reduce the residue of the applicant's liabilities to a manageable amount.

Cases under (I) may be dealt with directly by the Corporation, but cases under (II) and (III) must be submitted to the Court for decision if no voluntary agreement can be effected with the mortgagee or mortgagees whose mortgages cannot be taken over *in toto*. If any objection of such mortgagee or mortgagees is upheld by the Court the security automatically falls into Class (B) above. If creditors other than mortgagees do not agree to a compromise in cases under (III), the Court may approve of a compromise to which creditors holding 75 per cent. of the applicant's indebtedness (other than mortgage indebtedness) have agreed and made it binding on the remainder.

Class (B) includes securities that cannot be accepted under (I), (II), and (III) above, and securities that are considered unsound owing to the unsuitability of the land and/or the inefficiency of the applicant.

163. Method of Financial Adjustment:

The amount of bonds in exchange for which the Corporation may take over existing mortgages shall not exceed 80 per cent. of the total valuation of land and improvements. In the case of new mortgages the amount to be lent shall not exceed 70 per cent. of such valuation. These percentages are maxima, and it is not suggested that the Corporation should finance up to the maximum limit in all cases. It is thought, however, that a somewhat narrower margin than has in the past been deemed necessary can be safely accepted when valuations are based on a low level of produce prices.

Mortgages taken over in respect of securities classed (A I) will be on an amortized basis, but the mortgagor will not be under budgetary control.

Mortgages taken over in respect of securities classed (A II) and (A III) will be on a flat basis, but the mortgagor will be under budgetary control. The surplus proceeds over budgetary requirements (which term includes provision for liquidation of debts other than mortgage debts) will be distributed equitably according to priority among the mortgagees whose balances are held in the Suspense Account, and may be used to pay interest at a rate not higher than that payable to the Corporation and/or capital in respect of such balances. If and when all such debts are liquidated, the mortgagor will be released from budgetary control, and his mortgage liability to the Corporation will be readjusted on an amortizable basis.

Mortgagors whose securities are classified in Class (B) will, as from a date to be fixed, be removed from the protection of the Mortgagors and Tenants Relief Act. The District Commission should, however, in each such case make any recommendations to the mortgagor and the mortgagee that it considers advisable, but thereafter the process of adjustment would be outside the province of the Commission.

164. Limitation of Application of Mortgagors and Tenants Relief Act:

Except for the protection given in the case of mortgages taken over under the scheme outlined above, the Mortgagors and Tenants Relief Act will cease, as from a date to be fixed, to apply to rural mortgages, and the doctrine of "replacement mortgages" will not apply to rural mortgages given after the coming into force of the proposed legislation.

165. Revaluation of Securities:

The Corporation may from time to time revalue any security under its control, and if its productive capacity (on a volume basis) has increased, may take over the balance held in the Suspense Account or part thereof and issue bonds accordingly to the person or persons entitled thereto.

166. Basis of Valuation:

Efficiency in valuation of securities is fundamental to the soundness of the financial position of the Corporation, for its ability to collect interest from mortgagors and to pay interest to bondholders will depend thereon.

The basis of valuation suggested is—

(*a*) Interest at rate determined:
(*b*) Products taken at assessed values:
(*c*) Working and maintenance costs assessed at a reasonable level:
(*d*) Labour reward to farmer and family assessed at a reasonable level.

NOTE.—(*b*), (*c*), and (*d*) can be arrived at only by careful analysis of prices and costs, prices in particular being studied in relation to market movements and the general supply position. This must be undertaken by the Corporation or on its behalf.

The process of valuation will therefore be—

(*a*) Assess total income:
(*b*) Assess amounts for working and maintenance, and for labour reward:
(*c*) Difference between (*a*) and (*b*) equals the amount available to meet interest-charges.

(*d*) Value securities over stock and chattels after making allowance for value of collateral security over land, and allocate an amount of money as interest and sinking fund in respect of liabilities thereunder. The amount so allocated may meet the claims in respect of such liabilities in whole or in part, according to the financial position of the farmer.

(*e*) The remainder of income will be available for interest and will be capitalized at the determined rate, the resultant capital sum being 100 per cent. valuation of land and improvements.

167. Leaseholds :

So far we have dealt only with mortgages of freehold properties. Leases for short terms are not, as a general rule, subject to mortgages. In the case of a long-term lease, however, it will be necessary to make a valuation on the basis of the lessee's interest, and to make allowance for the rent reserved by the lease, or for such reduced rent as may be arranged.

168. General :

We make the following recommendations of a general nature :—

(1) *Government Finance.*—It is anticipated that the initial expenses in connection with administration will be impossible of recovery for some years, and it is therefore necessary that the Government take up bonds, as required by the Corporation, up to £100,000. These bonds should be free of interest for three years, and thereafter bear interest at current rates payable from the general revenue of the Corporation.

(2) *Government Guarantee.*—In order to secure the lowest possible rates of interest, and to make the Corporation's bonds attractive to investors and suitable securities for the investment of trust funds, the Government should guarantee the payment of interest thereon, and declare the bonds to be trustee securities.

(3) *Mortgages due on Transfer.*—The term of every existing mortgage taken over by the Corporation and the term of every new mortgage accepted by the Corporation should expire, and the principal moneys secured thereby should become due and payable on the transfer of the property encumbered, unless the Corporation approves of the transferee and consents to the transfer. This condition would not apply in the case of a devise of land under a will or of a transmission to the executors or administrators of a deceased mortgagor.

169. Instruments :

Approved forms of transfer of mortgage to the Corporation and of variation of terms and conditions of mortgages so transferred should be prepared with the object of simplifying procedure and minimizing expense. Memoranda for endorsement on or annexure to the existing mortgages, such as are now provided for under the Land Transfer Act, would serve the purpose. Similarly, a simple form of acknowledgment, issued under the authority of the Corporation, would be evidence of a mortgagee's right to an interest in a suspense account in respect of the portion of his mortgage debt included therein.

170. Efficacy of Rural Mortgage Scheme to meet present and future Requirements of Rural Credit :

Earlier in this part of our report we set out the requirements of an adequate rural long-term-mortgage credit system. We now propose to comment, in the light of those requirements, on the system that we have detailed. For convenience of reference we give the same lettering to the following paragraphs as we gave to the paragraphs setting out the requirements of an adequate system :—

(*a*) The provision of variable rates of interest will afford the necessary flexibility and permit the rates of interest on rural securities to maintain a closer approximation to the yield from capital invested in other forms of security. It aims at modifying the traditional economic policy of holding the amount of money payments stable irrespective of changes in the weight of those payments ; and it is designed to substitute, to a partial extent, constancy of burden for constancy of nominal payments.

(*b*) The system affords a check on purely speculative purchases of land, by reason of the power given to the Corporation, on the transfer of a property that is subject to mortgage, to call up the principal-moneys secured by a mortgage, unless it approves of the transaction. The object of this provision is not to hamper legitimate sales of farm properties, but to ensure that the Corporation shall not be compelled to accept a purchaser who, through inefficiency or lack of sufficient capital, may bring about the deterioration of the mortgaged property. Further, the existence of the power to call up the principal-moneys will enable the Corporation, on a sale being made, to require, as a condition precedent to its approval being given, that a portion of the purchase-money be applied in reduction of the principal owing on mortgage. It is thought, too, that the provision made for variable rates of interest will tend to remove the incentive to land-speculation by placing an obstacle in the path of capitalization on inflated prices of produce. It will, however, freely permit the capitalization of an increase in the productive capacity of land, while impeding the inflation, through speculative purchases, of land-values. The variable rate will also prevent the undue deflation of land-values, by reducing the claims of interest on the gross income, when prices fall and remain for a period of years at a low level.

(*c*) and (*d*) We have dealt in another part of this report with the necessity for rationalizing the system of mortgage relief, by drawing a definite line of demarcation between cases in which a return to solvency is reasonably likely and cases that are hopelessly insolvent, and with the necessity for affording planned assistance, on sound lines, to the former. The scheme that we have outlined enables this objective to be attained with justice to mortgagor and mortgagee. We are convinced that where assistance is necessary budgetary supervision is the only means of assuring that the assistance given will be genuinely beneficial. It provides a method of gradually liquidating the excess indebtedness both through improved farm efficiency and through ordered and economical control of expenditure. Budgeting, in essence, is a joint effort on the part of mortgagor and mortgagee to realize the best results from the enterprise in the interests of both. It has the special merit, too, of converting the nature of the assistance given to mortgagors from a relief basis to a genuine investment basis.

(*e*) The principle of regular amortization is fundamental to the scheme.

(*f*) The majority of "flat" mortgages in respect of which relief has been applied for are now overdue. In many cases the mortgagees require the repayment of their principal, but are unable to obtain it. We have recommended the adoption of a scheme by which their mortgages, or such part of them as may be considered to be sound, may be realized upon. While it is impossible to repay the mortgagees in cash, the issue of negotiable bonds, carrying a Government guarantee of interest at current rates, will place them in a better position than they would be in if a large number of forced sales were permitted to take place. In the case of mortgages that cannot safely be taken over *in toto* by the Corporation, the provisions we have suggested for the transfer of the less sound portion of the mortgage debt to a suspense account controlled by the Corporation, and for budgetary supervision by the Corporation, will materially assist the mortgagees concerned. The effective handling of this portion of the mortgage indebtedness will be a vast improvement on the position at present existing in many cases. Our proposal aims at substituting controlled for uncontrolled indebtedness, and disposing of the less sound surplus of debt by wise management of farm and finance. It provides a means of attaining the objective of releasing mortgagors from relief conditions and mortgagees from restrictions. We have recommended that mortgagors whose mortgages are not overdue be given the right to refinance through the Corporation on giving twelve months' notice to their mortgagees. Many long-term mortgages contain a provision enabling repayment to be made before the due date, and our recommendation makes the application of this provision universal, in so far as existing mortgages are concerned. We think, however, that in most cases likely to be affected by this part of our recommendations the mortgagor and the mortgagee would agree to continue the existing security at an agreed rate of interest.

171. Position of Private Lenders :

It is not our desire to hamper the private lender, but to encourage him by freeing him from the restrictions that are now imposed on him. He will, in many cases, especially when he is perfectly satisfied as to the soundness of the security and the efficiency and reliability of the borrower, prefer to secure a somewhat higher rate of interest than he would derive from mortgage bonds and carry what he will regard as a negligible risk; and he will, of course, have the short-term mortgage field fully open to him.

172. Writing-off of Capital Indebtedness :

We think that it is due to the farmers of the Dominion that we should state that they did not ask to be allowed to repudiate their capital liabilities. While nearly all witnesses who gave evidence on the subject of mortgage finance put forward a case for relief from high interest commitments, scarcely one urged that a mortgagor should be relieved of his capital liability, although a few witnesses made an exception in the case of vendor mortgages. We found, however, that it was impossible to distinguish vendor mortgages from other mortgages. Many of them were, and are still, perfectly sound propositions and have been distinctly helpful to the purchasers. It must be remembered, too, that where an element of gambling has been present, through land being sold at an unduly high price and a mortgage taken by the vendor for a large part of the purchase-money, both vendor and purchaser were parties to the speculation, and both relied on high prices for produce being maintained indefinitely. One cannot blame the other. Then, too, many vendor mortgages have been transferred or submortgaged and are no longer in the hands of the original vendors. We are of the opinion that no special form of relief should be given in the case of vendor mortgages, not only because it is impossible to do so, but because they will fit into their proper place in the scheme that we have outlined and will be dealt with according to their basic soundness or unsoundness.

173. The Personal Covenant in Mortgages :

A number of witnesses urged that legislation should be passed to abolish the personal covenant in all mortgages. This request appears to us to be founded on a lack of comprehension as to the nature of a mortgage, especially a mortgage under the Land Transfer system, which is now practically the only system of registration of titles in force in New Zealand. A mortgage is not a mere pledge of land of a nature similar to that of a pledge to a pawnbroker of some article of personal property. The difference is that the mortgagor retains possession of and the legal title to the land for so long as he complies with

the obligations he has entered into, whereas in the case of an article pledged to a pawnbroker possession passes to the pawnbroker, subject to a right of redemption. The essential part of a mortgage is the personal covenant to pay interest and repay the principal; and the charge given over the land is for the purpose of better enabling the mortgagee to enforce his rights under the covenant. Not infrequently the reputation of a borrower weighs with a lender as greatly as does the value of the land offered as security. A mortgage debt is not essentially different from any other contract debt, and the fact that a particular security has been charged with its repayment does not make the debt any the less a liability of the mortgagor. Mortgage finance would be difficult and costly to borrowers if a mortgagee had to make allowance for the possibility of a deteriorated farm being thrust upon him at any time, with an intimation that the mortgage debt was thereby cancelled. Cases in which a mortgagor has been required to honour his personal covenant, after he has parted with the mortgaged land to a purchaser who has defaulted and has allowed the land to become deteriorated, are very often cases in which the original mortgagor has been so anxious to make a sale at a high price that he has overlooked the fact that the purchaser is inefficient and has insufficient capital to carry him through a period of low produce prices. We do not recommend the abolition of the personal covenant contained in mortgages.

174. Reference in Budget to Mortgage Corporation :

We had arrived at our conclusions in respect of rural-mortgage finance before the Budget was brought down by the Right Hon. the Minister of Finance. In his Budget speech reference was made to a somewhat similar scheme, covering urban as well as rural mortgages, and providing for a merging of all existing Government lending bodies. The scheme that we have outlined is not intended in any way to be regarded as being put forward in opposition to the Budget scheme. We realized that it would in any event have been regarded as an instalment of a wider scheme, but we felt that, though we could not separate dairy-farm mortgage finance from rural-mortgage finance generally, we could not, consistently with the terms of our Order of Reference, go beyond rural finance and embark on the consideration of a scheme embracing urban-mortgage finance.

175. Urgency of Case for Financial Relief of Dairy-farmers :

The time at our disposal was insufficient to enable us to make a full investigation of rural-mortgage finance, or to work out in detail the machinery that would be necessary to put a new system into operation. We are impressed with the necessity of having rural-mortgage finance readjusted and rationalized with a minimum of delay, and we have therefore preferred to put forward our suggestions in broad outline rather than delay them until they had been elaborated in greater detail and discussed more fully with experts. We recognize that the working-out of details, the setting-up of the necessary organization, and the consequent rearrangement of the Government lending Departments will require time, and may possibly necessitate a modification of some of our recommendations. Nevertheless, we feel it necessary once again to emphasize that the need for financial relief and readjustment is a matter of great urgency; and that if it is not provided by some such means as we suggest it will in all probability have to be provided in such less desirable ways as by grant of subsidy or some form of "guaranteed price."

Finance required for improving Quality of Products.

We have in other parts of this report stressed the necessity for putting the dairy industry on a better footing as regards quality of production, and we have expressed the opinion that an improvement in quality will be reflected in improved prices. We now collate and summarize the proposals regarding finance that are involved in the measures necessary to raise the standard of quality of our dairy-products. Our proposals regarding rural-mortgage finance and the measure of assistance to be given to the Herd-testing Federation are dealt with separately.

176. Dairy-factory Equipment :

We have said that a large number of cheese-factories are obsolete, and require rebuilding or substantial renovation. Better starter-room and curing-room accommodation and facilities are needed in many cases, and the manufacturing equipment requires modernizing. To a smaller degree, butter-factories require modernizing, but on the whole the equipment of butter-factories is relatively satisfactory. It is estimated that about £500,000 will be required under this head.

177. Dairy-farm Equipment :

The most essential requirements on the dairy-farms are—(*a*) The provision of water for cooling purposes; (*b*) improvement of milking-sheds (mainly concreting work); (*c*) the overhaul of milking and separating plants; (*d*) adequate sterilizing apparatus; and (*e*) provision for boiling water. It is estimated that about £1,500,000 will be required for improvements that are imperatively necessary under this head.

178. Dairy Research :

The provision for the Dairy Research Institute of additional buildings and plant for work at present being undertaken and for additional laboratories for dairy engineering investigations and research work in applied animal nutrition, and for the provision of four district service laboratories, with plant and equipment, will, as stated elsewhere, require an expenditure of £25,000. Additional facilities can be made available by making arrangements for branches of the Dominion Laboratory to assist in making routine tests.

179. Tuberculosis Eradication :

The eradication of bovine tuberculosis, which is regarded as a necessary measure, both from a health point of view and as a strong advertising feature, is estimated to cost from £750,000 to £1,000,000, the amount depending on the extent to which veterinary assistants are employed to assist qualified veterinary surgeons and the basis of compensation to owners that may be decided on. The Commission has expressed the view that, regard being had to the present financial position of the dairy-farmers, a fairly generous scale should be adopted, and has accordingly accepted the higher estimate of £1,000,000. This capital sum, which includes the operating-costs of the initial campaign, would be spread over three years. Thereafter an annual sum of approximately £150,000 would be required to keep the dairy herds free from tuberculosis, and to minimize the incidence of other diseases.

180. Summary of Capital Expenditure :

The foregoing capital sums may be summarized thus :—	Total. £	Recoverable. £
(*a*) Factories	500,000	500,000
(*b*) Farms	1,500,000	1,300,000
(*c*) Research laboratories, &c.	25,000	Nil
(*d*) T.B. eradication	1,000,000	Nil
	£3,025,000	£1,800,000

It is assumed that the Unemployment Board will be prepared to subsidize the expenditure under headings (*a*), (*b*), and (*c*) to the extent of from 20 per cent. to 25 per cent., thus reducing the figure of £3,025,000 to £2,620,000 or £2,518,750. The matter of a subsidy has been referred by us to the Unemployment Board, and it has undertaken to consider any proposal on its merits.

181. Recurring Expenditure :

The annual recurring expenditure is estimated as follows :—

(i) Farm dairy instruction and dairy-factory instruction, which it is intended shall be universal, will cost £81,700. Part of this sum (approximately £16,000) is already a charge on the Consolidated Fund, which will be relieved to that extent.

(ii) Tuberculosis-control, after the three-years initial period, will cost approximately £150,000. This sum will also cover the cost of controlling mammitis, contagious abortion, sterility, and other diseases.

(iii) Laboratory and research services, to be provided by the Dairy Research Institute, will cost £25,000 per annum. About £7,000 is derived at the present time from the Government and the Dairy-produce Control Board, which contribute equally, leaving an additional £18,000 to be found. It is proposed that the Government contribution be at the rate of £7,000 per annum, and that the balance be found by the Dairy-produce Control Board.

(iv) Additional advertising and trade-development services may be set down at approximately £50,000 per annum.

The total annual charges may be summarized as follows :—

	£
Farm dairy and dairy-factory instruction	81,700
T.B. control (after three years), say	150,000
Dairy Research Institute	25,000
Additional advertising and trade development	50,000
	£306,700

182. Provision of Finance :

It has been proposed that the Government shall provide the £1,000,000 required for the initial period of tuberculosis eradication and the £25,000 required for building and equipping research laboratories. These may be regarded as matters of national importance and national benefit. An estimated loss of £200,000 is provided for in respect of recoveries of moneys made available for improving farm equipment, and this it is thought should also be borne by the State. It is possible, however, that, if advances to farmers for this purpose are made by law a first charge, as they should be, on the properties improved, this loss can be reduced to negligible proportions. The net capital cost to the State should not, therefore, exceed £1,025,000 to £1,250,000.

It is unlikely that the whole of the £2,000,000 capital expenditure for factories and farms will be required to be found by the Government from loan-moneys, for, with low rates of interest prevailing, most factory-owners and many farmers will make their own arrangements for finance. It is recommended that advances made by the Government should be repayable over a period of from two to five years, according to the circumstances of each case, and that in necessitous cases no interest should be payable for the first year or two years.

The annual charges now borne by the Government in respect of farm dairy instruction and dairy-factory instruction and the Dairy Research Institute are as follows :—

	£
Farm dairy and dairy-factory instruction	16,000
Dairy Research Institute	3,500
	£19,500

It is proposed that the Government shall be relieved of the contribution of £16,000 per annum towards farm dairy instruction and dairy-factory instruction, and that it shall contribute £7,000 per annum—instead of £3,500 per annum—to the funds of the Dairy Research Institute. The revenue derived by the Government from grading fees at present exceeds the expenditure on grading services by about £11,000 per annum, and we recommend that the grading fees remain unaltered, but that the surplus be paid over to the Dairy-produce Control Board to counterbalance the saving effected in respect of instruction. The annual outlay of the Government will, therefore, be as follows:—

	£
Dairy Research Institute	7,000
Refund of surplus of grading fees	11,000
	£18,000

This represents a saving to the State of £1,500 per annum. Actually the saving is £12,500, for the regulations under the Dairy Industry Act provide that surplus grading fees shall be applied towards a reduction of grading fees in future seasons.

It is proposed that the Dairy-produce Control Board shall be responsible for the remainder—£288,700—of the £306,700 for annual charges as detailed above. The means by which the Board will be enabled to find the necessary sum are detailed in the section of this report relating to the reorganization of the Board.

Derating of Farm Lands.

During the sittings of the Commission a number of witnesses asked that consideration should be given to the total or partial derating of farm lands. Some of the witnesses desired that rates for the construction and maintenance of roads should be levied only in respect of purely local roads, and that the State should assume the sole responsibility for the construction and maintenance of all arterial roads, whether main or secondary, in rural areas. Other witnesses desired an alteration of the incidence of rating for Hospital Boards, and submitted that hospital levies should be assessed as between urban and rural areas on a population basis. Other witnesses drew attention to the hardship suffered by settlers in special-rating areas, in which, owing to some of the settlers having abandoned their holdings, the whole burden of special rates fell upon the settlers who were struggling to retain their holdings.

In so far as road rates are concerned, while it may be conceded that arterial roads traversing rural districts are largely used by persons who pass over them while proceeding from one point outside the district to another point outside the district, the streets of boroughs and town districts are similarly used by through traffic. The demand for better roads, which followed the development of motor transport, led to the creation of the Highways Board. That Board, out of revenues derived from special taxation levied on petrol and tyres, has expended large sums on the reconstruction of roads, and has relieved local bodies of a considerable part of the cost of road construction and maintenance.

183. Suggested Relief in Special Cases:

The Commission is of the opinion that the evidence does not warrant it in making a recommendation for the derating of farm lands. It makes the suggestion, however, that the Government should consider the granting of special relief in cases in which an undue burden falls on the ratepayers of a particular area. One such instance was mentioned by a witness. A special-rating area was created, and the construction of the necessary roads was financed by means of a loan from a State lending Department. Owing to the depression many of the settlers in the area abandoned their holdings. The properties abandoned were mortgaged to the same State lending Department, which is exempt from liability for rates due thereon. The result is that the onus of paying a rate sufficient to meet the loan charges falls on the few remaining settlers; and it appears that, unless some relief is given, the State Department that lent the money for road-construction and financed the individual settlers will eventually come into possession of all the lands. In that case, the burden of the loan charges will be the responsibility of the County Council within the jurisdiction of which the special-rating area is situated.

In cases similar to this, and in cases where, owing to special circumstances, a special hardship arises, it appears to us to be desirable that a special subsidy should be made available to the local body concerned. At the present time the Government grants a general subsidy on local rates, but there seems to be justification for special consideration being given to particular cases.

184. Hospital Board Levies:

Regarding the levies made annually by Hospital Boards, the present system is that each Hospital Board determines the total sum that it requires and apportions that sum among the local bodies within its area in accordance with the capital value of the lands in the districts controlled by the respective local bodies. Each local body collects through its own rating system its share of the Hospital levy and pays it to the Hospital Board. The suggestion made by some of the witnesses was that the apportionment as between urban and rural local bodies should be made on a population basis instead of on a capital-value basis. We have examined the statistical position as given in the "New Zealand Local Authorities Handbook" for 1934, and we find that the hospital rates levied by boroughs and independent town districts for the financial year 1932–33 amounted to £291,457, and that those levied by counties and dependent town districts amounted to £251,660. The urban population is approximately 60 per cent. of the total, and it appears, therefore, that at the present time urban and rural areas are being levied upon by Hospital Boards in almost direct ratio to their respective populations. The difference is so small as not to warrant an alteration being made in the system; and the difference that exists is being progressively reduced by reason of the trend of population to the towns.

On the general question of rating, it should not be overlooked that residents in urban areas also have a heavy burden of rates to meet, and that any relief given to residents in rural areas must be at the expense of urban residents. Further, in both urban and rural areas, the local bodies are elective, and accordingly the power of controlling, within limits, the expenditure of local authorities is in the hands of the electors themselves.

THE QUALITY OF NEW ZEALAND DAIRY-PRODUCE.

185. Market Importance of Quality :

Although New Zealand butter and cheese are in general very acceptable to buyers in the United Kingdom and elsewhere, the Commission considers that every effort should be made to raise the quality of our total output to a standard definitely superior to that of other countries. The good reputation enjoyed by New Zealand dairy-products is a fitting tribute to past efforts made by the industry, particularly when it is remembered how rapidly the volume of output has expanded. Nevertheless, there is still room for improvement, and at the present time an improvement of quality is far more important than an increase in quantity. Competition in the world's markets is so fierce that quality is of paramount importance, and becomes increasingly so the lower prices fall. All exporting countries are giving serious attention to this matter, and therefore we cannot afford to relax in any degree our efforts to retain the margin of preference we at present have over most countries. Moreover, the need for penetrating new areas in existing markets—for example, in the North of England—and for developing trade in new markets makes the task of raising the quality of our exports a matter of vital importance.

The successful marketing of any foodstuff requires that it shall be of high and uniform quality and delivered to the grocer or consumer in a clean package of attractive design. It is an added advantage in the sale of any particular produce if guarantees can be given that it is highly nutritious and that it has been manufactured under hygienic conditions and scientific control. This is particularly true of dairy-products, and, through a recognition of this, manufacturers of foods such as margarine and processed cheese have been able to build up a trade which is now competitive with ordinary dairy-products. In fact, one of the most characteristic features of the present age is the increasing variety of artificial and synthetic products which are able to compete with primary products because of their high and uniform quality. Primary producers endeavour to protect themselves from this competition by claiming that their products are superior because they are "natural," but with the rapid development of science appeals on these grounds are becoming progressively less effective. The only effective way of meeting this competition is through the application of comparable methods of business and manufacturing efficiency. In the case of dairy-products, little difficulty was experienced in the past on account of variable quality, but the conditions of the present day call for the application of the most exacting standards. With Danish butter and Canadian cheese normally commanding premiums over our own products, and with intense competition and universally low prices, the problem of quality improvement becomes one of fundamental significance to the Dominion. From the evidence submitted to us we are of the opinion that the quality of our products is affected by a number of small defects in production and manufacture, and by insufficient knowledge of the real cause of these defects.

186. Conditions favouring the Economic Production of High-quality Dairy-produce :

New Zealand has advantages, possessed by few other exporting countries, for the production of dairy-produce of the highest quality. Climatic conditions in New Zealand are pre-eminently suited to dairying. Throughout the whole year milking-cows are fed almost exclusively on pasture, which is known to excel other foods as a source of vitamins. Moreover, dairy-products manufactured from milk provided by cows fed on natural pasture are much superior in flavour and other quality features than are dairy-products manufactured from the milk of cows fed largely on concentrates and supplementary feeds. In this respect we desire to remark that New Zealand butter has been shown to be definitely superior in vitamin content to Northern Hemisphere butters. Moreover, as dairy cattle are not housed, conditions favour the production of pure milk and cream and the prevention of the spread of diseases.

Dairy-produce in New Zealand can be produced at a lower cost than in most other countries in the world, since pasture is the cheapest of all foods, while the structure of our dairy-farming is largely mechanized (a principle shown to yield the best results everywhere) and our dairy factory system is relatively efficient.

Distance from overseas markets is the only disability we suffer in the marketing of our produce, but with the development of more efficient and rapid ocean transport, this disadvantage is yearly becoming of less importance. Steamers can now transport produce to Britain in from thirty to thirty-five days, modern methods of storage largely overcome storage defects, while up-to-date methods of manufacture reduce the risk of undesirable changes in quality likely to occur in storage.

187. Characteristic Features of New Zealand Dairy-manufacturing Processes and their relation to Quality :

The outstanding features on the technical side of the New Zealand dairy industry are: (*a*) The practice of manufacturing butter almost exclusively from "home-separated" cream; (*b*) the relatively large size of dairy factories, especially of those making butter; (*c*) the universal manufacture

of butter from cream of low acidity; (*d*) the manufacture of cheese mainly from pasteurized milk; (*e*) the widespread use of rich milk for cheesemaking; (*f*) the grading of milk, cream, and dairy-produce; and (*g*) the seasonal nature of dairying. At this stage, these features are very briefly reviewed so that their effects may be contrasted with practices in other countries. They are more fully dealt with in later sections.

(*a*) In striking contrast with the practice in Denmark and other European countries, where butter is manufactured from milk separated at dairy factories, most New Zealand butter-factories, like those in Australia, United States of America, and Canada, manufacture butter from cream separated on farms. It is estimated that 97 per cent. of New Zealand butter is made from "home-separated" cream. New Zealand experience shows that when "home-separated" cream is delivered to factories in a fresh state, the butter made from it is superior to that made from cream separated at the factory. Home separation is far more economical than factory separation, and it avoids the possibility of spreading disease from farm to farm through the use of mixed skim-milk. Unfortunately, home separation has been attended by practices which are detrimental to quality. It has given rise to the collection of cream from very wide areas of supply in an attempt on the part of factories to cut down overhead manufacturing-expenses. The result has been such severe inter-factory competition that wasteful overlapping has become a serious evil and, what is worse, that factories have in many instances accepted cream which, had they not feared to lose the supply by displeasing farmers, they would have rejected in the interests of quality manufacture.

(*b*) The typical size of dairy factories in New Zealand is much larger than that in other countries, partly because of the greater productivity of our dairying land and partly because of the practice of manufacturing butter from "home-separated" cream. The average output of 154 factories mainly engaged in butter-manufacture in the dairying season 1933–34 was 910 tons, and the average output of 311 cheese-factories was 334 tons. Large-scale plant and machinery and labour-saving devices are widely used. These large factories can manufacture produce at a lower cost than small units, unless there happen to be special factors favouring the smaller units. There is, however, no definite relationship between the size of factory and the quality of produce manufactured. More important in this connection than size of factories is the range of supply. This is more particularly so in the case of butter-factories, because when cream cannot readily be collected from farms and delivered to factories while still fresh, the quality of the butter suffers.

(*c*) New Zealand butter is made exclusively from cream that approximates natural acidity, Continental butters, on the other hand, being made from cream treated with starter to develop the higher acidity that is associated with their characteristic flavour. Whilst such butter is very appetizing when freshly made, it does not keep well in storage, and frequently develops a distasteful "fishiness," whereas our butter has a much milder flavour and keeps fresh for a long time in cold storage. The low acidity of New Zealand butter is obtained either by employing only perfectly fresh cream or by neutralizing the acidity in sour cream by the addition of a suitable neutralizing agent, mainly bi-carbonate of soda. Where cream is fresh and therefore of low acidity on receipt at the factory, it is pasteurized, cooled, and kept at a low temperature for some hours (generally overnight) before churning. Occasionally a small amount of starter is added. Butter made from such cream, if free from food-taints and other odours, has a rich creamy flavour of the type sought in Britain, and it keeps for long periods.

Where cream is slightly or distinctly acid on arrival at factories, as may happen if it is not delivered daily, the addition of a neutralizer is essential. If this cream is clean in flavour and if the neutralizing process is carefully carried out, very good quality butter can be made. As a rule, however, cream which is not delivered daily is unlikely to be clean in flavour and is therefore prejudicial to quality. Furthermore, the knowledge that neutralization of cream improves the keeping-quality of butter has led in many cases to overneutralization, and consequently to the manufacture of butter that is insipid in flavour and lacking in the desired rich creamy aroma.

(*d*) Over 90 per cent. of New Zealand cheese is made from pasteurized milk, while British and Canadian cheese are made exclusively from raw milk. While the flavour of the New Zealand product is milder than that of the others, reports from Britain show that the majority of our customers have now come to prefer it to a stronger flavour. Pasteurization of milk has assisted the production of cheese which is very uniform in flavour, and this is highly appreciated by United Kingdom buyers.

(*e*) Milk used for cheesemaking in the North Island of New Zealand is drawn mainly from herds in which the Jersey breed predominates, and the milk is therefore very rich in fat. In some districts, the average fat content of milk delivered to factories during the whole season exceeds 4·4 per cent., and in the autumn months exceeds 5 per cent. The fact that British and Canadian cheese are made from milk much lower in fat content has given rise to controversies respecting the best type of milk for cheesemaking and the methods of payment for milk used for cheesemaking.

(*f*) The grading of milk, cream, and dairy-produce is more systematic and thorough than in most other countries. All milk and cream delivered to dairy factories must, by Government regulations, be graded and a differential rate of payment made according to grade. One crate of cheese from each vat of cheese and one box of butter from each churning of butter intended for export is graded at the grading ports, and every churning of butter is examined for moisture and salt content.

(*g*) New Zealand dairying is essentially seasonal, each season commencing in July–August and extending to May of the following year. The greater part of the produce is therefore made when cows are relying entirely on food from pastures.

Since butter must be supplied to the market in fairly uniform quantities throughout the year, supplies in periods of plenty have to be stored to balance periods of low production. This creates the need for manufacturing butter which will stand up to long periods of storage and gives rise to difficulties in regard to manufacture, storage, and marketing.

188. Average Grading Returns :

The following table shows average grading returns for produce exported during each of the dairying seasons ended 31st July since, 1927 :—

Season.	Butter.			Cheese.		
	Finest.	First.	Under First.	Finest.	First.	Under First.
1927	75·85	21·75	2·40	55·62	41·37	3·01
1928	69·77	27·72	2·50	30·55	66·96	2·48
1929	70·24	27·47	2·28	29·31	68·86	1·82
1930	76·30	22·33	1·37	23·61	74·46	1·93
1931	76·01	22·84	1·15	17·28	80·04	2·68
1932	78·54	20·42	1·04	22·95	75·14	1·91
1933	79·32	19·74	0·94	17·29	80·50	2·21
1934	78·00	20·75	1·25	26·04	72·06	1·90

189. Need for Greater Care in Milk and Cream Production :

Many witnesses called attention to the need for greater care in the production and treatment of of milk and cream on dairy-farms, and all have agreed that it is desirable to raise the quality of the raw material delivered to dairy factories for manufacture into butter and cheese. Too much importance cannot be attached to this aim, for it is obviously unsound to attempt to manufacture finest-quality dairy-products from low-quality raw material. It is unfortunately not recognized by those farmers who send second-grade milk and cream to dairy factories that their supplies, if mixed with good milk and cream, may reduce the quality of the whole supply, or if treated separately may make produce so poor in quality that it endangers the prestige of our butter and cheese in the world's markets. While there is ample evidence to show that a distinct improvement in the quality of cream and milk sent to factories has followed the introduction of cream and milk grading, it is clear that too much low-grade material continues to be supplied. Most witnesses agree that only from 10 to 15 per cent. of the suppliers constantly give serious trouble in this respect, but the evidence was conclusive on the point that a small proportion of bad supply can seriously affect the general level of quality production. For example, " non-acid " milk in cheese-factories has given rise to considerable trouble in cases where only one supplier was at fault.

190. Dominion Farm-dairy Instruction :

Numerous witnesses stressed the necessity for a Dominion scheme of farm-dairy instruction as a means of improving the quality of milk and cream supply. They pointed out that the care taken by the farmer is the most important factor in the production of finest-grade milk and cream, and that competent instruction on farms is the quickest method of improving the quality of raw products delivered to factories. It is claimed that instruction is particularly important in New Zealand, because over two-thirds of the dairy cows are milked by machinery, and 97 per cent. of the butter is manufactured from home-separated cream. Many milking-machines and separators in districts where there are no instructors are reported to be in an unsatisfactory state ; and hand-drawn milk is not always satisfactory. The conditions on farms supervised by farm-dairy instructors are reported to be more satisfactory. It is further claimed by many that a system of farm instruction would be of value from an advertising point of view, as it would be part of a comprehensive system of official supervision throughout the processes of production and manufacture. At the present time a voluntary scheme of farm-dairy instruction is in operation. On request from one or more dairy companies, the Department of Agriculture appoints an instructor and pays his salary, half of the salary so paid as well as all of the travelling-expenses incurred being refunded to the Department by the company or companies concerned. The officer in each district works in close co-operation with factory-managers, and gives first attention to suppliers who supply low-grade milk or cream. About 50 per cent. of the farms producing cream and 30 per cent. of those supplying milk to cheese-factories have instructors. These instructors visit only the suppliers of the company or companies to which they are attached, and the scheme is therefore incomplete in its scope and often excludes farms in districts where instruction is most urgently needed.

Objections to the present scheme were based on the grounds that some of the instructors are required to supervise too many farms, and that some farmers resent the inspection of their plant when others in the same district are not included in the scheme. A few witnesses stated that farm-dairy instruction is not essential if strict grading standards are observed.

The industry, at successive National Conferences since 1929, has passed resolutions emphasizing the need for instituting a system of universal farm-dairy instruction. It is plain that a Dominion-wide scheme of farm-dairy instruction would have many advantages. In such a scheme the Dominion would be divided into areas, each controlled by an officer who would be employed by a central body such as the Dairy-produce Control Board. The extent of each area would be determined by the number of suppliers whom one officer could supervise, and would vary from district to district according to the particular conditions prevailing. Estimates of the number of suppliers whom one instructor could efficiently supervise have varied from four hundred to nine hundred. When the scheme is in full operation, it is probable that the supervision of six hundred milking-sheds would on the average be a

reasonable task for one Inspector. On this basis, approximately a hundred and twenty instructors would be required for a Dominion-wide scheme, as compared with the thirty-four employed at the present time. It is desirable that the officers be viewed more as instructors than as Inspectors in order that farmers will look upon them as advisers. Nevertheless, they should have power to compel compliance with the regulations, and should have the status of Inspectors under the Dairy Industry Act. While the instructors should not be directly responsible to dairy companies, they should work in close co-operation with factory-managers in their districts and give most attention to those farmers whose milk and cream are low in quality, and they should be required to submit to directors of dairy companies monthly reports on the condition of milking-sheds in their area.

In view of the large number of instructors that would be required, and in view also of the need for uniform standards of instruction, it would be necessary to appoint a few supervising instructors to co-ordinate the work of the ordinary instructors and be the connecting-link between them and the Dairy-produce Control Board.

The careful selection and training of suitable men for the work is imperative. Before entering upon their duties they should undergo a thorough course of not less than a month's duration in farm-dairy instructional work under an instructor already experienced in the duties, and they should acquire an understanding of the principles of dairy hygiene and of the scientific treatment of milk and cream. They should be required to pass an examination, and only those with the requisite personality should be chosen for the work.

We recommend that a universal system of farm-dairy instruction, on the lines indicated above, be instituted and maintained by the Dairy-produce Control Board.

191. Licensing of Dairy-farmers :

Many witnesses urged the desirability of licensing suppliers to dairy factories. It was pointed out that this would place upon farmers the onus of having their milking-sheds properly equipped for the production of clean milk, and that consequently less difficulty would thereafter be experienced by farm-dairy instructors. Farmers who produce milk for city supply require to be licensed, and it is reported that the scheme of licensing in this case yields very good results. Some witnesses have considered that the proposal would be difficult to put into effect, because of the work involved in inspecting all dairies and of the cost of issuing licenses. Moreover, these witnesses consider that farmers owning only a few cows and devoting their land chiefly to purposes other than dairying would strongly resent licensing. These objections would, however, be met by the employment of the proposed farm-dairy instructors whose duties would include that of issuing licenses.

As a condition attaching to the grant of licenses, farmers would be required to bring their farm equipment up to standards laid down by the farm instructional service. This, however, should impose no undue hardship upon factory suppliers if effect is given to the recommendations in this report regarding the provision of finance on easy terms for effecting improvements in milking-sheds and equipment. The standards laid down should, we consider, be the same as those laid down for farmers supplying city milk. This standard could not, of course, be attained by all factory suppliers at the outset, but we consider that where a supplier reaches the required standard his license should be endorsed to permit him to supply city milk. In our opinion there is no good reason for requiring a lower standard in the case of farmers supplying factories than is required in the case of farmers supplying city milk, and equally there is no good reason why any farmer who satisfies the highest standards demanded should be prevented from selling his milk for city consumption.

A fee would have to be charged to cover the administrative costs of the scheme, but it is suggested that this be a nominal one, not exceeding 5s. per annum.

We recommend that a system of registration of dairy-farms supplying milk or cream to dairy factories be instituted on the lines indicated above, and that the owners or occupiers of such farms be licensed.

192. Plant and Equipment in Farm Dairies :

There is considerable evidence of the lack of suitable plant and equipment in farm dairies. It has been stated that in many cases the milking-plant is obsolete. For instance, iron piping is still used in some milking-machines in spite of the dairy regulation requiring that "the milk-pipe shall be of brass tinned on the inside and no iron piping, whether galvanized or not, shall be used in the vacuum or releaser system." Some milking-sheds require to be rebuilt while a greater number need repair and in a number of cases yards are not concreted. On many farms inadequate provision is made for a supply of boiling water for the proper sterilization of equipment, and in many cases there are no proper facilities for cooling milk and cream.

Special attention has been directed to the multiplicity of types of milking-machines on the market and to the weaknesses in the design of some. It is important that the principles of design be standardized so that ease in cleaning plants may be assured. It is suggested that this matter should be given close attention by the organization proposed for the testing of dairy machinery.

The evidence obtained indicates an unsatisfactory position in regard to the provision of boiling-water in milking-sheds. Electric heaters are widely used, but although extremely convenient, in some cases give indifferent results. Electric supply authorities and others rightly point out that heaters of good design used in accordance with instructions give good results and that no dissatisfaction with them should result if they are properly attended to and if they are of adequate size. There is evidence that difficulty is experienced in providing adequate supplies of boiling-water by electrical means on farms supplying cheese-factories owing to the large volume of water necessary for the sterilization of the milk-cans. Some farmers use hot water which they cart from the factory to the

farm, but this is valueless for sterilizing purposes and should be prohibited. If steam, which is the most reliable of all sterilizing agents, could be cheaply produced by electrical means, these difficulties would be largely overcome. Some devices for producing steam by electricity have recently been introduced and are worthy of careful trial. Various other types of steam-raising devices which burn wood, coal, or oil, have also recently been placed on the market. In addition, there is a wide variety of ordinary coppers, chip-heaters, and the like. In view of the vital need for economical methods of producing boiling-water and steam on dairy-farms, we recommend that the whole question of the amount of heat required, methods of providing the heat, and the efficiency of different types of heaters be thoroughly investigated by the dairy machinery testing organization already referred to.

An abundant supply of pure and cold water is necessary at milking-sheds for the washing of plant and equipment and for the cooling of milk and cream. It is essential that immediately after production milk and cream be rapidly cooled to as low a temperature as possible, preferably with a maximum of 65° F. While water-supplies are in general good, farmers in some districts have difficulty in obtaining suitable cold water. Some have to rely on rain water collected from the roofs of their milking-sheds, but the quantity obtained in this way is inadequate, while in summer its temperature is too high. Others have to depend on supplies pumped into tanks during the warmer part of the day. In some localities surface water is not available, and wells must therefore be sunk, or water be drawn from long distances. There are, unfortunately, a few districts where it is impossible to obtain cool underground water. To meet the needs of these particular areas, some simple method of cooling the water, or some type of cheap refrigerator is needed. In other cases co-operative schemes for the piping of water from distances might be possible, while valuable assistance to other farmers might be given if the Geological Survey of the Department of Scientific and Industrial Research were authorized by the Government to locate water-supplies.

In addition to a supply of cold water, it is essential that each farmer be provided with an efficient cooler. Many coolers now used are by no means efficient. It is suggested that vendors of coolers should be required to give a guarantee to farmers that their coolers will reduce the temperature of milk or cream to within a few degrees of the temperature of the cooling water at a specified rate of flow of milk or cream.

Milk and cream must be kept cold and protected from contamination by dust or the like till delivered at the factory. Evidence shows that cream-cans placed on roadsides for collection by motor-lorries are frequently not protected from the sun. This practice is a contravention of the dairy regulations. The provision of cream stands, suitably ventilated, and affording protection to cans from the rays of the sun should be required by regulation. Before this regulation could be made effective, however, it would be necessary to clear up the doubt that at present exists as to the right of farmers to erect cream-stands at roadsides. It is suggested that permission should not be refused if the stand conforms to reasonable requirements as to size and is so placed as not to constitute an obstruction to traffic.

193. The Transport of Milk and Cream :

There is urgent need for a greater measure of control in the transport of cream. In the present circumstances cream is often not quite fresh on arrival at factories owing to delays in delivery and to inadequate protection of cream-cans from heat in transit. The former difficulty will be largely overcome once the worst features of overlapping are eliminated, and the latter should be dealt with by making it obligatory on owners of all cream-lorries to fit their wagons with an adequately ventilated cover supported on a frame to ensure the circulation of air.

194. Cream-receiving Depots :

These have been established by some dairy companies as a means of reducing cost of transport of cream from areas distant from their factories, and of enabling factories to grade cream near the source of supply. Under this system farmers are not penalized for any loss in grade resulting from delay in delivering cream to the factories. Cream delivered fresh to the "bulking station" may, however, not be fresh by the time it reaches the factory, and consequently farmers may receive a higher payment than they would be entitled to receive at the factory. The regulations should aim at ensuring the receipt of good-quality cream at the time it is to be manufactured into butter, and be designed to protect the quality of the butter and not serve individual interests. Cream-grading, therefore, should not be permitted at receiving-depots. Moreover, there are already butter-factories in many places where receiving-depots have been established. We recommend that the registration of such depots should be cancelled, that collecting-stations should be permitted only in areas distant from butter-factories, and that in these cases samples of cream of individual suppliers should be consigned along with the bulked cream to the factory, where the grading should be carried out.

195. Manufacture of Dairy-products :

There is evidence that, while care is taken to produce butter and cheese of the highest quality, certain factors prevent the achievement of the best results. The Commission has given very careful consideration to these, and although realizing that some can be overcome only by research, it is of the opinion that definite improvements can be effected by rectifying existing weaknesses and by offering some monetary reward to those who make the best efforts. Some of the defects in the present organization are common to both butter and cheese factories, but the more important ones are peculiar to one or the other. Problems relating to the manufacture of butter are therefore discussed separately from those relating to the manufacture of cheese.

196. Butter-manufacture :

Very good reports have been received from the United Kingdom on our best export brands of butter. Our lower grades, however, give less satisfaction, and it is our opinion that their quality must be improved. It has been suggested to us that during recent years the quality of Australian butter has improved more rapidly than our own. Australia has become an important competitor in butter and, although it becomes increasingly difficult to make further improvements as quality is raised, we cannot afford to spare any efforts.

197. Butter-flavour :

The criticisms received relate mainly to flavour. Some grocers report that the flavour of some brands is rather insipid for their trade, especially in those districts accustomed to the fuller flavours of continental types of butter. Some also complain of neutralizer flavour. All appear to be very well satisfied with the rich creamy flavour which is characteristic of the product made from fresh cream to which a small amount of starter is added. It is evident that the Dominion should concentrate on the manufacture of this type.

Other complaints are made about food-taints, occasionally about wood-taints caused by using Continental timber in the making of boxes, and about surface flavours such as the "tallowiness" which sometimes occurs in butter stored for some considerable time.

198. Measures to improve the Flavour of New Zealand Butter :

As indicated above, the Dominion must concentrate on the manufacture of butter having that rich creamy flavour obtainable when fresh cream, free of abnormal taints, and requiring neither deodorization nor the addition of much neutralizer is used. It is imperative that cream used for the manufacture of butter should be delivered to the factory in perfect condition, and that factories should abandon practices which lower the quality of cream before it is delivered to the factory, or which aim at correcting in the factory, weaknesses that could be avoided on the farm. The latter have already been fully discussed, but the former bring forcibly under review the problems of competition for supplies, of daily delivery of cream, of methods of grading cream, of the prevention of food-taints and of methods of manufacture.

199. Competition for Supplies :

Competition for supplies and the overlapping of transport services arising therefrom are prejudicial in several ways to the quality of cream accepted by factories. Where the manufacture of cream into butter is delayed as the result of transporting cream over long distances, undesirable flavours, which would be avoided by the early pasteurizing of cream, tend to develop. The tendency on the part of some factories to relax cream-grading standards in order to attract more suppliers is another important cause of low quality. Competition has been so keen in some areas that the value of cream-grading as an incentive to the delivery of high-grade cream has largely been lost. Various competitive practices adopted as a means of securing high overruns in butter-manufacture have been detrimental to quality. Cream is occasionally accepted by managers who would return it to the farmers if competition for supply were less keen, and consequently factory-managers have not been able to enforce progressively higher standards. The result has been that many companies have not encouraged suppliers to improve the quality of their cream, but have endeavoured to remedy defects in the raw material by means of processing in the factories. Voluntary effort to improve the quality of raw supplies proved unsuccessful, and it was found necessary to introduce regulations as the only means to this end. The bad effects of inter-factory competition have been materially reduced as a result of these regulations which were gazetted in February, 1934, and which (subject to certain exceptions) prevent suppliers from transferring from one factory to another between 1st August and 31st May of the following year in the North Island, and 1st November and 31st August in the South Island. Nevertheless, so long as farmers may arbitrarily transfer their supply from one factory to another at the end of the dairying season, the above malpractices will continue.

It would be a definite advantage if farmers in New Zealand were bound to factories for a longer period, say, for five years, as is widely practised in Denmark. We have elsewhere recommended that farmers should not be permitted to transfer their supplies without the consent of the Dairy-produce Control Board.

200. Daily Collection of Cream :

It is clear that one of the quickest methods of improving the quality of butter is to ensure the daily delivery of cream during the greater part of the dairying season. By the adoption of this practice the naturally rich flavour of butterfat can be retained in the butter, the use of neutralizer can be reduced to a minimum, and insipid flavour, neutralizer flavour, and other defects attributable to excessive neutralization can be avoided. Further, under our system of home-separation of cream, the advantages secured by competitive countries that practise the daily delivery of milk can be obtained by us without additional cost.

The relationship of daily delivery of cream to quality of butter is indicated in the following table, which gives the position of butter-factories in the Auckland Province. It will be seen that in the main both the average grade of cream and average grade of butter improve as the percentage of daily-delivery cream increases. Daily delivery is also associated with increases in the percentage of finest-grade butter. Furthermore, as the proportion of daily-delivery cream rises, the closer is the agreement between the average grade of the cream and the average grade of the butter. This is not to be wondered

at, in view of the difficulty of correctly assessing the grade of soured cream. Moreover, differences are less apparent when the percentage of daily delivery used in the manufacture of the butter exceeds 70, but it would not be unreasonable to expect even fewer differences if all cream were delivered daily.

201. Cream delivered daily, and Butter-quality.—Auckland Province :

Percentage of Daily Delivery.	Number of Factories.	Total output graded (in Tons).	Percentage of Cream.			Percentage of Cream Daily Delivery.	Average Grade.	Percentage of Butter.		
			Finest.	First.	Second.			Finest.	First.	Under First.
Nil ..	14	5,498	57·87	39·71	2·42	Nil	92·185	51·37	42·66	5·97
60–69 ..	8	12,706	71·61	27·40	0·99	66·8	92·401	60·84	36·99	2·17
70–79 ..	8	8,734	73·89	25·52	0·59	74·3	92·973	79·75	19·19	1·06
80–89 ..	16	35,593	83·47	15·92	0·61	85·3	92·981	77·91	21·44	0·65
90–99 ..	8	15,615	82·27	17·22	0·51	93·5	92·982	77·59	21·44	0·97

202. Value of Daily Cream-collection :

The principal claim by some factories that do not insist on daily delivery is that the cost of daily collection would be prohibitive in districts of low supply. Whilst this would obtain in some areas, its importance is overestimated. At the moment it is aggravated by overlapping and competition for supplies. Some witnesses stated that the quality of cream delivered every other day or even less frequently is better than or at least equal to that delivered daily, and contended that farmers take more care with their cream when it has to be held on the farm for one or more days, that any deficiencies of the existing system can be overcome by the adoption of farm-dairy instruction, and that daily delivered cream may be of finest grade on arrival but on standing may become second grade. The grading returns given above do not support these contentions, nor is there any evidence that daily delivery encourages careless methods on the farm. The contention that finest-grade cream may on standing become second grade is of no practical significance, since the flavour of butter is determined mainly by the flavour of the cream at the time the butter is made, and we are assured that the quality of butter made from fresh cream would be superior to the quality of butter made from the same cream kept for a period of time.

Some witnesses claimed that any defects in cream due to delay in manufacturing it into butter could be overcome by special treatment of the cream in the factory. This claim has not, in our opinion, been substantiated, and is opposed to the principles of hygienic production of butter. We consider that the special treatment of cream in this way has a place only where it is impossible otherwise to avoid such defects as food-taints.

The majority of factories endeavour to collect cream daily, but many have not yet faced the problem. These factories are not confined to sparsely settled districts, but are to be found in all dairying districts.

The question of daily collection is of such vital importance that its application in practice should not be delayed. In intensively farmed areas where most of our butter is produced, the avoidance of overlapping and the rationalizing of transport may be expected to ensure daily collection for the greater part of the year. There are, however, a few districts where daily collection could not be insisted on without causing undue hardship to factories with scattered sources of supply ; and there are in most districts a few suppliers who could not be reasonably expected to deliver cream daily. Further, it has to be recognized that some considerable reorganization of the industry would be necessary before the widespread daily collection of cream could fairly be made compulsory for even a portion of a dairying season. Nevertheless, experience of the dairy industry shows that progressive movements cannot be effected without regulations. In the circumstances it is considered that the daily delivery of cream should, by regulation and subject to certain exceptions, be made compulsory once the problem of overlapping of cream collection has been solved or a rationalization of transport effected. The exceptions are : (*a*) Periods of the year during which daily collection would be definitely uneconomic ; these periods would vary in different districts, and would be subject to review from time to time ; (*b*) suppliers upon whom daily delivery would be a definite hardship. Such suppliers should be required to apply for exemption to ensure that the principle of compulsory daily collection would not be relaxed by making exceptions too general.

The regulations requiring the daily delivery of cream should include a provision that no cream shall be received at butter-factories after a specified time, and that all cream shall be graded and pasteurized within a specified time of receipt. If this is not done, the objective sought will be defeated. It is suggested that 1 p.m. is a reasonable time-limit for receipt, and that a maximum period of two hours should be allowed for dealing with the cream after its receipt.

203. Methods of Cream-grading :

Cream should be graded strictly according to the standards set out in the dairy regulations. In the past these standards have not been strictly adhered to, but in many cases have been relaxed by graders, generally acting under instructions from their factory directors, in order to attract suppliers to factories. It is reported, too, that in some cases factory-managers have been threatened with dismissal if they strictly enforced the regulations. To overcome this, some witnesses have suggested that all cream graders and testers should be appointed by the State, which would recover the salaries

of these men from the factory. It is considered, however, that this would not afford adequate protection, and that the principle is unsound, because in removing one responsibility which is rightly that of the factory-manager, it would tend to lower his status and reduce his sense of responsibility in other matters. The Commission is of the opinion that, if its recommendations in regard to overlapping are given effect to, and if the protection afforded to factory-managers by the system of registration now operating is continued, there should be no difficulty in enforcing the cream regulations to the fullest extent.

Some witnesses have represented that in addition to the use of the faculties of taste and smell, managers should employ biological tests as an aid to stricter grading. We consider that experiments should be conducted with a view to determining the reliability of various tests, but we have insufficient information to warrant the recommendation of any other test than the acidity test.

Several witnesses have drawn attention to the need for imposing a higher penalty than now exists upon second-grade cream. The Commission concurs in those suggestions which aim at reducing the need for the wide use of neutralizer and at raising the standard of grade of cream. We accordingly recommend that—

(1) Second-grade cream should be paid for at a rate of 2d. per pound butterfat less than finest-grade cream;
(2) The acidity of finest-grade cream, delivered daily, should not exceed 0·15 per cent. acidity (estimated as lactic acid) and that of cream delivered less frequently than once daily, not more than 0·2 per cent. lactic acid;
(3) All cream grading more than 0·3 per cent. acidity (estimated as lactic acid) be graded second grade.

The two latter standards should not impose undue hardships on suppliers, should be readily put into practice through the use of standard solutions, and should quickly improve the grade of cream.

204. Food-taints:

Abnormal flavours, particularly in butter, are attributed by many witnesses to pasture plants and weeds. In general, taints due to weeds can be controlled by good farming methods, but in some districts there are food-flavours which are stated to be unavoidable by ordinary methods of husbandry. It is claimed that these flavours have become especially pronounced within recent years, and that they are directly correlated with the increased productivity of the land brought about by top-dressing. One such flavour has become so characteristic in some South Auckland brands of butter that it is known as a "Waikato tang." In their efforts to overcome the effects of food-taints in their butter, some factories have installed "deodorizers," and have reported improvement in the grade of their produce. Conflicting opinions have, however, been expressed as to the quality of the butter so made after it has been subjected to a period of storage. We have been unable to obtain definite information concerning the influence of particular pasture plants or of top-dressing on the flavour of butter, but consider it to be a matter of such importance to the dairy industry that it should be thoroughly investigated.

205. Manufacturing Practices:

The manufaturing practices which call for special comment include the manufacturing of different grades of cream separately, the use of greater care in neutralizing cream, the improvement of layout of factory equipment, the protection of cream and butter from strong sunlight, and the prevention of metallic contamination and reinfection of cream.

(1) Some factories carefully segregate the three grades of cream on receipt and manufacture them separately, but others mix the different grades. The former practice should, by regulation, be made obligatory, as is done in New South Wales. It would quickly assist in increasing the supply of superior-quality butter owing to the relatively low price which would be received for the lower grades. Complications might possibly arise where there was a very small supply of first- and second-grade cream, but these could be overcome if the regulations provided that not more than 1 per cent. of a lower grade might be mixed with the next higher grade.

(2) In many cases more attention should be paid to the neutralization of cream. We were informed that the work is frequently not performed with sufficient precision, and that there is a tendency on the part of some buttermakers to reduce unduly the acidity of their cream. This practice has been accentuated by the knowledge that butter made from highly neutralized cream keeps well, but, as we have previously pointed out, the neutralization of cream to low degrees of acidity makes for a too insipid flavour. Moreover, certain astringent flavours characteristic of overneutralized cream occasionally develop during storage.

(3) Improvement of the layout of many factories would prevent the reabsorption by cream, during the cooling process, of flavours given off while the cream is being pasteurized. There is also need for better ventilation in some cases.

(4) Evidence placed before the Commission indicated that white light is injurious to the keeping-quality of butterfat. It starts chemical changes (which increase during the storage of the butter) which are very pronounced if the light impinges upon hot cream. The use of coloured glass in windows overcomes this difficulty.

During the process of manufacture neither cream nor butter should be exposed to the direct or indirect rays of the sun. Coolers should be placed out of contact with white light; cream-vats should be covered by light and vermin-proof covers; butter should be packed out of contact with the direct rays of white light, and should not be exposed to air for long periods before packing.

(5) Some abnormal flavours developed by butter in storage are due to metallic contamination, and extremely small amounts of copper and iron may be sufficient to cause trouble. Despite this fact, which should be well known to buttermakers, many factories continue to use equipment which is in need of retinning. Although not at first apparent, it deserves more attention than dairy companies have hitherto accorded it, particularly in view of the relatively long periods during which butter is sometimes stored.

In some cases insufficient attention is paid to the prevention of reinfection of cream with moulds subsequent to pasteurization. Butter is also liable to infection. While this is often due to faulty factory design, much can be done by the adoption of hygienic measures. It should be observed that mould-infection, particularly of unsalted butter, is liable to start deterioration of butter in storage, and this is accelerated when the butter is defrosted.

206. Butter Flavour for Special Markets :

There was no unanimity of opinion amongst witnesses as to the desirability of making butter specially for the northern markets of Britain, but all agreed that we should not attempt to emulate the Danish method of manufacturing butter from cream with marked acidity. In the case of our existing markets in the South of England, it was strongly urged that New Zealand should export only its standard creamery flavoured butter. Witnesses differed in their opinions, however, as to the need for developing a butter with a flavour similar to that of Continental types, but of sound keeping-quality. One viewpoint, the most conservative, was that no particular modifications of the quality of our butter were needed, as its sale was already being extended by advertising and careful marketing methods. A second viewpoint was that our most effective means of holding present markets and penetrating new ones was to raise the quality of our whole output to the level of our best brands and particularly to avoid insipid flavour. It was pointed out by those who held this view that it would be a mistake to depart from our standard type and develop special types for special areas, because it would be very difficult to be certain that the respective types reached their appropriate destinations, and because sellers of New Zealand butter in the United Kingdom remain sceptical as to the possibility of producing good-keeping butter of the Continental types. The most advanced view was that the method of gradually converting consumers, by advertising and other propaganda, to the use of our standard type of butter was too slow, particularly in view of the rapid increase of our exports, and it was claimed by the supporters of this view that there were no fundamental obstacles either to the production of special types of butter to meet special needs or to the development of marketing methods that would ensure that butters reached their proper destination. We are of the opinion that at the present time it would be a mistake to alter the flavour of our best butter, but we consider that the appropriate policy that should ultimately be pursued in any market can be finally determined only by a detailed and comprehensive investigation conducted on the spot. We recommend, therefore, that for the present New Zealand should concentrate on manufacturing butter from fresh cream, and so preserving the natural rich creamy flavour that is most generally acceptable.

207. Body and Texture of New Zealand Butter :

The body and texture of New Zealand butter is stated to be very satisfactory. Attention has been drawn, however, to the desirability of making New Zealand butter somewhat more spreadable, if this can be attained without sacrificing flavour. It has been pointed out in evidence that improvement in this direction can be effected by slight adjustments in the processes of manufacture, although no standard rules can be laid down since much depends on local conditions in particular districts and on the judgment of buttermakers. Particular emphasis was placed on the fact that it would be unwise to attempt to secure greater spreadability where there is any danger of weakening the body of our butter. New Zealand butter is, in general, held to be excellent in body, and buyers in the United Kingdom attach considerable importance to this factor. It has been suggested that the period and conditions of storage may affect the spreadability of New Zealand butter, but the evidence on the point was inconclusive except in so far as it demonstrated the necessity for fuller investigation.

208. Colour of New Zealand Butter :

Occasionally reference was made to the colour of New Zealand butter, which is a deeper yellow than butter manufactured in Northern European countries. Apparently no exception is taken to this yellow colour except in Northern Ireland and certain areas in the North of England. The rather deep yellow colour of New Zealand butter is indicative of its high vitamin A content, and is due mainly to the fact that our cows are fed almost entirely on pasture and to a lesser extent to the predominance of Jersey strains in New Zealand herds.

On exposure to air, especially after a period of storage, the surface of butter sometimes develops a still deeper yellow colour described as "primrose tint." It occurs specially in butter made in the spring months. This defect is due to the evaporation of moisture from the surface layer of the butter and the concentration of colouring matter therein. It has been overcome in small-scale experiments by the use of moisture-proof wrapping materials and it may be controlled by the careful adjustment of the humidity of butter storage rooms. It is suggested that the Dairy-produce Control Board, in the exercise of its proposed new functions, should direct special attention to these points.

209. The Packing of New Zealand Butter :

The general finish of butter made in many factories is said to leave room for improvement. Witnesses stated that in many instances the boxes are carelessly papered, the top of the butter is not neatly finished off, the impress brand is in some instances missing or carelessly made, the nailing and wiring are badly done, and the butter, when turned out, reveals large unsightly cavities. These are matters which adversely influence buyers and should therefore be carefully avoided.

Some witnesses testified that butter packed in the "Saranac" box develops mould much more readily when taken out of cold store than that packed in the standard box, particularly if the boxes are placed in a stack. Bleaching of the surface of the butter is then often complained of. In the Australian box of this type the tops and bottoms cover the sides instead of being in and over, as in the case of the New Zealand box. Buyers state that they seldom find any dirt on the surface of Australian butter, as the tops and bottoms of Australian boxes seem to draw over the sides much more closely, once the wires are strained up, and consequently make a closer joint. In the opinion of the Commission, the standard and sub-standard types of box are preferable to the present type of "Saranac" box, and we recommend that, where it is desired to use the "Saranac" box, the Australian type should be employed.

210. Cheese Quality and Manufacture :

Within recent years New Zealand export cheese has been subjected to much criticism, but reports from the United Kingdom indicate a progressive improvement during the past two years. There was a decided falling-off in quality between the season 1926–27, during which the Dairy-produce Control Board paid a premium for all cheese grading finest, and the season 1930–31. This was due to several reasons, the principal one probably being the tendency of many factories to sacrifice quality for yield in a desire to increase their payout return to suppliers. Adverse reports from the United Kingdom on New Zealand cheese thereafter caused all concerned with the industry to pay more attention to quality. Regulations were gazetted aiming, *inter alia,* at improving the quality of the milk supply and the conditions under which cheese was manufactured, at regulating the temperature of holding-rooms in both factories and stores, and at raising the grading standards. Alive to the need for improvement in quality and with the support of these regulations, the cheese industry has, especially within the last year, done much to improve cheese quality. The increased percentage of cheese grading 91 points and over since the season 1930–31 is evidence of this improvement, and is as follows: 1930–31, 82·4 per cent.; 1931–32, 87·9 per cent.; 1932–33, 86·97 per cent.; 1933–34, 98 per cent.

It is reported that in the season 1933–34 approximately 68 per cent. of our export cheese graded 92 points and over, and that 44 per cent. just failed to reach the 93 points required for finest grade because of open texture.

While this improvement is very encouraging, it is apparent that there is still room for much effort. Even if it is not possible at present to overcome entirely the defect of open texture, it is probable that more careful methods of manufacture and greater care in the production of clean milk could raise the bulk of our export cheese to a grade of at least 92 points.

Reports from the United Kingdom indicate that the two commonest defects of New Zealand cheese are "openness" of texture and the development of a "horny" appearance on the cut surface of the cheese when exposed to air for some time. The flavour of our cheese is reported to be very satisfactory, and although milder than the cheese of Canada and Britain, is more uniform. Merchants state that they can hold our cheese in storage when it is necessary to develop the stronger flavour required by some sections of the trade. There are occasional complaints about the body of our cheese, but these are less common than formerly. It is also reported that there has been much improvement in the finish of our product in the past season.

In discussing measures whereby the quality of our cheese may be improved, the Commission has given consideration not only to defects but also to other matters which for some time have been exercising the minds of cheese-factory suppliers and directors. These matters include methods of grading milk, the use of high-testing milk for cheesemaking, the manufacture of raw-milk cheese, and the waxing of cheese.

211. Open Texture :

This defect has been common for many years and became especially prevalent after the 1926–27 dairy season. Reports from the United Kingdom indicate that it was less noticeable during the 1933–34 season, but that there is still much room for improvement. The problem has been closely studied by the Dairy Research Institute since 1929, and during the season 1933–34 the Dairy Division, by arrangement with the New Zealand Co-operative Dairy Company, undertook the management of the Rukuhia Cheese Factory in an effort to determine if it were possible to make finest-quality cheese when, under commercial conditions, every care was taken with the milk-supply and the manufacture of the cheese. Research has shown that there are different types of openness. One, termed "fermentation openness," can be readily overcome by the careful control of the milk-supply and the starter. Two other types, called "slit" and "mechanical" openness respectively, cannot be entirely eliminated at present. They are accentuated by defective milk-supply, especially if part of the milk happens to be non-acid, by weak starters, by lack of care in the details of cheese-manufacture, by efforts to raise unduly the yield of cheese obtainable from the milk, by careless packing of cheese in cheese hoops, and by holding the cheese in factory curing-rooms at temperatures above 65° F. The evidence indicated that the defect is materially lessened by the careful control of the milk-supply, by careful methods of cheese-manufacture and by the use of active starters.

The question of starters is of great importance. It has been shown that the vitality of a starter is very sensitive to a number of conditions, and that this is reflected in the degree of closeness of the cheese. These conditions, which are being investigated by research workers, are not yet fully understood, but it has been demonstrated that the proper preparation and care of a starter bear directly on its vitality. Experienced cheesemakers have claimed that some starters make closer cheese than do others, but this contention has not yet been unequivocally established, as some

starters which have been used satisfactorily in one factory have failed to give equally good results in another. It is possible that minute differences in the milk-supply between one factory and another, due to differences in soil or feed, may play a part, and it is certainly true that it is easier to make close cheese in some districts than in others. More factors are apparently involved than the sanitary condition of the milk, because close cheese cannot be consistently made from very pure milk.

The present position may be summarized as follows: In areas where openness of texture is a problem no method can assure the consistent manufacture of close cheese, but the degree of openness can be materially reduced by paying the closest attention to the cleanliness of the milk-supply and to the details of manufacture and the curing of the cheese. In view of the importance of overcoming this major defect, the Commission recommends that existing research work should be intensified and extended to a study of the possible effects of pasture, soil, and climatic variations.

The development of a horny appearance on the cut surface of cheese exposed to air and the attendant cracking of the surface was attributed by witnesses mainly to the lack of maturity of the cheese at the time of sale. Very mature cheese does not develop these defects. It has been suggested in evidence that horniness may be accentuated by or be attributable to the use of high-testing milk, which is known to form a harder curd than low-testing milk; but no proof of this contention was submitted. Moreover, it was shown that both high- and low-testing milk cheese develop both of the above defects when cut in an immature state. Since the demand for New Zealand cheese rests on its mild flavour, it is necessary for us to sell our cheese while it is still relatively immature, and the Commission therefore recommends that research effort should be directed towards attempting to eliminate the defects under discussion whilst retaining the present character of our cheese.

212. Milk-grading:

Practised voluntarily by many dairy companies for years, milk-grading was made compulsory in the season 1932–33. Since the commencement of the season 1933–34, it has been accompanied by a differential rate of payment for milk according to grade, second-grade milk being paid for at a rate at least ½d. per pound butterfat less than first grade. Factories may, under the regulations, grade their milk into three grades—viz., finest, first, and second. The test and standards employed for the purpose have been criticized by some witnesses. At the present time a combination of two tests is employed, one of which must be the curd-test and the other the methylene-blue or microscopic test. All milk which decolorizes methylene-blue in less than two hours, or which is shown by the microscopic test to contain a relatively high number of organisms per cubic centimetre, and all milk which does not produce a good curd with a clean flavour after a period of eight hours is graded second. Some witnesses suggested that the milk-grading regulations should be amended to permit of the use of one only of the several tests on the condition that a high standard be required in each case. Their suggestions are that—

(1) In the case of milk supplied to a cheese-factory all grading should be based on any one of the following methods: (*a*) The direct microscopic test; (*b*) the methylene-blue test; (*c*) the curd-test.

(2) The regulations should be redrawn to provide universally for three grades—namely, finest, first-grade, and second grade.

(3) Where the direct microscopic test is employed, (*a*) the grade of finest should be applied only to milk which is of clean flavour and appearance, and contains not more than fifty thousand organisms per cubic centimetre as determined by the direct microscopic count; (*b*) the grade of first should be applied to milk which is of clean flavour and appearance, and contains more than fifty thousand but less than one million organisms per cubic centimetre; (*c*) the grade of second should be applied to all other milks.

(4) Where the methylene-blue test is employed the minimum times of decoloration for the respective grades should be: For finest, not less than five hours and a half; for first grade, not less than three hours; for second grade, under three hours.

The basis of the above suggestions is that milk can be satisfactorily graded by measuring approximately the number of bacteria in milk. The microscopic test does so directly, while the methylene-blue acts in the same manner indirectly.

The witnesses who made these suggestions pointed out that the grade of milk is primarily dependent on the number of bacteria in it. They agreed that the types of bacteria in milk vary widely, and that although reasonable numbers of milk-souring organisms in contradistinction to other types are not dangerous from a cheesemaking point of view, the obvious method of improving the milk-supply was to reduce the numbers of all bacteria to a minimum. They also pointed out that if a cheesemaker consistently receives milk of a low bacterial count, he can control his cheesemaking process more effectively than if he receives milk varying in count from day to day, because in the former case he will be working on milk that is relatively constant in character, and can, therefore, with the use of a carefully controlled starter, secure more uniform results. They further claimed that these tests are officially recognized elsewhere for the grading of milk, and that they have given satisfactory results in New Zealand.

Those who favoured the retention of the curd-test in combination with either the methylene-blue or microscopic test, considered that to be effective in ensuring a good milk-supply the methylene-blue and microscopic tests, if used independently of the curd-test, would prove to be too exacting for many suppliers in some districts, and that, consequently, it would be difficult to insist on uniform standards throughout the Dominion. They claimed, too, that these tests are unsatisfactory because a low bacterial count is not a necessary indication that a good curd will result, and they consequently placed emphasis

on the type rather than the number of organisms present in the milk. Against this it was contended that the curd-test is misleading, because no starter is used and the curd is therefore not characteristic of the cheese curd it would normally produce. It was held, too, that the cases in which a milk of low bacterial count would produce a poor curd were very few, and that therefore a close relationship between count and quality could be established.

Most witnesses agreed that there were no wide divergences in the results given by the three tests. The weight of evidence submitted to us indicated that methods based on counts set higher standards than the curd-test, and that although there are some milks of low bacterial count that may produce a bad curd and therefore may be objectionable from a cheesemaking viewpoint, there are milks which may make a good curd but a poor cheese.

The Commission therefore recommends that the regulations be altered to permit factories to use alone either the direct microscopic test or the methylene-blue test, on condition that the standards set shall be sufficiently high and shall not be relaxed, and that milk shall also be graded by the use of the faculties of taste and smell. It would be a mistake, we consider, to permit the use of the curd-test alone, because milk of high bacterial numbers, dangerous in cheesemaking, can produce a good curd. It is therefore suggested that wherever the curd-test is used it should be associated with the use of either the methylene-blue or the microscopic test. It is felt that the above recommendations will not conflict with the desire for uniformity in grading, since the variation in results obtained from using different methods is no greater than the variation disclosed by using any one method.

213. The Fat Content of Milk in relation to Cheese-quality :

New Zealand cheese is made mainly from milk much richer in fat than that used in United States of America, Canada, or Great Britain. This has given rise to differences of opinion on two unrelated questions—namely, the effect of very rich milk on the quality of cheese and the fairness of existing methods of paying for cheese milk.

Some witnesses have attributed most of the defects in New Zealand cheese to the use of high-testing milk, but a comparison of cheeses made from high- and low-testing milk and produced under identical conditions, disproves this contention. In particular, it has been shown that finest-grade cheese can be made from high-testing milk, and a study of our grading returns shows that there is no definite connection between the test of milk and the grade of the cheese made. Nevertheless, most cheesemakers have agreed that high-testing milk is more difficult to make into cheese of good quality than is milk of lower test, but all agreed that milk excessively low in test (under 3 per cent. fat) is even more undesirable. The majority were of the opinion (and were supported by evidence regarding local and overseas experiments) that milk which will test on an average throughout the season from 3·8 to 4 per cent. butterfat is the ideal to be aimed at. From a quality point of view, the principal objections to the use of high-testing milk were claimed to be an abnormally yellow colour in the " white " cheese made from it and the appearance of butterfat sacs. Although yellowness has been the subject of complaint from buyers in the United Kingdom, it does not seem to affect the market value of the cheese. Two careful observers in the United Kingdom, experienced in assessing cheese-quality, state : " The yellow colour of New Zealand cheese is not remarked on very frequently, and seems to be accepted as something which cannot be avoided, but it would certainly be better if it could be done away with." We were told, however, that it was impossible to bleach the colour from high-testing-milk cheese without harming its quality. The butterfat sacs are somewhat unsightly and give rise to a flow of liquid butterfat over the cut surface of cheese in hot weather. The information submitted to us indicated that the formation of these sacs can largely be overcome by pasteurization, which has the effect of breaking up the clusters of butterfat globules in the milk and so distributing the fat evenly throughout the resulting cheese.

It has been stated in evidence that high-testing milk may be responsible for the horniness which New Zealand cheese develops when it is cut. This suggestion was based on the fact that the freshly made curd produced from high-testing milk is firmer than that produced from low-testing milk. No evidence was submitted, however, to show that this effect continued after the cheese had matured.

On the economic side, differences in the fat content of milk raise problems regarding an equitable basis for calculating pay-out. At the present time all cheese milk is paid for according to its butterfat content. This method of pay-out is not imposed by regulations, but is a custom that has grown up because the fat content of milk is an approximate measure of its cheese-yielding capacity, and because payment according to butterfat content is obligatory in the case of butter-factories. Butterfat content, however, is not an accurate measure of the cheesemaking-capacity of milk, because high-testing milk yields a lesser return of cheese per pound of butterfat than low-testing milk. When the test of the milk supplied by farmers to a factory varies only within a few points, the butterfat-method of payment is reasonably accurate, but in practice wide variations may occur. An equitable method of paying for milk for cheesemaking should take into account both the casein and the fat content of the milk, since both of these milk constituents contribute to cheese-yield, and, ideally, it should give consideration to the relative costs of manufacture of high- and low-test milk. Until recently, the casein content of milk has been ignored because of the difficulty of rapidly and cheaply estimating it. Laboratory methods are somewhat tedious and are not readily applicable under factory conditions, and therefore factory directors have been reluctant to commit their suppliers to the added cost involved in ascertaining the actual cheese-yielding capacity of milk.

Witnesses have put forward various suggestions, including the use in factories of simple methods of approximately determining casein content, the determination in factories of total solids in milk, the modification of the laboratory method of determining casein to make it convenient for factory use, and the determination of casein at laboratories convenient to factories. A method, appropriate for use

in factories, is being investigated by the Dairy Research Institute, but, although the indications are very promising, the investigation is not yet complete. We were informed that if the results proved sufficiently accurate, the method should be capable of easy application in cheese-factories. The Commission considers that the question of payment to suppliers in accordance with the value of their milk for cheesemaking is so important that efforts should be made to investigate more fully the possibilities of the methods to which reference has been made.

Once an easy and accurate means of determining casein content had been discovered, there would remain the problem of correlating the fat and casein content with cheese-yield. Fortunately, a suitable method of doing this has already been worked out in New Zealand. The method does not take into account the relative manufacturing costs of high- and low-testing milk, but in practice cost-differences are much less important than differences of casein content. By the adoption of a method of payment which correlates fat and casein with cheese-yield, farmers would get a fairer return than they at present obtain for their milk, and consequently would be encouraged to build up lower-testing herds.

Two very significant points disclosed by the evidence were that milk of the same butterfat test may vary considerably in cheese-yielding capacity and that milk of any test from well-managed farms with abundant luscious pasture gives a higher cheese-yield than milk of the same test from poor, dry pastures. Thus payment on the basis of cheese-yielding capacity would provide a reward for good farming whether the milk supplied were high or low in test. Meanwhile, factory directors, when comparing the cheese-yields per pound of butterfat obtained by different factories, often overlook the fact that yields vary with variations in the test of milk, and urge their managers to strive for yields that, where high-testing milk is being supplied, can be obtained only at the expense of cheese-quality. Moreover, even where the butterfat content may be much the same in different factories, unfair comparisons may be made and undue pressure placed on the manager to increase his yields if directors forget that butterfat of the same test may vary considerably in casein content on account of the differences in feed. Finally, the tendency for tests to become higher each year leads to disturbing changes from the production of cheese to that of butter when the price of butter appears attractive.

The Commission is strongly of the opinion that when a satisfactory method of readily estimating the cheese-yielding capacity of the milk of individual factory-suppliers has been devised, it should be tried out on an extensive scale in typical factories, and, if then proved to be sound, it should be made compulsory by regulation for all cheese-factories to pay for cheese milk by this method. It is felt that unless the method is made applicable to all factories much of its value will be lost.

The Commission recommends, further, that breeders should concentrate on strains producing high yields of milk of a butterfat test averaging 4 per cent. over the season.

214. Pasteurized and Raw Milk :

A number of witnesses emphasized the desirability of New Zealand manufacturing only raw-milk cheese. On the basis of comparisons of the respective prices of Canadian and British cheese they claimed that New Zealand cheese suffers from being made from pasteurized milk. On the other hand, witnesses pointed out that New Zealand cheese is highly esteemed in the United Kingdom because of the mild and uniform flavour which is directly attributable to the pasteurization of the cheese milk. Competent witnesses resident in London stated : " While a certain amount of raw milk cheese can be made with advantage where the milk-supply is of good quality, it is possible that New Zealand will always find it advantageous to pasteurize the greater proportion of the milk used for cheesemaking. As one importer stated, ' We are alternately raised to the greatest enthusiasm and dashed to despair over the quality of raw-milk cheese.' This is owing to the irregular flavours, and is not confined to New Zealand raw-milk cheese."

Pasteurized-milk cheese does not ripen so quickly as raw-milk cheese, nor has it such a characteristic Cheddar flavour at an early stage of maturity ; but this is no definite drawback, and, as we have pointed out earlier in this section of the report, merchants who desire a stronger flavour have no difficulty in storing the cheese. The pasteurizing process has no influence upon the closeness of the cheese, but, as already stated, it is beneficial in evenly distributing the fat in high-testing milk cheese and thus preventing the appearance of butterfat sacs.

The temperature at which milk is pasteurized has an important bearing on quality. The cheese-yielding constituents of milk are very sensitive to high temperatures, and consequently cheese made from milk pasteurized at high temperatures does not ripen normally. While it is essential that the temperature be high enough to destroy harmful bacteria, it should not be so high as deleteriously to affect the cheesemaking constituents of milk. Normal cheddar flavour of a mild character is developed in cheese made from milk pasteurized at between 150° F. and 155° F. By careful control of the milk-supply, higher pasteurizing temperatures than these should not be necessary.

The Commission recommends that the Dairy-produce Control Board should from time to time advise factories as to the desirability of their making cheese from raw or pasteurized milk. It also recommends that all pasteurizers should be fitted with time- and temperature-recording thermometers so that the efficiency of pasteurization can be checked by both factory-managers and the Board's instructors. It is necessary that this be made compulsory under the regulations.

215. The Waxing of Cheese :

Wide differences of opinion have been expressed as to the merits of waxing cheese. The following statement forwarded to the Commission from London fairly summarizes the conflict of opinion on this matter :

> " The question of whether cheese should be waxed or not is one which is very difficult. Certain buyers refuse to accept waxed cheese, and it is generally found that in these instances the quality of the cheese to be put on the counter is their first concern. They go so far as to

claim that they can tell an unwaxed from a waxed cheese by the superior quality of the former, or, as one buyer put it, 'The quality of New Zealand cheese is much improved this year because we have been able to buy all our requirements unwaxed.' On the other hand, there are equally strong opinions expressed by those who favour waxing. In these cases the purchasers are usually buying for resale or for processing. In the first case the reduced shrinkage is an advantage, and, in the second, the clean rind after stripping. Those importers opposing the practice point out that Canadian cheese is never waxed except on instructions from the buyer, and it is not done in the factory. The statement has been made by one firm of importers that while 90 per cent. of Canadian cheese was waxed at one time probably only 9 per cent. is waxed to-day."

In defence of waxing some witnesses pointed out that by itself it is not harmful and that it means a considerable saving in shrinkage of cheese. The weight of evidence is that finest-quality cheese is not affected by being waxed after it is fourteen days old. On the other hand, cheese not so good in quality does not lose its moisture normally in the early stages of the curing process, and frequently develops an unsightly and evil-smelling sliminess between the surface of the cheese and the wax. A regulation was introduced last year to limit the waxing of cheese, but this was ineffective, and has been withdrawn. It has been suggested that, in order to give sufficient time for the less fine grades to dry out, the waxing of cheese should not be permitted until the cheese is at least one month old. The waxing could be then done either at the factory or at the grading-store. The latter method may introduce some difficulties; but if the vendor or the buyer is prepared to pay for the treatment, there is no reason why he should not be allowed to carry it out.

The Commission endorses this suggestion and recommends accordingly, as an interim measure, that no cheese shall be waxed until it is at least twenty-eight days old. In view, however, of the wide diversity of opinion on this subject, the Commission considers that further investigation in the United Kingdom should be undertaken to determine whether the waxing of cheese should be entirely prohibited.

216. Cheese-making Practices :

It has been clearly shown in evidence that there is need for greater care in the manufacture of cheese, and comparison of the grading returns of different factories in the same district leads to the conviction that much improvement can be effected in the application of existing knowledge. Many cases where insufficient care was taken of the starter were cited, and although good results have been obtained by the keeping of mother cultures and by the provision of inexpensive equipment for the proper care of both mother starter cultures and bulk starters, there are many factories that have not yet adopted these practices. Inadequate provision of labour in some cases prevents the factory-manager from giving sufficient time to the work of supervising the process of manufacture, and in other cases better equipment as well as more labour is required for carrying out additional routine tests. Such tests would be of advantage in various ways, for example in detecting added water in milk, in detecting mammitis while carrying out casein tests, in determining fat losses, and in estimating the vitality of starter, &c. The Commission suggests that cheese-factories should have the requisite apparatus for carrying out these tests, and that a suitably trained assistant should be employed to carry out the work.

Evidence has shown, too, that many factories are adopting measures of false economy in using vats which are too large for the cheese curd to be properly cooked and cared for. In our opinion vats should not be larger than 900 gallons total capacity and should contain not more than 850 gallons milk. There is need in many cases for paying more attention to the quality of materials and requisites used in the manufacture of produce and for laying down of standards for these. Where standards have not been defined, the Commission urges that they be determined and established without delay.

Reviewing all the evidence on the manufacture of cheese, the Commission considers that the Dairy-produce Control Board should, under the additional powers proposed to be granted to it, do much to effect improvement, and should immediately take measures to insist that adequate equipment, proper materials, and sufficient assistance be provided, and that greater care in manufacture be taken.

217. The Finish and Packing of Cheese :

Measures taken by the Dairy Division during the last two seasons to improve the finish of cheese are reported to have given very satisfactory results. Although a few cases of cracked rinds due to careless handling in factories have been referred to, there has been little evidence of faulty rinds in the past season. The New Zealand cheese crate is reported to give every satisfaction.

218. The Curing and Storage of Cheese :

In many cheese-factories better curing-room accommodation and more attention to the cheese whilst it is in the curing-room are required. Some curing-rooms are not adequately ventilated and many are not insulated, with the result that in periods of hot weather the temperature rises well above 70° F. This is prejudicial to the quality of the cheese. The Commission recommends that provision should be made by regulation for keeping the temperature of cheese-curing rooms from rising above 65° F. by the installation, where necessary, of cooling devices.

A number of witnesses called attention to the desirability of keeping cheese for a longer period in factory curing-rooms. At the present time the regulations require that cheese must be held on the factory shelves for three weeks during the period from 1st August till 1st September. During the rest of the season the minimum time required is fourteen days. The object of these regulations

is to ensure that spring-made cheese will be sufficiently mature when it arrives in England, because it has to be shipped at an earlier age than cheese made later in the season.

Another regulation requires that cheese shall be held in grading-stores at the following temperatures within the specified periods:—

	Minimum.	Maximum.
(*a*) 1st August–30th November	52° F.	54° F.
(*b*) 1st December–28th February	47° F.	49° F.
(*c*) 1st March–31st July	42° F.	44° F.

The Board arranges to ship the cheese at the same respective temperatures.

Certain difficulties have been experienced in maintaining these temperatures in grading-stores and on ships. Cheese made in the autumn months may still be in store in September, and it becomes difficult to keep the old and new lots in separate chambers at different temperatures. Owing to the wide variation in temperatures in the holds of some ships, a margin of safety should be provided to avoid the possibility of overheating cheese in any part of the hold. In the past numerous claims have had to be met for cheese damaged through being transported at temperatures over 50° F. Further, little advantage is at present gained from the higher temperatures in grading-stores till cheese stocks start to accumulate about early November, since up till about this time cheese is shipped very soon after arrival in the grading-stores.

The Commission recommends that, in order to ensure that cheese will arrive in the United Kingdom uniform in flavour throughout the year, spring-made cheese should be held on the factory shelves for at least one month, and that thereafter the period of holding should be progressively reduced first to three weeks and later to two weeks; and that cheese should be held in grading-store for at least one month thereafter at a temperature not exceeding 44° F., and should be transported at a temperature not exceeding 44° F.

219. Transport of Dairy-produce from Factories to Grading-stores:

It is reported that in warm weather it is not unusual for produce to arrive at grading ports in a state too heated for immediate grading. The Railway Department cannot always supply the correct type of wagons for the transport of butter and cheese. Produce is frequently conveyed by motor-truck, and both boxes of butter and crates of cheese are sometimes inadequately protected from the sun, or are covered by a tarpaulin which is lashed to the load. It should, in our opinion, be obligatory upon the owners of motor-trucks to provide a hooped or ridge-pole type of cover which would permit of an air space and at the same time prevent the produce from becoming heated. These are matters which the Dairy-produce Control Board should take up with the Railway Board and dairy companies.

220. Grading of New Zealand Dairy-produce:

All witnesses made very complimentary references to the present system of grading New Zealand dairy-produce. Several, however, offered constructive criticism. When first introduced, the practice of grading was an instructional service. This still remains an important aspect of its function, since the grader sets the standard of quality which the manufacturer must aim at. The principle of grading is now so universally accepted that the grade is the basis of commercial transactions, but at the same time this practice has given rise to misconception regarding the relation of grade to price and to the degree of accuracy possible in determining shortly after the manufacture of produce, particularly cheese, what its quality will be after a period of storage. In the case of butter, the price obtained corresponds with the grade, and quality reports from inspectors and merchants generally agree with the grade. The grading of cheese, however, presents a greater difficulty. Some witnesses expressed the view that cheese should be at least a month old before it is graded, or alternatively that the grading should be carried out in England. These witnesses argued that cheese changes so much in the process of maturing that the grade awarded to cheese when from two to three weeks old frequently does not agree with the opinions on its quality received from the United Kingdom. It has been shown, however, that there is general agreement between the grade of the immature cheese and that of the product on arrival overseas. Moreover, many dairy factories have insufficient space in their curing-rooms to accommodate a minimum of one month's make of cheese at the period of peak production.

Some witnesses, whilst agreeing with the principle that the grading of cheese should be done in the United Kingdom, considered that the benefits would not warrant the cost, and others considered it impracticable because it would prevent the rapid distribution of cheese to the trade. The problem is not one of supreme importance, and no definite conclusions can be arrived at without a careful survey on the spot of the actual marketing situation.

In regard to standards of grading, all witnesses are agreed that the present first-grade standard should be retained and that the benefit of doubt should be refused to borderline cases. Some witnesses stressed the desirability of not stamping the grade mark on cheese-crates, thereby enabling cheese to be sold in Britain on its merits, but this contention was discounted by others who stated that, as much cheese was sold on grade only, irregular practices would develop if the grade were not stamped on the crate. The latter view is supported by the Commission.

Much attention has been devoted to the number of grades of butter and cheese. All witnesses are agreed that butter should be graded into Finest, First, and Second, but many suggest that there should be only two grades of cheese—viz., First and Second. These witnesses state that, as the difference in quality between finest and the higher-scoring lots of first grade is not sufficient to warrant a difference in price, marketing difficulties arise. They recommend the raising of the lower limit of first grade by, say, 1 point, thereby classifying all cheese grading 92 points or over as "first grade,"

and all below 92 as "second grade." In defence of the existing practice, it has been shown that the establishment of a finest grade has created healthy competition among cheesemakers to obtain a high percentage of close cheese of outstandingly good quality, and that without it makers and factories would tend to content themselves with a first-grade level of quality. It is also pointed out in this connection that finest-grade cheese is definitely closer in texture than cheese grading 92 or 92½ points. Since openness is the greatest defect in our cheese at present, no reduction of the standard set for our highest grade should be contemplated. We are of the opinion that the question of number of cheese grades cannot be satisfactorily determined from evidence available in New Zealand. The matter should be thoroughly examined in the United Kingdom from the viewpoints of trade needs and of the prestige of quality.

Anomalies in the present method of awarding grade points have been referred to by witnesses. It is said that these anomalies arise from the narrow range of points used for each feature of quality and from the necessity of employing some one feature for balancing purposes to ensure that the total individual points awarded will agree with the total decided upon by the grader on general examination of the sample. Thus two cheeses alike in flavour but differing in degree of closeness may be awarded different points for both flavour and closeness because the usual range of scoring for closeness varies only from 17 to 19 points out of a maximum of 20. This prevents the accurate comparison of scores for whatever feature may be used for balancing. The difficulty could be overcome either by extending the range of points used in making scores for each feature or by including in the scale of 100 points some number which could be used for balancing purposes. A suggestion has also been made that, in place of the present method of using in practice a range of from 87 to 95 out of the total scale of 100 points and of allotting half-points, a scale of 15 points be adopted, and that the whole range of the scale be used. It is claimed for this scale that it would create a truer impression of quality than that now in use. Though such a scheme has much to commend it, there is no need for abandoning the present method, which is familiar to both the overseas trade and local dairying interests.

Many witnesses drew attention to the necessity for an extension of the present system of seconding graders to the London Inspectional Staff for one year's experience. The Commission strongly endorses the opinion of these witnesses.

221. Shipping of Dairy-produce :

The Commission has been greatly impressed by the improvements effected by the Dairy-produce Control Board in the care of butter and cheese during transport to the United Kingdom.

Some witnesses called attention to the desirability of transporting butter at chilled temperatures, while others suggested that temperatures even lower than those meanwhile adopted should be used. Some, too, suggested that more attention should be paid to the control of humidity in both cheese and butter holds and in stores. Very little definite information on these points is available, and the Commission accordingly recommends that the questions of transport, temperature, and humidity should be more thoroughly investigated. The Commission also recommends that the Board's shipping staff should be made responsible for the supervision of the storage of produce in stores, in view of the facts that they are responsible for its condition at the time of shipping and that they have a specialized knowledge of refrigeration.

222. Dairy-factory Buildings and Equipment :

The Commission has been impressed with the need for rebuilding some dairy factories, for renovating and extending others, and for replacing old equipment by new. It is realized that at present good produce is being made in many old factories, but their period of usefulness is rapidly drawing to a close. Difficulties are experienced in carrying out efficient work in them, much expense is involved in upkeep, and it is extremely difficult to keep some of them in a sanitary state. Moreover, where factories are dilapidated in appearance suppliers are not encouraged, by example, to attach importance to cleanliness. It would be cheaper and more satisfactory to demolish these old buildings and to erect new ones rather than to attempt to renovate them. There are other factories which require renovations and additions. In the case of cheese-factories, the most urgent needs are the enlarging of making-rooms, receiving-stages, and curing-rooms, the rebuilding and insulating of curing-rooms, the erection of starter-rooms, and the renewal of concrete floors. On the whole, butter-factories are in less need of renovation, but some should be rebuilt and others need repairs to receiving-stages, floors, walls, and ventilation, and the replacement of clear glass in windows by coloured glass. In both butter and cheese factories, more attention could be given to the reduction of overhead structure.

There is also need for the renewal of some factory plant and equipment, and in cheese-factories for new starter equipment, and for cooling devices and equipment in curing-rooms.

It is reported that twenty butter and twenty-three cheese factories throughout the Dominion should be rebuilt, and that seventy-two butter and eighty-four cheese factories should be renovated. The Commission considers that this is a very opportune time for effecting this work, in view of the possibility of securing loans at low rates of interest, of the extent of unemployment in the country, of the possibility of assistance from the Unemployment Board, and, above all, of the need to provide manufacturers with every reasonable facility for making finest-quality produce. Recommendations have accordingly been made elsewhere in this report for finance on easy terms to be made available to dairy companies.

The Commission considers that the Dairy-produce Control Board might profitably offer a prize for plans embodying the best design and layout of butter and cheese factories respectively.

223. Other Methods of improving Quality :

The Commission considers that measures should be adopted to stimulate healthy competition among factories by offering bonuses for high-grading produce and by making public the grading returns of factories. It also considers that existing facilities for technical assistance and instruction should be extended and improved.

224. Bonus for Quality :

During the season of absolute control, the Dairy-produce Control Board gave a premium bonus to all factory-owners whose produce graded finest. This had the effect of materially raising the average quality of export produce. Since so many factors, which cannot be individually assessed in value, play a part in affecting the quality of produce, it is believed that a monetary reward for the manufacture of best-quality produce is one of the most effective methods of obtaining improvement. This is particularly so in view of the fact that, although high-quality produce raises the prestige of the average, it seldom commands a higher price until the brand becomes a specialty product. The Commission considers that the whole industry should recompense those whose special efforts bring particular credit to the Dominion. It is recommended, therefore, that the Dairy-produce Control Board should create, by a levy upon all factories, separate pools for cheese and butter exported from each port, and that the pools should be distributed to owners of factories according to the grade-points awarded to their produce. A minimum standard would be set below which no premium would be paid, and for each half-point above this standard a bonus of a certain sum, say, 1s. per hundredweight of butter and 6d. per hundredweight of cheese, would be paid from the fund. The award of a bonus on grade-points on this basis should lead to a progressive improvement in quality. The minimum standard of points could be reasonably set at half a point above the average grade for the district. In view of the wide variations in producing conditions in different districts, we consider that a Dominion pool would prove inequitable.

225. The Publication of Grading Returns :

Wider publicity of grading returns throughout the season would create healthy competition among factory directors, managers, and workers, and would also provide an incentive to suppliers. In the past, factories have given wide publicity to their increased output, cheese yield, butter overruns, and payouts, but not to their grading returns. Since the quality of produce now plays a more important part than quantity, it is recommended that the Dairy-produce Control Board should publish monthly throughout the season in respect of each butter-factory the percentages of finest-grade cream, the average grade of the factory output, and the percentage of finest-grade butter ; and in respect of each cheese-factory the percentage of finest-grade milk, the average grade of cheese, and the percentage of finest-grade cheese. The factories should be grouped in the published list according to the grading ports they serve. It is believed that this scheme would be far superior to the present practice of making public only the grading returns of the best grading factories at the end of the season.

226. Technical Assistance :

Many factory-managers and others have drawn attention to the need for more laboratory assistance so that the purity of materials and factory water-supplies can be regularly checked, and the causes of defects in milk and cream supplies adequately investigated. The value of this work must be emphasized, not only because of its immediate service, but also because of the present tendency for the application of more science to industry. Elsewhere in this report recommendations are made for the establishment of service laboratories. It is suggested that factories should provide the necessary equipment and assistance in their own factories for the carrying-out of simple routine tests essential to factory efficiency. Butter-factories, it is felt, would easily recover the costs in the better control of butterfat losses and in the improvement of both the freshness and keeping-quality of their butter. Cheese-factories would similarly improve their efficiency and reduce their losses. In neither case is the equipment expensive ; sufficient accomodation is available in most factories, and the work could conveniently be carried out by a junior assistant who could easily be trained for the work.

227. Inspection of Stored Dairy-produce :

At the present time dairy-factory managers do not have sufficient facilities for gauging the quality of their produce after it has been stored. District branches of the New Zealand Factory Managers' Association arrange annual grading competitions at each grading port, and managers then have the opportunity of collectively studying the standards required by the graders. This, however, is not sufficient, because the meetings are too few and the produce examined is mainly freshly made. It is suggested, therefore, that crates of cheese and boxes of butter from each factory should be retained (at frequent intervals) in the port grading-stores, and that these should be examined by the grader and the manager of the factory at the time the bulk produce would arrive in the United Kingdom. Further, the Dairy-produce Control Board should arrange to return to factories sample boxes of butter and crates of cheese which have been adversely reported on in the United Kingdom. Return of defective produce is a far more effective method of drawing attention to weaknesses than the mere sending of a report to factories.

228. Dairy Factory Managers Registration Regulations :

Regulations gazetted in February, 1934, provide for the registration of persons competent to be employed as factory-managers. Regulations also require the owners of registered creameries and cheese-factories to employ as managers only those who are registered under these regulations. The

object of these regulations is to give factory-managers the status to which they are entitled and to ensure that only competent managers shall be employed by dairy factories. On the introduction of the regulations all existing managers were registered, and provision was made for the registration of assistants and others who in the opinion of the Registration Board were competent to be managers. The difficulty likely to be experienced by the Board is the determination of qualifications. It is suggested that detailed qualifications should be set out in the regulations so that the standard of efficiency of those to whom registration is given in future can be maintained. It is also pointed out that in view of the reconstitution of the Dairy-produce Control Board the personnel of the Dairy Factory Managers Registration Board should be altered to provide for the inclusion of a representative of the instructional staff of the proposed Dairy-produce Control Board.

229. Instruction in the Manufacture of Butter and Cheese :

The managers and staffs of butter and cheese factories have received valuable instruction and assistance in their manufacturing operations from the butter and cheese instructors, who in the past have been officers of the Dairy Division of the Department of Agriculture. It is recommended that this work should now be carried out under the direction of the Dairy-produce Control Board.

230. Courses of Instruction for Factory-managers :

At the present time an annual course of a week's duration is organized at the Dairy Research Institute, for factory-managers. It is recommended that dairy companies should allow their managers to attend these courses and should defray their expenses, because by this means the results of research work can be most easily communicated.

231. Courses of Instruction for Assistants in the Manufacture of Dairy-produce :

The Massey Agricultural College provides two separate courses of instruction in the manufacture of dairy-produce. One course of four years leads to the Degree of B.Agr.Sc. in Dairying, and embraces a detailed study of both the highly technical and the practical aspects of the manufacture of dairy-produce. It is intended to train men for either laboratory or dairy-factory work, and is specially valuable for the training of those who should, in later years, take leading parts in the dairy manufacturing industry. The other course is specially designed to provide dairy-factory workers with an understanding of the technical part of their work. This course is a general one, embracing an elementary study of the sciences fundamental to dairying and a complete study of manufacturing practices. It covers thirty-three weeks of instruction divided into three terms of eleven weeks, each extending from the middle of May to the end of July in three successive years. Students are required to work in dairy factories in the intervals between successive years' study, and if they pass written and practical examinations and have had at least five years' experience in dairy-factory work they are granted a diploma. These courses are fairly well patronized by students, and they are becoming increasingly more popular.

It is recommended that the Dairy-produce Control Board should make available scholarships to enable men working in factories to take full advantage of this course. By so doing the most promising boys entering the industry could be selected by factory-managers with a view to giving them special opportunities to qualify as factory-managers. Similar schemes are in operation in Denmark, Holland, Irish Free State, and many other countries.

232. Demonstration Factories :

On account of working-conditions in factories it is extremely difficult to provide practical instruction in all types of factory work for the most promising youths. In our large factories men have to be allotted special duties, and, as changes in personnel seldom take place, juniors do not have an opportunity of quickly learning all sections of the manufacture of produce. Apprenticeships cannot be arranged for.

It has been pointed out that the Dairy Research Institute can carry out experiments only on a small scale, and has no facilities for making investigations of localized problems. It is desirable that facilities should exist for carrying out on a larger scale those experiments which prove to be satisfactory at the Institute, so that practices can be thoroughly tested before they are widely applied in factory practice. It is also desirable that there should be available in different districts factories where local problems can be adequately dealt with.

It is suggested, therefore, that the Dairy-produce Control Board could take over one or two factories in each of the chief dairying districts, which they could use for the dual purpose of training promising young workers and as experimental factories for these districts. It is recommended that these factories should be run as commercial units, so that the trainees would become accustomed to ordinary factory work and so that any promising experiments could be applied on a commercial scale. The only additional expense attached to these factories would be the employment of a specially skilled manager and a well-skilled first assistant, both of whom would act as instructors.

233. Labour Conditions and Labour-supply :

The Commission gave attention to matters affecting the supply of labour for dairy factories and investigated the conditions of labour therein. It visited a number of factories in order to become acquainted with the nature of the work and the conditions under which it was performed and made inquiries of a number of witnesses.

In some parts of the Dominion awards of the Court of Arbitration are no longer in force in the butter and cheese making industry. In many cases the rates of wages and conditions of employment prescribed by the expired awards are still accepted as standards ; but in other cases, especially in small cheese-factories, less favourable conditions have been reverted to.

We desire to draw attention, in particular, to the following points :—

(*a*) A general tendency towards minimizing labour costs in cheese-factories, by the employment of minimum staffs, is observable. This results in an undue amount of work being thrown on the manager and his assistants. In the case of the manager, it is impossible for him to give proper attention to general supervision, tests, records, starters, the checking of vat losses, and the examination of milk supplied, unless he has adequate assistance. He cannot be expected to perform the full work of an assistant, and at the same time to carry out his other duties efficiently. The Commission is of the opinion that in cheese-factories in which four or more vats are in use, there should be one assistant to each vat, and a youth should be employed in addition to assist in carrying out tests under the supervision of the manager. In the case of larger factories, in which seven or more vats are in use, an additional assistant is necessary.

(*b*) Another effort to reduce labour costs in cheese-factories is evidenced in the use of vats that are too large to be conveniently worked. With one exception, all the expert witnesses who gave evidence on this point agreed in condemning the use of 1,000-gallon vats, on the ground that the work entailed on assistants was heavier than they could efficiently perform. We are of the opinion that the capacity of a cheese-vat should not exceed 900 gallons, with a working-capacity of 850 gallons. The use of larger vats, in addition to placing an unduly heavy burden on the workers, is likely to have a prejudicial effect on the quality of the cheese.

(*c*) It is desirable that the work of assistants in both butter and cheese factories should, wherever possible, be arranged so as to enable a six-days week to be worked. In a number of the larger factories the workers are given one day off in each week. In the smaller factories it is impossible in many cases to do this, but it is thought that it should be possible for two or more small factories situated within a few miles of each other to share the services of a relieving assistant. The respective companies should be able to agree on an equitable basis of apportioning the cost. We quote a passage from the Memorandum appended to the Wellington District Award of the Court of Arbitration, dated the 7th May, 1930 :—

> "The Court recognizes that the hours of work during the busy season are longer than those worked in other industries, and it recognizes also that they are spread over a seven-days week. Though these disadvantages are to some extent compensated for by the provision of considerably shorter hours during the slack season, and by the granting of holiday-leave on full pay, the Court would prefer, if it could see its way to do so, to spread the daily hours more evenly over the whole season, and to allow a day off per week to each worker. In the smaller factories a real difficulty is involved in arranging for a weekly day off during the busy season, and in many of the larger factories there would be an increase in costs. In view of the present condition of the dairy-produce market, the Court realizes that the present time is inopportune for making any material alteration in the conditions under which the factories are working. It has, however, decided to fix a short term for the currency of the present award, and hopes that if the market improves before another award is applied for the parties will concentrate their efforts on the framing of a system of working which will enable a six-days week to be worked. It is recognized, of course, that the factories must in most cases work on seven days a week, but it ought to be possible to arrange for mutual concessions that would enable the workers to have a weekly day off without unduly increasing the costs of production."

The Commission concurs in the opinion expressed by the Court, and agrees that a weekly day off would be more beneficial to the workers than the holiday period that is at present granted.

(*d*) In a number of cases where, owing to the isolated situation of a dairy factory, it is necessary to provide living accommodation for the assistants, there is room for considerable improvement in the accommodation provided. In some instances there are no bathrooms or conveniences except those in or adjoining the factory, and no suitable facilities for washing clothing, and the appliances for the preparation of meals are exceedingly primitive. It is of special importance that workers who are engaged in the manufacture of food-products should have suitable living conditions.

(*e*) The work in most dairy factories is seasonal, and the greater number of assistants are discharged as production diminishes. This tends to check ambition on the part of promising young men who would be of value to the industry. In another part of this report reference is made to the advantages of a system of all-the-year dairying. The more general adoption of the system in New Zealand would make it possible to give continuous employment to a larger number of assistants and would attract more workers of the better type.

234. Summary of Recommendations :

Although the quality of butter and cheese exported during the past season has shown an improvement, there is still the necessity for the industry to concentrate upon the complete elimination of the small proportion of second-grade butter and cheese and upon raising the quality of our total output to a standard definitely superior to that of other countries. We accordingly recommend that the following steps should immediately be taken, by regulations where necessary, to improve the quality of produce :—

(1) In regard to the production of milk and cream on dairy-farms, by—

- (*a*) Introduction of Dominion farm dairy instruction (190) :
- (*b*) Licensing of all dairy-farmers (191) :
- (*c*) Improvement, where necessary, of farm buildings, equipment, and water-supplies (192).

(2) In regard to butter, by—
(*a*) Manufacturing mainly from fresh cream to ensure rich creamy flavour in product (187 and 198):
(*b*) Daily collection of all cream (subject to certain exceptions), (200–202):
(*c*) Rationalization of cream-collection and termination of excessive competition for cream-supplies (199):
(*d*) Cancelling in certain circumstances the registration of cream-receiving depots (194):
(*e*) Raising the standard of cream-grading and increasing differential price-margin for second-grade cream (203):
(*f*) Separately manufacturing cream of different grades (205):
(*g*) Requiring greater care in manufacture (216):
(*h*) Improving the "Saranac" box (209).

(3) In regard to cheese, by—
(*a*) Raising milk-grading standards (212):
(*b*) New waxing regulations (215):
(*c*) Requiring more care in manufacture (216):
(*d*) Compulsory control of temperatures (i) of milk during pasteurization and (ii) in cheese-curing rooms (214, 218):
(*e*) Prolonging the period of storage in factories and grading-stores of cheese made in spring (218):
(*f*) Determining methods of payment for milk based on cheese-yielding capacity (213).

(4) In regard to both butter and cheese, by—
(*a*) Payment of a bonus according to grade-points for the higher grades (224):
(*b*) Publication monthly of factory grading returns (225):
(*c*) Improvement in the transport of produce from farm to market (193, 219, 221):
(*d*) Rebuilding and renovating dairy factories where necessary (222):
(*e*) Providing a system of universal laboratory assistance (226):
(*f*) Frequent inspection in New Zealand of stored produce (227):
(*g*) Extending present instructional services for managers and assistants (229, 230, 231):
(*h*) Improving labour conditions (233):
(*i*) Extending and intensifying present research work on cheese openness and other defects of dairy-products (204, 207, 211, 213, 221):
(*j*) Providing for the testing of dairy-factory plant and materials (192, 222):
(*k*) Arranging for commercial demonstration factories (232).

CONTROL OF ANIMAL-DISEASES.

235. Incidence of Bovine Tuberculosis in New Zealand:

The Commission called evidence as to the incidence of bovine tuberculosis in New Zealand. An estimate based on data collected by the Meat Inspectors of the Live-stock Division of the Department of Agriculture during their inspections at meat-export slaughterhouses and public abattoirs, and supplemented by information gained by the same Department from a limited amount of tuberculin testing carried out by it, indicates that approximately 9 per cent. of our dairy stock is affected with tuberculosis in some degree. This figure may be considered as overstating rather than understating the present incidence of the disease in New Zealand. It tends to be biased in an upward direction owing to the relatively large number of aged and cull cows that enter into the calculation. This needs to be borne in mind in subsequent discussions as to the probable cost of eradicating the disease, and also in any comparisons that may be made between the incidence of the disease in New Zealand and in other countries.

236. Incidence of Bovine Tuberculosis in other Dairying Countries:

The evidence submitted on this latter point indicates that most dairying countries have a much higher degree of infection than New Zealand. There are cases, however, where the operation of a tuberculosis-eradication campaign has reduced the incidence of the disease below the most favourable estimate that could be made for our own country. Thus in parts of the United States, where such a campaign has been in operation for many years, only 2 per cent. of some thirteen million cattle tested during 1933 were found to be tuberculous. In New York State alone a tuberculosis-eradication campaign reduced the incidence of the disease from 35 per cent. in 1918 to 3·3 per cent. in 1931. In Canada, although there are provinces with a much higher degree of infection than ours, there are others where the incidence has been reduced to not more than 3 per cent. No figures for Australia as a whole are available, but in New South Wales a tubercle-free herd scheme is in operation. This is limited to pure-bred herds and those supplying milk for human consumption. In the 1933 report it is stated that three municipalities have been declared tubercle-free areas. In Denmark a considerable amount of tuberculin testing has been carried out in recent years, and although the average incidence has been estimated to be 40 per cent., instances are on record showing that many badly affected herds have been effectively cleaned up, and that the general position in Denmark is improving.

237. Action in other Countries for Eradication of Bovine Tuberculosis:

The Commission has been much impressed by the attention which is being devoted to this problem in other countries. In Great Britain there has been in operation for some years a voluntary scheme for the eradication of tuberculosis, and milk from herds certified free from disease has been sold under a special grade, and has commanded a relatively high price. The rapid growth of the

movement in recent years led to the setting-up of the "Committee on Cattle Diseases," which, in its report of May, 1934, recommended, *inter alia*, an extension of routine veterinary inspection, an active policy for the eradication of bovine tuberculosis, and the grant to large urban authorities of the right to require pasteurization of milk other than that produced from herds free from tuberculosis. In 1934 the British Government provided a grant of £750,000 to be spread over four years for the launching of a campaign for the cleaning-up of herds. In most cases the high degree of incidence of the disease with which other countries have had to cope has rendered their task much more formidable than would be the case in New Zealand. The Commission is therefore of the opinion that a tuberculosis-eradication campaign could be undertaken here without great difficulty.

238. Reasons for Undertaking an Eradication Campaign in New Zealand :

There are many sound reasons why such a campaign should be undertaken. In the first place, herds that are infected are likely to remain in that condition unless special efforts are made to eradicate the disease. Moreover, since the source of infection is normally another cow, the tendency in the absence of effective control measures is for the disease progressively to increase. Since our farming is becoming more intensive and our cow population more dense, the risk of an increase in disease is becoming greater

With the increase of disease the task of eradication would become more difficult and more costly. At present we are favourably situated, since we have a comparatively low incidence of disease.

Associated with this point is the fact that the eradication of bovine tuberculosis in cattle would lead to the disappearance of tuberculosis in pigs and other farm animals. This is so because, while cows seldom receive infection from other animals, they readily communicate it to them. The evidence before the Commission indicates that present methods of tuberculosis control are not effective enough to prevent an increase in the incidence of the disease in pigs, which already stands at the fairly high figure of 10 per cent. The pig is very susceptible to tuberculosis, infection occurring in early life. Once a pig becomes infected, the disease is communicated to others in the herd through contamination of ground, pasture, feeding-troughs, &c. Tuberculosis in cows is thus a serious menace to the pig-breeding industry of New Zealand, and will become more so as our pig population increases unless steps are taken in the direction suggested. This is especially so in districts where pigs are fed on cheese-factory whey, for whey from mixed milk drawn from a number of farms will spread the disease from infected to non-infected farms.

From the point of view of marketing, the eradication of tuberculosis is highly important. Other countries, with whose supplies of dairy-produce we have to compete, are demonstrating a growing determination to grapple with the problem, and we therefore run considerable commercial risk in remaining inactive. Further, the United Kingdom, our only market of immediate importance, is becoming increasingly aware of the desirability of obtaining dairy-products derived from tubercle-free sources, and by its various campaigns is strongly encouraging consumers to buy only pure milk and dairy-products. While the main emphasis is rightly placed on the importance of pure whole milk, there is also a growing tendency to regard processed milk-products as suspect, unless they also come from guaranteed tubercle-free sources. It is highly inadvisable that we should lose any time in commencing to eradicate tuberculosis from our dairy herds, for, with our low incidence of infection and healthful conditions of depasturing, we can be in a position to certify all our butter and cheese as being produced from disease-free animals many years before any European country can do so.

The medical evidence placed before the Commission indicated that milk alone was responsible for the communication of bovine tuberculosis to human beings, and that its communication by processed milk-products was either "inconsiderable" or "entirely negligible." A few cases are on record, however, in which the tubercle bacillus has been isolated from butter, cheese, and dried-milk products. The Commission was unable to obtain for New Zealand information showing the amount of human tuberculosis of bovine origin, but the available evidence in regard to other countries indicates that the bovine tubercle bacillus is responsible for a considerable proportion of non-pulmonary tuberculosis in man and also for a smaller proportion of pulmonary tuberculosis. While mortality from tuberculosis of bovine origin is relatively not high, the disease is responsible for a large and indeterminate amount of invalidity and deformity which may persist indefinitely and impair the health and usefulness of the sufferer throughout the rest of his life. It is probable that there is less human tuberculosis of bovine origin in New Zealand than in any other dairying country. Nevertheless, it is estimated that approximately half the cases of non-pulmonary tuberculosis are due to the bovine tubercle bacillus, and it is certain that the elimination of tuberculosis from cattle would reduce the incidence of the disease in human beings to relatively small proportions. The Commission is of the opinion that more satisfactory results, from a health point of view, will be obtained by the eradication campaign suggested than by attempts to cope with infected milk by universal pasteurization. Properly conducted pasteurization is of great importance in providing safe and clean milk, and the Commission must not be understood to be in any way depreciating its value in this respect. Nevertheless, the tubercle bacillus is one of the most difficult of pathogenic organisms to destroy by pasteurization, and great care has to be taken in the control of pasteurizing-temperatures. In the opinion of the Commission, pasteurization should be viewed more as a means for improving the keeping-qualities of milk through the destruction of non-pathogenic organisms than as a means for destroying pathogenic organisms which can, through a properly controlled campaign, be eradicated.

239. Estimated Cost of Campaign for Eradication :

The last enumeration shows that there are approximately 2,000,000 adult dairy cattle in New Zealand. If the figure of 9 per cent. may be taken as the maximum degree of incidence of bovine

tuberculosis, about 180,000 head of dairy stock are affected and would need to be slaughtered. This immediately raises the question of cost as affected by the size of the staff required to undertake the testing of all cows in the Dominion and by the amount of compensation to be paid to farmers for the destruction of their stock.

The Commission is of the opinion that it would be impracticable, in one year, to test all the dairy stock and to eliminate those that reacted to the test. The initial eradication should be spread over a period of at least three years. On this basis it would require a staff of sixty men, of whom thirty would need to be veterinarians, to test one-third of the dairy stock in the first year. The estimated cost of the first year's programme, including the salaries of veterinarians and assistants, as well as travelling and administration expenses, is estimated to be about £60,000, allowing about £1,000 per annum as the all-inclusive cost for the services of a veterinarian and his assistant. In the second year, in addition to dealing with a further number of untested cows, all cows remaining over from the first year's test would need to be retested. This would necessitate increasing the staff to one hundred, of whom fifty would need to be veterinarians. On the same basis of calculation, the all-inclusive staff cost for the second year would be about £100,000. The requirements of the third year would necessitate a staff of one hundred and sixty, of whom eighty would need to be veterinarians, at an estimated staff cost of £160,000. The total approximate cost under this head would be £320,000 for the three years.

At the end of the initial three years of the campaign it would be necessary to continue the retesting of cows if it were desired to maintain herds free from tuberculosis, and to provide a continuous guarantee of the purity of our milk-supply. This would involve the retention of a staff of approximately one hundred and fifty men at an annual recurring cost of about £150,000. It is important to note, however, that, once the initial compaign was completed, this staff would be able to undertake work in connection with the control of such other animal-diseases as mammitis, contagious abortion, and temporary sterility. At this stage the annual estimated cost of £150,000 would become a charge for the control of all animal-diseases affecting stock on dairy-farms. This matter is referred to more fully in a later part of this section.

The other cost in a tuberculosis-eradication campaign is that incurred by way of compensation to owners of destroyed stock. The present basis of compensation is half the assessed value of the condemned animal, the maximum valuation being £12 and the Government receiving the value of the by-products. The Commission is inclined to the view that, regard being had to the present financial position of dairy-farmers, a fairly generous scale of compensation should be adopted. In Canada compensation is paid to owners up to two-thirds of the value of the animal, subject to a maximum compensation. In appraising the value of stock, a distinction is made between pedigree and grade stock, and allowances are made for "type and conformation," for "immediate usefulness," and for "age." The Commission suggests that the same or a similar method of compensation should be adopted in New Zealand, and estimates that the cost of compensation would approximate £700,000, to be spread over the three years of the initial campaign. The cost of the campaign for three years would therefore be in the vicinity of £350,000 per annum. If necessary, the eradication campaign could be spread over a longer period. This would reduce the per-annum costs, provided the value of stock did not materially increase in the meantime.

The Commission considers that the Government should provide the sum of approximately £1,000,000 required for the initial period of tuberculosis eradication. Thereafter, the costs of maintaining herds in a disease-free condition should be borne by the industry, except in so far as the State finds it expedient to provide compensation for the destruction of condemned stock. In the opinion of the Commission this arrangement would equitably spread the costs of the campaign over both farmers and taxpayers, and give due weight to the private and national interests respectively involved.

240. Suggested Method of Conducting Campaign for Eradication :

The chief difficulty connected with the campaign will be the provision of adequate veterinary supervision. At present there are twenty-six veterinarians on the veterinary staff of the Live-stock Division. These officers are engaged in meat-inspection, the supervision of meat-inspection, veterinary laboratory and research work, or on general veterinary field-work. Of this number, possibly eleven could be utilized on the work of tuberculin testing.

Of the private veterinary practitioners, it is estimated that twelve might be willing and able to assist in the work of tuberculin testing. Private practitioners, however, would be available only in their own districts, and probably only for a limited period of the year, since, at certain seasons, their time would be fully occupied by their private professional duties. Even if they were able to devote the whole of their time to tuberculin testing, seven additional full-time veterinarians would be required to make up the full complement of thirty needed for the first year of the campaign. In subsequent years the staff would need to be built up to the strength previously indicated. The assistants to be provided for the veterinarians could, it is thought, be drawn from the stock-inspection staff of the Live-stock Division.

The Commission desires to emphasize the point that proper veterinary supervision is essential to the success of any tuberculosis-eradication campaign. Without such supervision the campaign would not receive recognition from other countries, but would be criticized as unreliable and unofficial. Moreover, since the scheme will inflict some initial financial hardship on farmers, it will be resented unless an assurance can be given that the work is being professionally and competently carried out. Finally, the taxpayer, who is asked to provide the main costs of the initial campaign, should be equally assured that every precaution is taken for the efficient conduct of the work.

241. Losses from other Animal-diseases :

The Commission is aware that at the end of the initial period of the campaign, the large veterinary staff which would have been built up would not be fully occupied in the periodic retesting of herds. The suggestion is therefore made that their services be utilized additionally for the supervision and control of all diseases affecting dairy stock, with the exception of the diseases scheduled in the Stock Act.

The principal diseases other than tuberculosis are mastitis, contagious abortion, and sterility. Evidence placed before the Commission assesses the present annual loss from these diseases at approximately £2,380,000. The basal figures used in this estimate are 1,600,000 producing-cows, 200,000 producing-heifers, an average butterfat-production per cow of 200 lb., and a cost of 8d. per pound of butterfat. On this basis it is estimated that mastitis causes a loss of 16,000 tons of butterfat of a value of £1,200,000, per annum ; that the abortion of 100,000 dairy animals per annum results in a loss of butterfat and calves to the value of £430,000 ; and that temporary sterility causes an annual loss of butterfat and calves to the value of £750,000.

In its advanced stage, mastitis has a prejudicial effect on quality. Its control lies in early diagnosis accompanied by skilled treatment in the early stages of the disease and the adoption by the farmer of appropriate methods of segregation and of a milking routine which will minimize or eliminate the risk of infecting other animals in the herd. Competent veterinary advice is necessary whatever individual practices may be adopted by the farmer.

The same is true of the control of contagious abortion. An agglutination test of the blood is required, together with a strict segregation or slaughter of affected animals. To be effective a scheme of control should cover a wide area. While it is possible to run clean herds in the midst of affected herds in a district, the danger to the clean herds of infection from the other herds is so great that isolated and individual attacks on the problem are likely to prove unsuccessful.

Permanent sterility in dairy cows results most frequently from contagious abortion, and its control is therefore associated with the control of contagious abortion. Temporary sterility may also be due to contagious abortion, but is induced also by other factors. The present state of knowledge of this disease is, however, very incomplete, and a considerable amount of further information, gathered by competent field-workers, is necessary before this disease can be effectively controlled.

242. Need for Veterinary Organization :

It is evident that these major animal diseases, as well as such other problems as digestive and calving troubles, cannot be coped with without the aid of a competent veterinary organization. The Commission considers that present veterinary services are inadequate to deal with the matter. Moreover, at the present time, when the value of cows is so low, relatively few farmers find it economically worthwhile to make use of such veterinary services as are available. A veterinary practitioner, however moderate his fees may be, must charge for his services an amount that, at present stock prices, represents a large proportion of the value of the animal. Farmers are reluctant to undergo the expense entailed when the value of the animal is not substantially above the cost of skilled service and when there can necessarily be no assurance that the treatment will always be successful. The result is that veterinarians find it difficult to make a reasonable living, and farmers are unable to make a sustained and concerted attack on animal-disease. At the same time the costs of a general disease-control scheme should be borne by the industry and not be charged to the taxpayer. The control of animal-diseases will, except in the case of tuberculosis, confer benefits on farmers rather than on the community generally, and should therefore be looked upon as a special responsibility of the beneficiaries. The Commission cannot recommend that such a service should be provided by the State free of cost to farmers.

For these reasons the Commission recommends that at the conclusion of the initial campaign of tuberculosis-eradication, the veterinary organization established should be directed to the task of animal-disease control generally, and that at this stage the costs involved should be borne by the industry.

243. Suggested Plan of Control of Animal-disease :

The suggested organization is a block system in which a veterinary officer would be responsible for the supervision of all cows in a given area. The general cost of the veterinary service would be met by the Dairy Board from its general funds raised by way of levy. The levy would be collected by the Board from all dairy-produce factories whether manufacturing butter, cheese, or condensed and dried milk, and would be a levy on all such produce manufactured, whether for local consumption or export. The Board would also levy upon farmers supplying milk for town or city consumption. In this case it is suggested that levy should be made by means of a license fee adjusted in accordance with the size of the farmer's herd. A general all-inclusive levy of this kind would represent the co-operative participation of farmers in defraying the costs of the scheme ; but suppliers who required the services of a veterinarian would be charged a small fee per visit.

In one scheme now successfully operating on this basis, the fee charged per visit is 2s. 6d. The amount to be contributed by suppliers is assessed in the following manner : From the known total costs of the service, the sums received on account of service visits and by way of profits on the sale of drugs, disinfectants, &c., supplied from the factory dispensary, are deducted. The balance represents the amount which must be met by way of general levy on suppliers.

In the scheme under discussion the levy required in the 1933–34 season to meet the costs of the Veterinary Department and of the factory laboratory (after all fees earned had been credited) amounted to no more than 0·024d. per pound of butterfat. The cost of the Veterinary Department alone (after crediting all fees earned) was as low as 0·013d. per pound of butterfat.

The great advantage of such an organization is the completeness of service that it offers at a very low cost. It provides the means whereby a co-operative attack over extensive areas could be efficiently and cheaply made. It places the costs where they properly belong—that is, on the industry; but it should, once it is fully operating, show a net gain to the industry through a reduction in the large total annual losses now occurring through want of proper veterinary services. The system of making a general levy on all suppliers to meet those costs of the service which are in excess of receipts from service and dispensary fees is sound in principle, for every supplier will benefit directly and indirectly through a reduction in his disease risk. At the same time, a special fee is justly chargeable to suppliers when they make use of the veterinary service.

ECONOMIES OF COLLECTION, PROCESSING, AND DISTRIBUTION.

244. Standardized Balance-sheets, Statements of Accounts, and Statistical Records :

The organization of the dairy industry is almost entirely co-operative, and the purpose and objectives of the individual manufacturing units are, generally speaking, identical. Proprietary trading concerns in competition with one another must of necessity maintain a degree of reserve regarding the results of their trading; but in a co-operatively organized industry such as the New Zealand dairy industry the circumstances are entirely different. There is, in the transactions of a co-operative dairy company, no conception of "profit," in the sense in which the term is used by an ordinary trading company, because the payments or returns to shareholder-suppliers of milk or cream depend on the prices realized for the resultant produce. In a season of poor market prices, the pay-out to the suppliers is low, and in a season of higher market prices the pay-out is correspondingly increased, but no question of profit or loss arises. Similar methods of conducting manufacturing and marketing operations are followed by all the companies, and there is no need for secrecy respecting the results of their operations. A unique opportunity exists for the promotion of efficiency in the operations of all co-operative dairy companies, by means of the adoption of standard forms of accounts, statements, and balance-sheets, which will enable sound comparisons of results to be made and points of weakness detected.

245. Necessity of Sound Basis for Comparison of Results :

It was inevitable that, in the development of the industry on co-operative lines, directors and suppliers should compare their results with those of neighbouring companies, and it was to be expected that their comparisons would be based on the financial and statistical information published in and with the annual accounts of the respective companies. The weakness of comparisons so made lay in the absence of uniformity of method in presenting the information, and it is clear that unsound conclusions were often reached as to the relative efficiency of different companies. It is certain that, if full and accurate information were made available, in the form of comparable statements and accounts, of the relative financial position and efficiency of all co-operative dairy companies, suppliers would be less liable to make disturbing and capricious transfers of their supplies. At present such transfers are often made without a full knowledge of the real position, and cause considerable confusion and ill feeling, and give rise to undesirable methods of competition by companies for supplies.

The Commission ascertained that about thirty co-operative cheese-manufacturing companies in Taranaki adopted in 1925 a standard form of accounts and statement of statistics, which has been in use since that date. Much benefit has resulted, and directors, managers, and secretaries of the different companies have been enabled to compare their results with those of their neighbours, and to concentrate upon apparent weaknesses revealed by the comparisons.

246. Suggested Form of Standardized Statements :

The standard form adopted by the Taranaki factories permits of comparisons of costs and manufacturing yields being made in respect of—

(*a*) Itemized costs of manufacture :
(*b*) Itemized costs from factory to f.o.b. ocean steamer :
(*c*) Itemized overhead charges :
(*d*) Total cost to f.o.b. ocean steamer :
(*e*) Yield results in cheese-manufacture :
(*f*) "Overrun" or yield results in butter-manufacture.

The Commission considers that the Taranaki practice of adopting the pound of butterfat as the unit of production for costing purposes should be adopted. If a comparison of results on the lines indicated is made possible, dairy-company directors and officials have a satisfactory means of judging the relative efficiency of their operations in all departments.

The Commission considers that standard forms of accounts and statistical statements for both butter and cheese manufacturing companies are necessary in order to enable a sound interpretation of the operations of companies to be given.

247. Recommendation for Adoption of Standardized Forms :

The evidence shows that there is a general desire for uniformity in this matter, and it is recommended that the Dairy-produce Control Board be empowered to require all dairy companies to keep standardized books of account, and to prepare and submit standardized balance-sheets, statements of account, and statistical statements and other information in such form as may from

time to time be directed by the Board; also that the Board be empowered to examine books and records. It is further suggested that the Board, in deciding upon the particular form of standardized accounts and statistical statements, might adopt the form used successfully in Taranaki, where it has been found that a simple, practical, uniform system is all that is required.

248. Overlapping in Cream-collection :

From evidence submitted to the Commission it seems clear that no very serious problem exists in regard to overlapping in the supply of milk to cheese-factories. It is probably true that in some instances neighbouring cheese-factories are in competition in the same area, and that a saving could be effected by amalgamation. Nevertheless, the limited distance over which a farmer supplying whole milk for cheesemaking can economically cart his milk has prevented a serious overlapping problem. It has been stated that some cheese-factories are operating with a milk-supply too small to permit of economic manufacture, and that the suppliers to such factories would be more efficiently served if they were to separate their milk and supply the cream to a butter-factory. There should be available to the directors and suppliers of cheese-manufacturing companies sufficient clearly stated information regarding costs of manufacture and pay-out returns from buttermaking to enable them to make a sound decision as to the course of action they should adopt.

249. Causes and Effects of Overlapping :

In the collection of cream for butter-manufacture, however, a definite overlapping problem exists, and there is abundant evidence of the necessity for action in the interests of the industry as a whole. In the early days of the dairy industry, whole milk from farms was carted to butter-factories or creameries, which were erected at points that could be conveniently reached by a sufficiently large number of dairy-farmers to provide the supply necessary for economic manufacture. These factories, once established, have in most cases remained, notwithstanding that the introduction of the home separation system, the evolution of motor transport, and the provision of good roads have entirely altered the situation, and rendered it unnecessary to maintain a large number of small factories. Butter-manufacturing companies, in their anxiety to continue their operations, and under stress of competition, have gone beyond their own territories to obtain larger supplies of cream in order to secure increased outputs and thereby reduce their costs of manufacture. Improvements in factory plant and equipment have enabled manufacturers to handle larger quantities of cream, and competition for supplies has become intense. Stated shortly, the position is that though development in butter-manufacture during recent years has been consistently towards larger manufacturing units and a wider range of collection of supplies, the multiplicity of factories has remained, and has led to vicious and uneconomic competition.

The effects of overlapping in cream-collection may be summarized as follows :—

(1) Quality is impaired. This feature is fully dealt with in the special section of the report dealing with quality of dairy-produce;

(2) Cream-collecting lorries of different companies traverse the same roads, with resultant increase in cost of cream-collection, and damage to the roads;

(3) Under the stress of competition, officials of companies have sometimes, in an endeavour to attract supplies, resorted to practices that are not in the best interests of the industry. The most frequently reported malpractices were as follows: lowering the standard of grading of cream; manipulation of weights and butterfat tests of cream with a view to showing a more favourable pay-out per pound of butterfat; relaxation of the co-operative principle that suppliers should hold shares in accordance with their butterfat-supply; granting loans on inadequate security to suppliers in order to secure their cream-supply: and departure from the system of daily cream collection that is vital in the interests of quality.

250. Investigation made by the Transport Department into Costs of Cream-collection :

At the request of the Commission, the Transport Department conducted a detailed inquiry covering the Manawatu and Waikato dairying districts, it being considered that these two areas would provide reasonably typical examples from which general conclusions could be drawn regarding costs of cream-collection and the possibilities of savings by rationalization or zoning of supplies.

In conducting the inquiry, the Transport Department secured the assistance of secretaries and other officials of the dairy companies operating in the areas investigated, and proceeded on the following lines :—

(1) Maps were prepared and numbered squares were plotted thereon, each square representing an area of approximately four square miles or 2,500 acres.

(2) The secretaries of the companies concerned were asked to supply the information respecting—

(*a*) The frequency of cream-collection from each supplier during the summer and winter months respectively :

(*b*) The total butterfat recorded for each supplier for a period of twelve months, and the location of each supplier's farm :

(*c*) Details of the mileage of collection trucks during the period, giving the classification of the trucks and the costs of operation :

(*d*) Particulars of contracts for cream collection, with classification of trucks used, distances travelled, frequency of trips and contract prices.

The results obtained from treatment of the data collected were as follows :—

(*a*) A reliable estimate was made of the truck mileage involved in the present system of cream-collection in the two selected areas.

(*b*) The butterfat-production within each square on the plotted maps was ascertained, and the location of each factory in relation to the roads was plotted. Technical information was also obtained regarding the cream-carrying capacity and operating efficiency of the different classes of motor-trucks.

It was then possible to estimate the truck mileage and the cost involved in the collection of cream, firstly, if cream were transported to the nearest factory, and, secondly, if a measure of rationalization were applied to the present system.

251. Conclusions of Transport Department :

The conclusions of the Transport Department based on the investigation may be summarized under the headings of "Present Costs," "Costs under a Rationalized System," and "Costs under a Zoning System." Under a rationalized system of cream-collection, suppliers would continue to supply their present factories, but avoidable overlapping on roads and duplication of collecting-services would be eliminated. Under a zoning system, suppliers would be required to supply their nearest factory. The following estimates were made by the Transport Department :—

(*a*) The *present costs* of cream-collection are—

	Cost per Truck-mile.	Cost per Pound of Butterfat.	Total Transportation Cost.
	d.	d.	£
Manawatu	7·13	0·260	19,666
Waikato	8·33	0·287	36,478
Total			£56,144

(*b*) The estimated costs of cream-collection under a *rationalized system* of road transport are—

	Cost per Pound of Butterfat.	Total Transportation Cost.
	d.	£
Manawatu	0·210	15,871
Waikato	0·222	28,293
Total		£44,164

(*c*) The estimated costs of cream-collection under a *zoning system* are—

	Cost per Pound of Butterfat.	Total Transportation Cost.
	d.	£
Manawatu	0·181	13,062
Waikato	0·214	22,028
Total		£35,090

Thus, a rationalized system of transport would result in a saving of £11,980, or 21·5 per cent., and a system of zoning of supply would effect a saving of £21,054, or 36·5 per cent., on the cost of the existing system of transport in the two areas investigated.

Applying these percentages to the total cost of transport of cream from farms to dairy factories for the whole Dominion, the approximate result would be as under :—

	£
Cost under present system	411,000
Cost under rationalized system	323,000
Cost under system of zoning of supply	261,000

That is, the saving under a rationalized system of transport would be approximately £88,000, and under a system of zoned supply it would be approximately £150,000.

252. Comment on Conclusions of Transport Department :

It should be mentioned that the savings calculated by the Transport Department are based on the assumption that complete rationalization or zoning of cream-collection is practicable. From the evidence submitted to the Commission it is clear that the problem bristles with difficulties, and that no complete single system of rationalization is at present possible. Much, however, can be done to minimize overlapping by one or other of the methods suggested in the recommendations that follow.

The investigation carried out by the Transport Department and briefly summarized above is most valuable in proving the need for action appropriate to the particular circumstances existing in different districts.

It is difficult to determine accurately the loss through overlapping, and difficult also to estimate the extent to which the industry will benefit from rationalization; but it is not improbable that

the benefits resulting from improvement in quality will be considerably more important than the savings in costs. The Commission heard evidence respecting amalgamations in the Hawke's Bay District, which provide an outstanding example of the possibilities of factory rationalization with resultant economies in cream-collection. One of the butter-manufacturing companies concerned was able to reduce its costs of cream-collection from 0·66d. per pound of butterfat to 0·27d. per pound. There is no uniform solution to the problem, but one or other of several methods of minimizing overlapping can be instituted according the to circumstances of a particular area.

253. Recommendations for overcoming Overlapping Problem :

Witnesses agreed that it was difficult or impossible to overcome overlapping in cream-collection unless power was given to some authority to take definite action. The Commission recommends that the Dairy-produce Control Board be empowered to minimize overlapping in collection of milk and cream by zoning suppliers, by defining collection routes, by arranging for collection of cream from side roads by one lorry on behalf of all companies concerned, by arranging for contracts for collection, and by arranging for and effecting the amalgamation of dairy companies. A system of zoning is suitable in the case of factories situated in isolated and relatively compact areas, but cannot be universally applied.

The question of amalgamation of dairy companies is referred to in the discussion on "Organization of factory units." Further suggestions which might be helpful are—

(*a*) Amendment of the Dairy Industry Act, requiring dairy farmers to supply to their respective factories for longer periods ; and

(*b*) Encouragement of the making of boundary agreements between companies.

The Commission recommends further that, if necessary, the Dairy-produce Control Board should confer with the Government with a view to having vehicles employed in the collection of cream brought under the jurisdiction of the transport licensing authorities.

254. Organization of Factory Units :

The classification of dairy-factory units in New Zealand on an output basis is as follows :—

BUTTER-FACTORIES.

Number of Factories.	Output (Tons).	Number of Factories.	Output (Tons).
49	1–200	3	3,001–3,400
38	201–600	2	3,401–3,800
31	601–1,000	1	3,801–4,200
14	1,001–1,400	1	4,201–4,600
7	1,401–1,800	..	4,601–5,000
7	1,801–2,200	1	5,001–5,400
3	2,201–2,600	—	
6	2,601–3,000	163	

CHEESE-FACTORIES.

Number of Factories.	Output (Tons).	Number of Factories.	Output (Tons).
48	1–100	9	701–800
76	101–200	6	801–900
48	201–300	1	901–1,000
50	301–400	4	1,001–1,100
39	401–500	6	1,101–1,200
20	501–600	1	2,300
9	601–700	—	
		317	

(Particulars taken from 1934 annual list of dairy factories, compiled by Department of Agriculture.)

255. Size of Factories in relation to Cost of Manufacture :

The wide variation in size of factories is associated with wide variations in costs of manufacture. The evidence available to the Commission indicated in a general way that economy of manufacture was influenced mainly by size of output, and that the difficulties of many factories were chiefly due to their small turnover. This, however, is not universally true. The special circumstances attaching to some small factories, such as favourable location, or access to a cheap fuel-supply, enable them to produce as cheaply as, sometimes more cheaply than, larger factories. It would therefore be entirely incorrect to assume that a clear case could be made out for the abolition of all small factories, and the Commission can therefore make no recommendation in this direction. The evidence, however, strongly indicates the necessity for a detailed survey in the different districts of the economies of manufacture as affected by both size and location of factories. Only in this way can the necessary data be obtained as a basis for an appropriate policy.

Apart from the general economies that are derived from a large turnover, the main advantage of large companies is their comparative security. It is known that many small companies are hard pressed to-day by competition, and have been threatened with extinction. It frequently happens that a few suppliers leave their company in the hope of doing better for themselves, and the loss of the supply increases the cost of manufacture and lowers the pay-out to the remaining suppliers. General dissatisfaction is caused, and this results in more suppliers leaving their company. In the case of the larger companies, the loss of a few suppliers has not the same crippling influence, and the circumstances which have caused suppliers to leave can be investigated and steps taken to bring the company into successful competition with other companies.

256. Size of Factory not Sole Determinant of Efficiency :

As has been pointed out, the particular circumstances of each company and of its suppliers determine whether or not the service given is efficient and economic. It is not entirely a question of size of the factory or of comparative costs of manufacture. A dairy factory may be situated in an isolated position, and its output may of necessity be small, on account of the limited extent of the dairy-farming in the district. These conditions would make for a high cost of manufacture, and a lower pay-out than that of larger companies situated in more favourable districts. Nevertheless, such a small, isolated dairy factory may be performing an efficient service for its suppliers. The factory could be accounted uneconomical only if there were available for suppliers some more profitable means of earning an income from the land, or if there were inefficiency in the conduct of the manufacturing operations.

257. Possibilities of Amalgamation of Companies :

There is opportunity in some districts, particularly in regard to buttermaking, for the amalgamation of certain companies. Better means of transport, more modern equipment, and better roads have made it possible for the cream-supply of a district to be concentrated at one factory. Savings in costs can be effected all round, and much overlapping and unsound competition for supply eliminated. In view of these facts and of the wide diversity of conditions under which factories operate, the Commission recommends that the Dairy-produce Control Board undertake a survey of the economic position of dairy factories with a view to determining to what extent factories are redundant or uneconomical and what policy should be adopted in particular cases.

In regard to amalgamations of companies, it is considered by the Commission that a useful purpose could be served by special committees set up under authority given to the Dairy-produce Control Board. If a case for amalgamation in any district were advanced, the special committee could investigate the matter fully and make a recommendation upon which the Dairy-produce Control Board could act. The committee could explore the possibilities of savings by amalgamation, and could determine the particular means by which amalgamation would be achieved. It is conceivable that the assistance of the committee might lead to adoption of an amalgamation proposal without the exercise of any compulsion by the Dairy-produce Control Board, and in any event no compulsory action would be taken unless there were an unanswerable case for amalgamation.

258. Transport from Factory to Port Stores :

Competition between road, sea, and rail transport of butter and cheese is acute in some districts, and differential rail rates have been charged by the Railway Department to meet this competition. These differential rates represent reductions from the ordinary rates of varying amounts up to 12s. 1d. per ton. The greatest reductions have been made on the haulage from Palmerston North and Wairarapa districts, where the road competition has been very keen.

259. Report of Railway Department :

The trend of rates for railage of dairy-produce is now outlined, so that the possibilities of reductions in rates can be reviewed. The Railway Department dealt with the matter fully, and the following is a quotation from the evidence submitted by the General Manager to the Commission :—

> " Butter and cheese were originally charged at Class C rate for consignments of less than 10 cwt. and at Class D for lots of more than that weight. This classification remained in force until 1897, when a further concession was given for the purpose of assisting the primary producer. At that time the dairying export business was in its infancy and the prices ruling for both butter and cheese were low. To assist in establishing the industry the rates on butter and cheese in consignments of not less than 10 cwt. were reduced from Class D to Class E, rate and a half.
>
> " In October, 1902, further reductions were made, the rate for small lots being reduced from Class C to Class D and the minimum weight necessary to be charged at Class E, rate and a half, was reduced from 10 cwt. to 5 cwt. Although the dairying industry had been firmly established on a flourishing and profitable basis in the interval, no increase of any kind was made until 1915, when the value of butter had increased by 153½ per cent. compared with 1897, while cheese had increased in value by 253 per cent.
>
> " In 1915, during the war period, an increase of 10 per cent. was made in the then existing rate, and in 1917 a second war increase of 10 per cent. was enforced.
>
> " In 1920 a reclassification of certain commodities was made to meet the increase in expenditure resulting from war conditions, butter and cheese being reclassified at the then Class D rate. The 10-per-cent. increases previously referred to were cancelled and a 40-per-cent. increase was imposed on the classified rates. The present Class D rate incorporates the 40-per-cent. increase mentioned above, and this is the classification now applicable to butter and cheese. On the 5th February, 1933, however, a reduction of 15 per cent. in the railage charges for butter and cheese was made by the Government, the Railway Department being reimbursed through the Treasury.
>
> " The competitive rates which have had to be instituted vary considerably and according to the particular conditions with which we have to contend ; in some cases the reduction made to hold the traffic to rail is in the vicinity of Class E rate and a half, while in other cases only a slight reduction in our Class D rate has been made.
>
> " We still transport an appreciable quantity of dairy-produce at the standard Class D rate, more particularly in the South Island, where the competitive conditions for this commodity

are not so acute. This is due largely to the fact that in the South Island proportionately more cheese is produced than butter. Dairy companies prefer rail transport for butter, but with cheese the necessity for the special transport facilities afforded by rail is not so apparent, hence competitive services secure a greater proportion of cheese than of butter.

"Some two years ago we were requested to reduce our rate to that existing in 1917, which was the then Class E rate and a half, plus 10 per cent. and 10 per cent. Based on the traffic in butter and cheese which we carried for year ended 31st March, 1933, the position, if the request had been acceded to, was estimated to have been as set out hereunder:—

	"Tonnage carried, 1932–33.	Revenue at Existing Rates (Local and Classified).	Revenue at Rates in Force in 1917.	Loss.
	"Tons.	£	£	£
"Butter:	146,367	144,487	105,505	38,982
"Cheese:	95,336	87,357	59,187	28,170
"	241,703	£231,844	£164,692	£67,152

"For year ended 31st March, 1933, the average ton-mile figures for these two commodities were—butter, 3·72d., and cheese, 4·42d. The average hauls for butter and cheese conveyed during that year were 64 miles and 50 miles respectively, and the estimated revenue at the proposed reduced rates was based on the rates applicable to those distances.

"The total loss which would have resulted had the cheaper rates been charged amounts to £67,000, and to make the equivalent revenue we would require to carry additional traffic equivalent to 55,000 tons of butter and 46,000 tons of cheese. Our experience has been that, where reductions in our dairy-produce rates have been made, road operators make every endeavour to hold or secure the traffic by means of still lower rates. This traffic generally represents backloading for the motors and as such is keenly sought after as an alternative to empty running. In such circumstances it can be appreciated that our competitors will quote what would, in ordinary circumstances, be quite uneconomic rates to secure the business.

"Apart from the factories which are located in what may be termed competitive areas, there are many factories so situated that we must naturally continue to receive their output at the standard Class D rate; again, there are factories so situated as to be in a position to still secure cheaper transport by road or sea and in many cases we could not hope to secure their output, irrespective of what, within reasonable limits, our rates might be. The position would therefore be that, as a result of a general reduction in rates, we would sacrifice a substantial portion of our present revenue without securing by way of compensation any appreciable volume of additional traffic.

"The grounds on which the requests for reduced freight rates have been made were the low prices ruling for the commodities, and, while there may be some justification for meeting the requests, any assistance given should not be a charge against railway revenue. This aspect has been given due cognizance by the Government as is evidenced by the fact that the 15-per-cent. reduction already referred to is a charge against the Consolidated Fund. It must, of course, be appreciated that our capacity to reduce freight charges is dependent upon the volume of additional traffic we can secure by such reductions, more especially in view of the fact, indicated later, that the Department is unable by a large sum (approximately £1,200,000 for 1933–34) to meet operating-costs and interest charges.

"Again, our diminishing traffic in the higher-rated goods, Classes A, B, and C, seriously affects the position so far as our ability to reduce the rates for the lower-rated goods is concerned. From each large town or city throughout the Dominion we have had to reduce our classified rates for Classes A, B, and C to hold not the whole, but a portion only of this traffic to rail, and such reductions have seriously affected the Department's earning-power.

"The average rate charged by the railways for the carriage of freight is about 2·5d. per ton per mile. Such a rate is unprofitable to road transport. Road transport has, however, been able to make serious inroads into the freight business because of the railway practice of levying different charges for the carriage of different classes of goods, which may be described briefly as follows:—

"Goods of a relatively high value, consisting mainly of merchandise and manufactured commodities, are charged at a higher rate than lower-grade traffic, which nevertheless permits of the free movement of all classes of goods as the freight rate has, as general rule, only a small influence on selling-prices. The charge for the higher-rated goods is more than sufficient to cover average railway costs and it is profitable to road transport, provided the latter is not compelled to handle the lower-grade classes of traffic which cannot pay such rates. Goods of a relatively low value, such as coal and other minerals, timber, grain, fertilizers and raw materials in general, carried in bulk, would not move or would move for only short distances or in small volume if a high rate was enforced. Such goods are charged at lower rates, in some cases little more than ½d. per ton per mile, which pay the direct costs of moving the traffic and contribute something to the fixed expenses. The return from many of these rates is, however, well below the amount required to meet the average costs including all expenses, and the deficiency is, or should be, made up by the higher-rated goods. The justification for differential rates is not to be found in the fact that the more valuable

commodities can pay more than others. The justification lies deeper in the fact that the differential rates permit of the fullest possible use of the service.

"Included in the commodities referred to as goods of a relatively low value carried at lower rates are two traffics of special importance to the dairy industry—namely, agricultural lime and artificial manures—both of which are conveyed by rail at rates which cannot be regarded as other than of a concessional nature.

"In order to indicate the extensive nature of the business in these commodities, I would mention that for the year ended 31st March last the respective tonnages were as follows:—

Agricultural lime	195,000
Artificial manure	552,400

"Practically all railway rates are tapered—*i.e.*, the rate per ton per mile is reduced as the length of haul increases, in order to ease the burden of freight charges on long-haul traffic. Charges, apart from adjustments necessary to meet competitive conditions, are levied on a uniform basis over the whole railway system. Variations in costs caused by local conditions of operating are disregarded.

"Summarizing the position, it may be stated that the object of the railway rating system is to distribute transport costs over the whole stream of transport in such a way as to foster the growth of the maximum volume of traffic, volume being one of the first essentials not only to the profitable operation of a railway, but also to the maintenance of low freight rates which are necessary to the economic welfare of every country. The greater the volume of traffic the more thinly can the fixed expenses be spread over each unit of traffic.

"Reviewing the position in the light of the foregoing, it may be stated that the adverse effect on our revenue, consequent on the continuous process of rate reductions to which a big proportion of our higher-grade traffic has been subject, together with the fact that we are obliged to continue to provide adequate services for the transport of huge tonnages of the lower-grade goods at cheap rates, precludes a general reduction in rates being conceded in order to afford relief to any particular industry."

260. Relation of Railage Rates on Dairy-produce to other Rates:

From the foregoing it will be observed that the claim of the Railway Department is that pre-war railage rates were concession rates instituted in earlier years to assist the development of the industry, and that they had no actual relation to cost of haulage. It is further claimed by the Department that present-day railway operating-costs are still approximately 60 per cent. higher than the pre-war level, and that no reduction of rates on dairy-produce is justified. The attention of the departmental officers was drawn to the difference between present and pre-war haulage rates for meat, and present and pre-war haulage rates for dairy-produce, as disclosed by published rates as follows:—

BUTTER AND CHEESE: ORDINARY RATES.

Rates per ton-mile for	Miles 25.	Miles 50.	Miles 75.	Miles 100.	Miles 150.	Miles 200.	Miles 300.
	d.	d.	d.	d.	d.	d.	d.
Prior to September, 1915	3·1	2·4	2·1	1·7	1·4	1·2	1·1
From September, 1915	3·4	2·7	2·3	1·9	1·6	1·4	1·2
From November, 1917	3·8	3·0	2·5	2·1	1·7	1·5	1·3
From August, 1920	7·3	5·9	5·2	4·4	3·7	3·1	2·5
From February, 1933	6·2	5·0	4·4	3·7	3·2	2·6	2·1

Rates include haulage, loading, and unloading.

MEAT, FROZEN OR CHILLED (BEEF OR VEAL).

Rates per ton-mile for	Miles 25.	Miles 50.	Miles 75.	Miles 100.	Miles 150.	Miles 200.	Miles 300.
	d.	d.	d.	d.	d.	d.	d.
Prior to September, 1915	5·2	4·2	3·7	3·1	2·6	2·2	1·8
From September, 1915	5·7	4·6	4·1	3·5	2·9	2·4	2·0
From November, 1917	6·3	5·1	4·5	3·8	3·2	2·9	2·2
From August, 1920	8·5	7·7	6·6	5·6	4·5	3·7	2·9
From April, 1922	6·4	5·8	5·0	4·2	3·4	2·8	2·2
From August, 1925	6·0	5·4	4·7	3·9	3·1	2·6	2·0
From February, 1933	5·0	4·6	4·0	3·3	2·6	2·2	1·7

Rates include haulage, loading, and unloading.

NOTE.—In August, 1925, when the railway tariff was being reviewed, it was proposed to discontinue the then existing concession rate on meat (25 per cent. off Class C) and charge same the Class C rate. Subsequently, however, it was agreed between the Department and the meat interests to allow a concession of 30 per cent. off the Class C rate and at the same time increase the live-stock rates by 7½ per cent. to compensate for the concession.

MEAT, FROZEN (MUTTON AND LAMB).

Rates per ton-mile for	Miles 25.	Miles 50.	Miles 75.	Miles 100.	Miles 150.	Miles 200.	Miles 300.
	d.	d.	d.	d.	d.	d.	d.
Prior to September, 1915	5·2	4·2	3·7	3·1	2·6	2·2	1·8
From September, 1915	5·7	4·6	4·1	3·5	2·9	2·4	2·0
From November, 1917	6·3	5·1	4·5	3·8	3·2	2·9	2·2
From August, 1920	8·5	7·7	6·6	5·6	4·5	3·7	2·9
From November, 1922	6·7	6·0	5·2	4·4	3·5	2·9	2·3
From August, 1925	6·8	6·2	5·3	4·5	3·6	2·9	2·3
From February, 1933	5·8	5·2	4·5	3·8	3·0	2·5	2·0
From April, 1934	6·8	6·2	5·3	4·5	3·6	2·9	2·3

Rates include haulage, loading, and unloading.

NOTE.—As in the case of beef and veal, the concession in rate granted as from August, 1925, coincided with an increase of $7\frac{1}{2}$ per cent. in the rates for live-stock as agreed upon between the Department and the meat interests.

The explanation given for the closer relation to pre-war rates of the present rates for meat than is the case with butter and cheese is that, although there have been reductions in the case of beef and veal, and comparatively small increases in the rates for mutton and lamb, yet the basic pre-war rates for meat were considerably higher than the basic pre-war rates for butter and cheese which, as stated, had been reduced for the purpose of assisting the dairy industry in its developmental stage.

261. Recommendation for Rationalization of Internal Transport of Dairy-produce :

The Commission was given an indication that if the Dairy Produce Control Board, on behalf of the industry, submitted a proposal to the Railway Department, whereby carriage of dairy-produce from factory to cool store could be rationalized on the lines of concentration on rail transport, except where special circumstances made transport by road or sea definitely more economical, such a proposal would be welcomed, and would be carefully considered with a view to revising the system under which the rates are fixed, instituting a zoning system, and effecting a reduction in transport charges to the industry as a whole.

Accordingly, the Commission has recommended that the Dairy-produce Control Board be given power to make contracts with the Railway Department and other transport authorities for the transport within New Zealand of butter, cheese, and other dairy-produce. The Commission considers, further, that the question of transport of cream to factories might very well be brought under the jurisdiction of the Transport Department.

262. Transport from f.o.b. Ocean Steamer to United Kingdom Ports :

The Dairy-produce Control Board has endeavoured to regulate the shipments of butter and cheese from New Zealand ports so that, as far as possible, market gluts due to very heavy arrivals at any one time may be avoided. Having regard to the difficulties which arise from the multiplicity of harbours, and from the rapidly increasing quantities of dairy-produce which have had to be shipped, it can be said that the Dairy Board has handled the situation very well.

There are ten ports in the Dominion at which ocean steamers regularly load dairy-produce. Local authorities have made it their ambition to provide facilities for ocean-going steamers wherever possible, and the shipping service has had to be arranged to suit the requirements of these loading ports. The ideal situation, which is now impossible of attainment, would have been a planning of shipping facilities, and an establishment of harbours, to give the maximum measure of efficient transport service and regular and speedy delivery of produce to the overseas markets. Such an ideal system would have meant a concentration on main ports for overseas shipments, and a system of coastal shipment of produce from minor ports to the main ports.

263. Importance of Shipments from Main Ports :

The Commission believes that there is room for improvement in the shipping service by concentration on regular sailings from the main ports, to ensure the even spread of the quantities delivered to the various United Kingdom ports. A market is now required for approximately 250,000 tons of dairy-produce, and the magnitude of the task demands that the question of transport and delivery be handled on a Dominion basis for the good of the industry as a whole. Advertising and salesmanship are responsible for the establishment of the Dominion's dairy-produce throughout the United Kingdom, and the new outlets require regular supplies if they are to be preserved. The direct shipments of dairy-produce to ports in the United Kingdom other than London have increased, during the past ten years, from 5 per cent. to almost 25 per cent. It is well known that spasmodic supply to any market creates uncertainty and disturbance, and that retailers and consumers lose interest in an article which is not continuously available. Marketing is hindered by both gluts and shortages, and the aim of the industry must be to provide regular supply and to overcome as far as is possible the many difficulties presented by our distance from the market, our uneven seasonal production, our numerous shipping ports, and our numerous ports of arrival.

Attention is directed to the shipping report of the Dairy-produce Control Board which is printed as Appendix IX. This comprehensive report reviews the existing system and gives the tonnage quantities from all ports, together with a description of the facilities provided for the loading of dairy-produce.

264. Recommendations for Improvement of Shipping Service :

The Commission considers that with the guarantee of quantities to the shipping companies, a more centralized shipping service could be established which would give regular weekly arrivals at United Kingdom ports. To this end, the Dairy-produce Control Board, or the Council of Production and Trade acting in its interests, should have authority to negotiate shipping contracts, without being unduly subservient to meat or any other interests.

The recommendations of the Dairy-produce Control Board in regard to improvements in the shipping service are as follows :—

(1) That a contract be made with the overseas shipping lines calling for a vessel to be despatched each week with a minimum of 50,000 boxes of butter and 10,000 creates of cheese for London from Auckland and Wellington combined, with the inclusion of New Plymouth whenever possible. Such vessels to complete the journey in thirty-five days and to arrive in London at weekly intervals.

(2) That any vessel allotted to load the equivalent of 40,000 freight carcasses or more in dairy-produce and meeting with delay at roadstead ports for forty-eight running-hours through *weather conditions* other than rain shall, at the request of the Board, proceed upon her voyage to the next port of loading. Any dairy-produce not loaded at any port through such circumstances shall, whenever possible, be replaced with other dairy-produce from following ports of loading, and any dairy-produce short-shipped at the port where delay occurs shall be added to the next available loading.

(In the event of failure on the part of the shipowner to agree to such a clause, then the Board to reserve the right to reduce quantities allotted in order to minimize any overloading of the market by arrivals, due to delays under the special circumstances mentioned.)

(3) That the Dairy-produce Export Control Act be amended in order that the dairying industry may negotiate its freight agreements to the best advantage of the industry.

During the taking of evidence a representative of one of the roadstead port authorities indicated his approval of clause 2 above, which refers to the loading of dairy-produce at roadstead ports.

The Commission recommends that an endeavour be made to effect the improvements which have been suggested by the Dairy-produce Control Board in clauses (1) and (2).

265. Storage and Handling of Dairy-produce in the United Kingdom :

Since the establishment of the Dairy-produce Control Board there has been a great improvement in the storage and handling facilities for dairy-produce in the United Kingdom. Methods of handling have been speeded up, insulated barges are now used where transport from ship to cool store is by water, produce is placed direct into cool store from overseas ships, railway wagons are insulated, and cool-store temperatures are controlled. These improved facilities have been secured under cold-storage contract arrangements entered into by the Board, and at the same time the regularizing of the system has permitted of reductions in storage rates.

A report from the Dairy-produce Control Board dealing with the storage and handling facilities for dairy-produce is printed as Appendix XI. This report gives full particulars of conditions of storage at various ports in the United Kingdom, with quotations of storage rates.

The Commission recommends that the whole question of storage and handling of dairy-produce continue to be a responsibility of the Dairy-produce Control Board.

266. Insurance :

Witnesses expressed unanimous approval of the insurance arrangements entered into by the Board on behalf of the industry. The Board has taken out a comprehensive cover which runs from the time of receipt at the factory of the milk or cream, until sale of the produce on the overseas markets. Improvements in the shipping and storage facilities for dairy-produce have almost eliminated insurance claims for deterioration of produce in transit, with the result that insurance rates have been reduced since 1924 by 38 per cent. in the case of cheese and by 33 per cent. in the case of butter. Attention is drawn to the report, printed in Appendix X, of the Dairy-produce Control Board on insurance of butter and cheese.

The Commission recommends that the Dairy-produce Control Board should continue to make the insurance arrangements for the industry.

267. Limits to Economies which can be effected :

The Commission has not had an opportunity of making a general survey of costs of butter and cheese manufacture, but from the evidence submitted it is clear that, apart from factories which on account of size or special disability are uneconomic, the standard of efficiency in relation to costs is high. Indeed, there are grounds for suspecting that in some cases the limits of efficient cost reduction have been exceeded, and lower quality has resulted. A saving of wages or the use of cheaper materials of manufacture will not represent real economy if poor quality of produce is the result. In general, it can be said that possible savings in manufacturing and other costs up to f.o.b. ocean

steamer offer no scope for substantial cost reduction. Butter and cheese manufacturing costs have been declining since about 1925, and the present total costs to f.o.b. ocean steamer are, approximately, for butter 1¾d. per pound butterfat, and for cheese 2½d. per pound butterfat. The steady reduction in manufacturing and other costs since 1925 is shown in the following table :—

BUTTER-MANUFACTURE.—APPROXIMATE TOTAL COSTS AND CHARGES FROM FARM GATE TO F.O.B. OCEAN STEAMER (INCLUDING CREAM-COLLECTION) AT PER POUND OF BUTTERFAT.

	d.		d.
1925	2·65	1930	2·00
1926	2·63	1931	1·97
1927	2·59	1932	1·95
1928	2·21	1933	1·69
1929	2·06	1934	1·67

CHEESE-MANUFACTURE.—APPROXIMATE TOTAL COSTS AND CHARGES FROM "IN FACTORY" TO F.O.B. OCEAN STEAMER AT PER POUND OF BUTTERFAT.

	d.		d.
1925	4·00	1930	3·20
1926	3·91	1931	3·02
1927	3·68	1932	2·83
1928	3·41	1933	2·62
1929	3·39	1934	2·50

From these figures it will be seen that, however desirable further cost reductions may be, they cannot have any material effect on the financial position of dairy-farmers, and they are certainly not justified if they can be obtained only by lessened labour efficiency and by the use of inferior materials of manufacture.

In the section of the report dealing with quality of dairy-produce, reference is made to factory labour, to the seven-day week, and to the necessity for making factory working-conditions attractive to men of good type.

REORGANIZATION OF THE DAIRY-PRODUCE CONTROL BOARD.

268. Present Administration of the Dairy Industry :

The present administration of the dairy industry concerns the Department of Agriculture, the Dairy-produce Control Board, the National Dairy Association, the South Island Dairy Association, and a number of voluntary district federations and associations of co-operative dairy companies.

Before the Dairy-produce Control Board was established in 1923, the nominal head of the industry in the North Island was the National Dairy Association, and, in the South Island, the South Island Dairy Association, but leadership and guidance of the industry in matters of policy were left to the Dairy Division of the Department of Agriculture. Reforms and progressive measures were discussed at conferences of the industry called by the two dairy associations, and if sufficient support for the proposals were forthcoming at these conferences, the necessary dairy regulations would be gazetted by the Government. In addition to its responsibility in matters of policy, the Department of Agriculture undertook the work of inspection, instruction in manufacture, and grading of dairy-produce, and still carries on that work.

269. Annual Dairy Association Conferences :

The National Dairy Association and the South Island Dairy Association have, since the advent of the Dairy-produce Control Board, become trading concerns. Their only remaining interest in policy matters is in the holding of annual conferences, at which proposals relating to any phase of the industry have been submitted for the discussion of the dairy company delegates in attendance. These conferences, or "dairy parliaments," in giving an indication to the Department of Agriculture of the measure of support to be expected for any proposal brought forward, have become a factor in the introduction of proposed reforms. Now that the Dairy-produce Control Board is established and has taken over from the dairy associations their more important functions, it has been suggested that the dairy associations, having become trading concerns, should relinquish their annual conferences, and that these conferences should be conducted in future by the Dairy-produce Control Board. It seems somewhat inappropriate that the conferences should be conducted by the dairy associations, which cannot possibly be so well informed in regard to current problems as the Dairy-produce Control Board.

270. District Associations :

In different dairying districts, federations or associations of companies have been formed for the purpose of protecting and furthering the particular interests of those districts. These associations are of value in promoting discussions on matters connected with the welfare of the industry and in providing a "rallying-ground" for the companies in their districts. Further, they can bring to the notice of the Dairy-produce Control Board matters or problems peculiar to their own areas.

271. Constitution and Duties of Present Board:

The Dairy-produce Control Board was set up under the Dairy-produce Export Control Act of 1923. The present Board consists of twelve members—two Government members, nine representatives of suppliers to dairy factories, and one member representing mercantile and proprietary interests. The duties of the Board are expressed in the Act to be the control and supervision of the export and sale of butter and cheese in the interests of the producers, and through its London Agency the supervision of the handling and disposal of dairy-produce in the United Kingdom. The funds of the Board are obtained by levy on butter and cheese exported, the total amount of levy collected for the year ended 31st July, 1934, being £80,227.

272. Absolute Control by Dairy-produce Control Board :

The Board has power to exercise either limited or absolute control over the export of dairy-produce. The Board assumed absolute control on 1st September, 1926, and instituted a system of marketing, the aims of which were expressed by the Board to be—

(1) Regulation of shipping service to maintain regular supplies to the markets :
(2) Supervision of loading and shipping and checking of temperatures at which the produce is carried, to ensure the maintenance of quality :
(3) Elimination of f.o.b. sales and of consignments by factories, the disposal of produce to be made by the Board through merchants engaged in the trade :
(4) Retention of the system whereby finance was arranged under Letters of Credit established by merchants to cover the amount of their allocations :
(5) Assumption by the Board of power to vary allotments of produce and to transfer quantities from one merchant to another :
(6) Payments to dairy companies for both butter and cheese to be made according to quality. The price differentials between the different grades to be based upon the actual price realization on sale of the produce :
(7) Packing and selling all finest and first-grade butter and cheese under a national brand.

The Board intimated that it had no intention of interfering with the ordinary process by which economic factors determine the market level of price, its London Agency proposing to decide in conjunction with the distributors, the price-level from day to day. The Board stated that it realized that the price must, as an ordinary business necessity, be kept at the " sales point " to enable business to be done.

Under the system of absolute control, the Board took charge of butter and cheese from the time it was received into the port grading-stores. The produce was shipped in the name of the Board to its London Agency which disposed of it through the available channels of distribution. All proceeds were pooled, and the Board paid out the net proceeds to dairy factories, according to the grade of the butter and cheese—that is to say, there was a fixed premium for the higher grades.

The marketing of dairy-produce under this absolute-control scheme raised a storm of protest in England and in New Zealand, and after a trial for one season the scheme had to be abandoned. It is not considered to be within the scope of the inquiry of the Commission to discuss this marketing scheme, which was discontinued on 1st October, 1927, when a policy of limited control with free marketing was adopted.

273. Limited Control by Dairy-produce Control Board :

Under the system of limited control which has been in operation since 1st October, 1927, the Board has attended to all shipping arrangements for the dairy industry, by making frieght contracts on behalf of the industry and by prescribing the conditions under which dairy-produce shall be transported. The Board has made allocations of shipping space, has arranged the spread of shipments in an endeavour to suit market requirements, has provided for the inspection and supervision of the loading, transport, and discharge of produce, and for the control of cool-store and ship temperatures, and has made contracts for insurance, the cover running from the time of receipt of the milk or cream at factories until the produce is sold. Attention is also given by the Board to the advertising of dairy-produce by displays and by the featuring of the national brand.

Recently the Board, under its powers of limited control, entered into an agreement with the New Zealand Dairy-produce Importers' Association, London, for the institution of marketing regulations covering the allocation, handling, and sale of dairy-produce. These regulations have been fully stated and discussed in the section of the report dealing with marketing in the United Kingdom.

The Board makes a grant for scientific assistance and research for the industry, and this phase of the Board's activities is also discussed fully elsewhere in the report.

The activities of the Board as outlined require a national organization with wide statutory powers. There is some difference of opinion in the industry in regard to the lengths to which the Board should go in the exercise of its powers, but the Commission found that witnesses were in general agreement as to the necessity for a Board vested with extensive powers as administrative head of the industry.

274. Disabilities and Weaknesses of the Present System :

As we have pointed out, there is at present no established head of the industry charged both with the responsibility for administration and the direction of policy. The industry has grown up round the present system under which particularly in the developmental stage, the Dairy Division of the Department of Agriculture has " fathered " the industry, and has been the dominating factor in its development.

275. Lack of Administrative Head of the Industry :

It seems clear that the industry is now entering upon a new phase, which demands a measure of administrative reorganization in order that present and future problems relating to oversupplied markets, uneconomic prices, possibilities of quantitative restrictions, and the need for further quality improvement may be adequately met. This suggested reorganization envisages the creation of a body established as administrative head and capable of dealing with the current problems of the industry more expeditiously and effectively and with more authority than has been possible in the past.

The existing method of introducing reforms and new regulations only after they have been thoroughly canvassed amongst the various and often divergent sections and interests in the industry is cumbersome and unsatisfactory. Under the present system the Government has not been ready to gazette new regulations unless the measure of support for them has been substantial. As a result progress has been retarded through delays in introducing needed regulations and through concessions that have been made to the more assertive sections of the industry.

Probably the main defect in the constitution of the present Board is its establishment as an export or marketing Board having no powers in regard to the internal administration of the industry. In these circumstances, the Board has been reluctant to participate in matters of internal administration, although it has become increasingly apparent, particularly since the Board relinquished absolute control, that the Board's usefulness to the industry has been limited by confining its activities to matters of external marketing.

276. Uncertainties in Policy Direction :

In our opinion the fact that the Board has had no powers in respect of internal administration has led to uncertainty in policy direction in the industry as a whole, to wasted effort, and to a lack of co-ordination of the varied activities connected with the production and marketing of dairy-produce. Probably also it has been the outstanding reason for the lack of unity and fixity of purpose of the Board itself and for the absence of team-work and co-operative approach to its many problems. There is ample evidence that the present Board cannot work in a truly co-operative manner, because of the existence of sectional and divergent interests within the Board, and recent discussions on important questions of policy have resulted in decisions clearly showing its divided nature. There have also been occasions when the Government has sought a lead from the Board on questions of particular moment to the dairy industry and to the Dominion. On these occasions the Board has been so divided in opinion that it has been quite unable to give any helpful indication or lead to the Government.

It is, of course, not represented that there should be no difference of opinion on the Board, but it is suggested that the team spirit should survive discussion and division on questions of policy, and that co-operation amongst Board members in the furtherance of the interests of the industry they serve should always be the guiding motive. It appears to us, however, that the views of the members on many questions of policy are so divergent and so impossible of reconciliation that the Board in its present form is incapable of acting as the administrative head of the industry, particularly in view of the important questions relating to production and marketing which face the dairy industry to-day. It is unlikely, we think, that the necessary confidence of the industry, the Government, and the public will be accorded to a Board in which dissension plays so prominent a part.

277. Need for Reconstitution of Board :

It is clear that there is a definite interrelation between the production, processing, and marketing of produce, and that a properly balanced and soundly constituted Board vested with powers of administration and control over all these aspects is necessary if the industry is to cope effectively with the acute problems confronting it. It is significant that many competing countries, including Great Britain, have established organizations for the better regulation, co-ordination, and control of production and marketing of primary products.

It has been said that New Zealand dairy-farmers are not truly co-operative in outlook, and that co-operation as known in Denmark is not to be found here. There is abundant evidence to show that inter-factory competition frequently violates the co-operative ideal. We consider that it should be a function of the Board to encourage genuine co-operation within the industry, and that it should have the necessary control, authority, and standing to prevent uneconomic competition and to promote the general welfare of the industry as a whole.

It is considered that many suppliers and factory directors have in the past concerned themselves overmuch in dairy industry politics, instead of devoting more of their time to the improvement of farming methods and to the production of the highest-quality butter and cheese. To some extent the reason for this attitude is to be found in the absence of definite leadership, which has led to an all-round participation of farmers and others in policy and administrative matters.

278. Need for Change in Election System :

The Commission considers that supplier-shareholders and factory directors should have reasonable trust in their elected representatives. These representatives are chosen to act as the trustees and administrators of the industry, and, having been elected, they should not be harassed or subjected to undue interference by the interests which they endeavour to serve. Adequate safeguards are provided by law for shareholder-suppliers in cases where directors or other elected representatives act improperly. If the administrative system of any large-scale proprietary trading business is examined, it will be observed that there is a gap between the shareholders and the administration and in normal circumstances the shareholders do not "crowd in" on the management and influence the administration, as has

sometimes happened in the dairy industry. The Commission therefore believes that an elective system which provides for the election by suppliers of the factory directors, who in turn are to elect the industry representatives on the Dairy-produce Control Board, is eminently sound.

There was general agreement among the greater number of the witnesses heard on the subject that the present Board is too large and unwieldy, and that its constitution tends to divide the members into conflicting sections.

279. Objections to Present Method of Election of Board :

The present method of election of the Board under the Act as it stands is generally condemned. The procedure is to take a vote of the individual suppliers to determine which candidate is to be credited with the tonnage votes allowed to the respective dairy companies operating in the ward. The Returning Officer ascertains in respect of each company the number of valid votes recorded in favour of each candidate. He then ascertains the quantities of butter and cheese produced by the respective factories and exported during the last period of twelve months ended 31st March, and proceeds to allot to each company a number of votes on tonnage as follows :—

For every 20 tons or part thereof up to 500 tons	1 vote.
For every additional 30 tons or part thereof over 500 tons	1 vote.

Two tons of cheese is computed as 1 ton of butter, and 14 crates of cheese equal 1 ton, and 40 boxes of butter equal 1 ton.

The result of the election is determined by the allocation of the tonnage votes, the candidate for any ward who has received the greatest number of valid votes from the suppliers to the factory or factories of any company being entitled to receive all the tonnage votes allotted to that company; and the candidate who receives the greatest number of tonnage votes is deemed to be elected for that ward. The objections advanced against the present method of election are as follows :—

(1) The system of election of Board members by the vote of individual suppliers is unsatisfactory, because 44 per cent. of the dairy-farmers in the Dominion have herds of nine cows or less, and thus cannot be regarded as being dairy-farmers in the true sense.

(2) During the past three years only 43·56 per cent. of the suppliers entitled to vote actually recorded their votes.

(3) The system of the combined tonnage vote and individual vote, which has been described, is open to the objection that the elected candidate may actually secure fewer individual votes than one of the defeated candidates.

(4) The disposition of the wards is such that in one particular ward at the present time it would be possible for the suppliers of one company, by a majority vote, to elect their own representative, notwithstanding that the total number of suppliers of that company in that particular ward is less than the total number of suppliers of all other companies in that ward. The Commission has ascertained that this situation has actually never eventuated, and that the elected candidate for this ward has had a majority of supplier votes as well as of tonnage votes. The possibility, however, exists.

(5) It is considered that the dairy company directors are in a better position to judge the worth of candidates for election to the Board than are the suppliers to dairy factories, many of whom have no opportunity of knowing anything of the candidates or of their views upon current problems. Thus there is a general expression of opinion that the election of dairy industry representatives to the Board should be in the hands of the dairy company directors as the representatives and trustees of the suppliers to dairy factories.

It is considered appropriate to record that under the absolute control scheme of 1926, the officers of the Dairy-produce Control Board demonstrated that all matters regarding accounts, storage, handling, and shipment of produce, finance, and pooling of returns, could be successfully undertaken by the Board. The Commission has been impressed by the good work of the officers of the Board in the carrying-out of their duties and responsibilities under the system of limited control, which has been in operation since 1927.

280. Recommendations :

The Commission considers it imperative that for the good of the industry, and in order that the administration may be reorganized to meet present and future problems involving all phases of production and marketing, the Board be reconstituted in a manner likely to enable it more effectively to administer the industry. It is recommended that control of the industry be entrusted to a new Dairy-produce Control Board. This Board should, in addition to its other activities, control the local marketing of butter and cheese. Envisaging the necessities of the industry in regard to new markets for surplus produce, and the measures of control of production and marketing likely to become necessary to meet the present and future problems of the industry, as well as control of the local marketing of butter and cheese, to which reference has been made elsewhere in the report, the Commission believes that the State must of necessity appoint some members of the Board. The proposal that farm and factory instruction should also be the responsibility of the newly constituted Dairy-produce Control Board is an additional reason for State interest in the appointment of the Board. For these reasons the Commission has decided to recommend for the Board a constitution which, it is considered, gives recognition and fair balance to the interests both of the State and of the producers.

It is therefore recommended that the Dairy-produce Control Board be reconstituted and given wider powers, embracing control of volume and quality of the production, processing, and manufacture of dairy-produce and control of local marketing as well as export marketing.

Our recommendations in detail are as follows:—

281. Reconstitution of Board:

The present Dairy-produce Control Board to be dissolved, and replaced by a Board of eight members, four elected by the industry (to be described as "elected members"), and four appointed by the Government (to be described as "appointed members"). It is proposed that, for electoral purposes, the Dominion be divided into four wards; Ward 1 to be the present Wards 1, 2, and 3, with the addition of the counties of Matakaoa, Waiapu, Uawa, Waikohu, Cook, and Wairoa; Ward 2 to be the present Wards 4, 5, and 6, excluding the above-mentioned counties; Ward 3 to comprise the present Wards 7, 8, and 9. We propose that the New Zealand Co-operative Dairy Co., Ltd., be excluded from the territorial basis of ward division, and be constituted a separate ward—Ward 4. The reasons for this recommendation for the alteration of the existing ward division of the Dominion are briefly:—

(*a*) A better balance of volume of production is secured by the inclusion of the Poverty Bay group of counties in the new Ward 1.

(*b*) The New Zealand Co-operative Dairy Co., Ltd., by reason of its size, its policy, and its association with certain marketing interests, presents a difficulty under the present system. It operates in at least three of the present wards, and, unless segregated as recommended, it may exercise a controlling influence in those wards, virtually disfranchising other interests. This company handles between a fifth and a quarter of the total Dominion production of butterfat, and is entitled to have a member on the Board to represent its interests. The Act could, of course, be further amended, if and when necessary, to make similar provision for separate representation of any further large amalgamation of interests that might tend to disturb the territorial system of representation.

282. Recommended Method of Election to Board:

It is recommended that the present system of election be abandoned. It has been ascertained that 33,000 out of the 72,000 suppliers to dairy factories own fewer than 10 cows, and cannot, therefore, be regarded as dairy-farmers in the accepted sense of the term. Many suppliers do not trouble to vote, and the 33,000 to whom reference has been made have only a casual interest in the administration of the industry. We have already described the present system of combining the votes of individual suppliers with the tonnage weighting of the factories they supply. This system is generally condemned as inequitable, and it is undoubtedly cumbersome. We have also expressed the opinion that the best method of enabling the suppliers to exercise their influence in the election of members of the Dairy-produce Control Board is to give the voting-power to the directorates of the companies. The directors are chosen, in the majority of cases, by the suppliers to look after their interests, and are more qualified than the individual suppliers to judge the suitability of the respective candidates.

It is recommended that the election should be conducted by means of postal ballot, the following procedure being adopted:—

(*a*) Candidates (not necessarily producers) to be nominated by at least two companies:

(*b*) A voting-paper to be issued to each company or to the owner of a factory in the case of a factory not owned by a company:

(*c*) The voting-paper to be completed by resolution of the directorate and to be executed under the common seal of the company (or the hand of the owner), and to be posted to the Returning Officer:

(*d*) The Returning Officer to credit the company or owner with one vote for every ton of butter manufactured during the season ended on the preceding 30th June, 2 tons of cheese being treated as equivalent to 1 ton of butter, and each 2,000 lb. of butterfat in whole milk used for other manufacturing and processing purposes being treated as equivalent to 1 ton of butter; tonnage to include processing and manufacture both for local consumption and for export:

(*e*) Where a company or other owner has factories in two or more wards, that company or owner to vote in any one ward only in respect of the tonnage of the factory or factories in that ward.

Provision will have to be made for the collection of statistics of butter and cheese and butter equivalents processed and manufactured for local consumption as well as for export. The latter only is dealt with in the regulations gazetted on 23rd December, 1926.

It is recommended that the four appointed members to the Dairy-produce Control Board shall have among them as wide a range of knowledge and experience useful to the industry as possible. It is therefore suggested that one appointed member shall have technical knowledge of production and manufacture of dairy-products, that another shall have administrative experience in dairy-factory matters, and that a third shall have commercial experience, but not be actively interested in any dairy-produce marketing organization. It is suggested that the fourth appointed member should be a producer, selected for general experience and breadth of outlook.

It is recommended that, subject to the necessary changes during the initial period, all members shall hold office for four-year terms, but that no change be made for the first two years of the life of the new Board. At the end of each of the second, third, fourth, and fifth years one elected member and one appointed member (chosen by lot) shall retire, but shall be eligible for re-election or reappointment. Thereafter, one elected member and one appointed member shall retire each year in rotation. The first Chairman shall be appointed from the Board of eight by the Government, and shall hold office for two years; thereafter the Chairman shall be elected annually by the members of the Board, after the new members have been elected or appointed.

283. Powers and Functions of Board :

We recommend that the Dairy-produce Control Board be given additional powers and functions, as follows :—

(*a*) To have control of the production of milk and cream and the processing and manufacture of dairy-produce, in order to ensure a high standard of quality and a suitable type of product for the markets in which the Board is operating. It is proposed that all farm dairy instructors and dairy factory instructors should be recognized by the Government and given the status and authority of Inspectors, but should be employed by and be responsible to the Dairy-produce Control Board, and that farm dairy instruction should be on the block system on a Dominion-wide basis. These officers would enforce the maintenance of standards, as laid down in the Act, on the farms and in the factories, and would check the grading and testing of milk and cream, and the grading at the factories of butter and cheese intended for local consumption.

(*b*) To have control of the transport to and storage of dairy-produce at grading ports. The actual grading of dairy-produce for export will still remain a function of the State, but it is recommended that the Department of Agriculture and the Dairy-produce Control Board confer from time to time on the fixing of standards of grading, in order that instruction may be definitely related to grading.

(*c*) To have control of the marketing within New Zealand of butter and cheese and to have as full powers in respect of butter and cheese marketed locally as are given to the Board in respect of butter and cheese intended for export from New Zealand, and with power, in particular,—

(i) To prohibit the sale on the local market of butter and cheese by owners of dairy factories and wholesale distributors, except under license granted by the Board ;

(ii) To require the owner of any dairy factory from time to time to supply for the local market such quantities of butter and cheese of such grades as the Board may consider necessary :

(iii) To limit from time to time the area within which the butter and/or cheese manufactured in any dairy factory may be marketed :

(iv) To fix from time to time the minimum wholesale prices to be charged for butter and cheese by licensees and to fix discounts, commissions, and other concessions, and to prohibit any marketing practices that it may consider to be unfair or undesirable in the interests of the industry.

(v) To levy on owners of dairy factories in respect of butter and cheese marketed within New Zealand at such rates as the Board, with the approval of the Governor-General in Council, may from time to time determine, and to add the amount of such levy to the amount of the levy made under the provisions of section 15 of the existing Act, and to retain such part of the proceeds of such levies as it may require for the purposes set out in paragraphs (*a*) to (*e*) of section 17 of the existing Act, and for any other purposes covered by this report, and to distribute the remainder to all owners of dairy factories in accordance with their total output of butter and cheese respectively. The Board may keep separate accounts for the North and South Islands respectively.

(*d*) To effect economies to and improve the administration of the industry by—

(i) Minimizing overlapping in collection of milk and cream, (*a*) by zoning suppliers, (*b*) by defining collecting routes, (*c*) by arranging for contracts for collection, or (*d*) by other means.

(ii) Making contracts with the New Zealand Government Railways Board and other transport authorities, companies, firms, and persons for the transport within New Zealand of butter, cheese, and other dairy-produce.

(iii) Arranging for and effecting the amalgamation of dairy companies, the purchase, sale, or closing of uneconomic factories, and, where necessary, fixing the terms and conditions thereof ; also providing for regulations to carry policy into effect :

(iv) Requiring all dairy companies to keep standardized books of account and to prepare and submit standardized balance-sheets and statements of account and statistical statements and other information in such form as may from time to time be directed by the Dairy-produce Control Board ; also empowering the Dairy-produce Control Board to examine books and records ;

(*e*) To make grants for research work in respect of the production of milk and cream and the processing, manufacture, storage and transport of dairy-produce.

(*f*) To take such measures as it may consider desirable for improving the efficiency of labour in dairy factories and for the welfare of workers therein, including the provision of bursaries and/or scholarships for assisting the education of workers engaged in the dairying industry.

(*g*) To subsidize owners of dairy factories, and/or to erect, purchase, or lease dairy factories and equipment, if such factories and equipment are required for instructional or experimental purposes.

(*h*) To borrow and lend money for any of the purposes of the Board.

(*i*) To control the volume of production, manufacture, or processing of milk and cream and of any class of dairy-produce and to require the owner of any dairy factory to manufacture or process such volume of any particular class of dairy-produce as it may require.

(*j*) To take all such measures as may appear to the Dairy-produce Control Board to be necessary or desirable for the eradication, control, and prevention of diseases of dairy stock, other than the diseases scheduled in the Stock Act.

(*k*) To terminate, on giving such notice as the Dairy-produce Control Board may deem reasonable, any contract for the sale of dairy-produce intended for consumption in New Zealand.

(*l*) To make special levies on dairy-produce graded for export at any port and to disburse the amount of any such levy to the owners of the factories grading through that port in accordance with the grading-points allotted to each parcel of dairy-produce graded.

(*m*) To have power to purchase and sell, either for the local market or for export, milk, cream, and dairy-produce, and to subsidize or compensate any person, firm, or company in respect of any such produce as it may require to be made available for opening new markets, developing existing markets, or regulating markets;

(*n*) To recommend to the Government and to advise the Government on any regulations to be made under the Dairy Industry Act, the Dairy-produce Export Control Act, and any other Act affecting dairy-produce, subject to the powers of the suggested Council of Production and Trade.

284. Specific Amendments to Present Dairy-produce Export Control Act:

The foregoing powers are intended to be additional to those set out in the Dairy-produce Export Control Act, 1923. Amendments to that Act are required, as set out hereunder:—

(*a*) Title of Act (section 1) to omit the word "Export."

(*b*) Section 2 no longer required, and may be repealed.

(*c*) Define, in section 3, "dairy produce" as "butter, cheese, and other products processed or manufactured from milk or cream"; define "producers" as "persons carrying on business as suppliers of milk or cream to factories for the purpose of being processed or manufactured into any kind of dairy-produce," omitting the limiting reference to "export."

(*d*) Amend section 4 in accordance with this report.

(*e*) Amend section 8 in accordance with this report; and provide also for the Board electing a Deputy Chairman.

(*f*) Amend subsection (2) of section 9 by substituting "three" for "four," and amend subsection (3) by substituting "four" for "five."

(*g*) Insert new section giving Board power to appoint standing committees and to delegate to such committees such of its powers as may be permitted by regulations, and giving Board power to co-opt expert advisers to assist it or any committee in its deliberations.

(*h*) Amend section 11 by deleting from subsection (1) all words after "from time to time"; and by deleting the word "other" from subsection (2).

(*i*) Amend sections 13 and 16 as set out in this report, so as to give the Board full powers of control over the production, manufacture, processing, distribution, and sale of dairy-produce within New Zealand, in addition to the existing powers given in subsections (1) to (6) of section 13 and in section 16 relative to produce for export; also repeal subsections (7) and (8) of section 13, and provide in lieu thereof for power to determine any contracts, as set out in this report.

(*j*) Amend section 15 to cover levy on all butter and cheese for local and export trades, and delete the words limiting amount to one-eighth and one-sixteenth of a penny; also provide for collection by Board of levy on local sales from the companies or persons owning factories; also exempt from levy any butter and cheese manufactured on any farm, provided the quantity so manufactured in any year ending 30th June does not exceed a tonnage to be determined by the Board; also provide that the occupier of any farm dairy shall submit to Board such statistical statements and other information as the Board may require relative to the manufacture of butter and cheese; also amend subsection (2) consequentially; also give Board power to charge commission on sales effected by it.

(*k*) Amend section 17 where necessary to give effect to the proposals contained in this report; also provide for Board arranging superannuation scheme for its staff; also provide power to invest surplus moneys.

(*l*) Provide that no producer may cease, without the consent of the Dairy-produce Control Board (unless he ceases to be a producer), to supply milk or cream produced in his dairy to the dairy factory to which he is supplying milk or cream at the time of the passing of this Act, if that factory is prepared to receive the same; also that any producer shall supply the milk or cream produced in his dairy to such dairy factory as the Dairy-produce Control Board may from time to time direct; also that no producer may transfer part of his supply from one dairy factory to another without the consent of the Dairy-produce Control Board.

(*m*) Amend section 2 of 1924 Amendment Act to cover milk and cream.

(*n*) Provide penalty section for breaches.

(*o*) Provide such other repeals and amendments as may be necessary to give effect to the proposals contained in this report.

It is intended that the Dairy-produce Control Board shall exercise its functions subject to the overriding authority of the Council of Production and Trade. This, however, is dependent on that Council being given similar authority over the other Produce Boards.

285. Specific Amendments to Dairy Industry Act, 1908.

To bring the Act into line with the recommendations of the Commission, amendments are required to give recognition and protection to farm dairy instructors and dairy-factory instructors, to be appointed by the Dairy-produce Control Board to supervise production on farms supplying dairy factories and to supervise the processing and manufacture of dairy-produce in dairy factories. These officers should have the same powers as are given to inspectors by the Act.

The definition of "dairy factory" in section 2 should have the following words added thereto: "and any factory or place in which butter or cheese is manufactured, blended, milled, processed, or treated in any other way."

Regulations under the Act should be made on the advice of the Dairy-produce Control Board, subject to the powers of the Council of Production and Trade.

The Amendment Act of 1922, section 3, should provide that where milk purchased for the manufacture of any dairy-produce is to be paid for according to the relative percentages of butterfat and of solids other than butterfat contained therein, such percentages shall be determined only by a test or tests prescribed by regulations; and should provide for the making of regulations requiring any milk purchased for the manufacture of any specified class of dairy-produce to be paid for according to any prescribed test or tests and method or methods of computation.

The Amendment Act of 1933, section 2, should be amended by deleting paragraph (*f*); substituted provisions are suggested for inclusion in the Dairy-produce Control Act and are detailed under that heading.

Provision should be made for the licensing of managers of dairy factories and other approved persons to grade dairy-produce intended for local consumption.

Section 23 of the principal Act should provide for the prescribing of standards for ingredients, preservatives, materials, machinery, plant, and equipment used or intended to be used in the production, processing, manufacture, packing, transport, and storage of dairy-produce; also that all weighing-machines, measures, and other similar appliances in dairy factories be inspected under the provisions of the Weights and Measures Act at least once a year; and should also provide full powers regarding the granting and refusing of licenses for manufacturing dairies as set out in clause 13 of the General Regulations of 15th May, 1933, the committee referred to in clause 13 to be appointed by the Dairy-produce Control Board.

Part II of the principal Act may be repealed, as it is no longer availed of.

DAIRY RESEARCH AND LABORATORY ORGANIZATION.

286. Need for Research and Laboratory Services:

Evidence submitted to the Commission has demonstrated the need for continuous research and for the establishment of routine laboratory service. Research is essential to ascertain the fundamental principles underlying processing of milk and cream, and to investigate the causes of defects; to widen the variety of products that may be made from milk and cream; to devise methods whereby processes of manufacture may be simplified and quality controlled and improved; to determine standards for materials used in the manufacture of produce; and to set up objective standards by means of which the quality of dairy-produce may be judged. A laboratory service is necessary to provide factories with adequate technical assistance on common problems.

287. Research Problems:

Attention has already been drawn to certain weaknesses in the quality of our dairy-products. The defects of commercial importance are openness and discoloration in cheese and taints in butter. There are other defects traceable to processes of production, manufacture, packing, or transport. Quality defects which are due to faulty processing and handling should be capable of adjustment, but food taints and openness appear to have root causes which are not clearly understood. Further concentration on openness, on which considerable work has already been done, and on the new problem of food taints, will necessitate co-ordinated research of a fundamental nature covering the whole sphere of operations from pastures and animal nutrition to the processing and manufacture of dairy-products. The spreadability of New Zealand butter is affected by fundamental and closely related manufacturing factors which must be investigated with the object of supplying a more spreadable butter which will retain its qualities in storage. In addition to these problems, it is necessary that research be conducted on starters, milk tests, deodorizers, and materials used in processes of manufacture.

The organization of research activities on lines most likely to ensure the desired results in these directions will entail considerable expense, but the Commission is satisfied that the industry and the State cannot afford to ignore these problems. The suitability of packages and packing materials, and of plant and equipment used in dairy sheds and in factories, have a direct effect on the final quality and cost of manufacturing dairy-products, and must therefore come under the review of an efficient research organization. Research should also be responsible for the development of manufacturing technique in respect of new products such as ghee, various forms of cream, and of new varieties of cheese. There are limited markets for such commodities, but before they can be exploited we must be sure that they can be manufactured and exported satisfactorily.

Many of the activities outlined above are already receiving attention, but we are satisfied that greater intensification of effort is essential if the Dominion's produce is to compete successfully in the markets of the United Kingdom.

288. Organization necessary :

An adequately staffed and equipped organization is necessary to deal effectively with these problems. The organization should embrace all scientific services dealing with dairy-research problems, whether such services are financed from State or Dairy-produce Control Board funds. It is not practicable to combine in one laboratory both research and routine services. The varying demands on routine services and the necessity for making them available immediately they are required conflict with fundamental research, which requires the full time and concentrated attention of individual workers. Nevertheless it is highly desirable that the research organization should keep in close touch with the work of routine laboratories, so that the research workers may use data collected by routine workers and may, if necessary, collaborate with them in problems which must be dealt with in their districts, while workers in service laboratories may be kept continuously acquainted with the most recent advances in research and thus be able to apply approved principles in their routine work.

The Dairy Research Institute is the only institution in the Dominion devoted entirely to dairy research. There are insufficient service laboratories to meet the needs of all factories. The Dairy Division of the Department of Agriculture maintains a small dairy laboratory at Wallaceville. The New Zealand Co-operative Dairy Company supports a dairy laboratory for its own use. The Taranaki Federation of Co-operative Dairy Factories has, since 1925, maintained its own laboratory at Hawera. This particular laboratory is financed by contributions from a number of factories, but it has in the past received grants from State sources, and is at present in receipt of financial assistance from the Department of Scientific and Industrial Research.

The Dairy Research Institute should be made the central organization controlling all dairy research and laboratory services financed by the State and/or the Dairy-produce Control Board. The Institute has its laboratories in the Massey Agricultural College buildings, and uses the College factory and farm for experimental purposes. At the same time the Institute is officially a branch of the Department of Scientific and Industrial Research, but its activities are influenced by an advisory committee set up by the Department of Scientific and Industrial Research. The work of the Institute is complicated by the policies of these independent bodies, and difficulties are experienced in prosecuting a continuous programme of research. It does not own property or equipment, and cannot accumulate funds, but obtains its finance from annual contributions made by the State and the Dairy-produce Control Board on a pound-for-pound basis. At the present time the Institute receives a total of £7,000 from these sources, but in addition receives a grant of £2,000 per annum, this sum having been allocated by the Empire Marketing Board. This grant ceases in the year ending 31st March, 1935. It is not proposed to divorce the Institute entirely from the Department of Scientific and Industrial Research, but it is essential that the Institute be made autonomous. It should therefore be constituted as an incorporated body with its own governing council, which would be responsible for the research policy of the Institute, and would assume control of its funds. The Institute would then be in a position to assume control of the equipment now used by it, and to enter into an agreement with the Government and Massey Agricultural College in respect of the use of buildings, land, and stock.

289. The Work of the Institute :

The activities now undertaken by the Institute should be continued and expanded to deal adequately with all problems at present receiving attention. In addition, it will be necessary to provide staff, buildings, and equipment to enable the Institute to undertake investigations into the effects of pastures and other stock-foods on the quality of produce, and to provide for the testing of dairy plant and equipment. The Institute should establish service laboratories in the Auckland, Taranaki, Wellington, and Southland Districts respectively. Any additional service required would be provided by arrangement between the Institute and branches of the Dominion Laboratory of the Department of Scientific and Industrial Research. The dairy laboratory at Wallaceville should be moved to a convenient centre to provide for the Wellington Province and the Institute should enter into negotiations with the Federation of Taranaki Co-operative Dairy Factories to take over their laboratory at Hawera. It would therefore be necessary to establish new laboratories in the Auckland and Southland Provinces only.

290. Control of Institute :

The nature of the work to be undertaken by the Institute makes it desirable that the research organization should not be directly subordinate to the Dairy-produce Control Board, yet it must not be widely divorced from it. It is necessary that the dairy industry should be able to obtain the results of research and through the Dairy-produce Control Board to arrange with the Institute to concentrate upon urgent problems. It is suggested that this aim can be effected by providing that three of the seven members of the governing body of the Institute be nominated by the Dairy-produce Control Board, the remaining four members being nominated by other organizations directly interested in the work of the Institute—viz., the Department of Agriculture, Massey Agricultural College Council, New Zealand Dairy Factory Managers' Association, and the Council of Scientific and Industrial Research. It is suggested that the Institute should consult the Department of Scientific and Industrial Research in the formulation of its general research policies so that the work of the Institute may be co-ordinated with the related work of other research organizations.

The Commission considers that a research institute which is organized and controlled as outlined above will be able to command the confidence of the industry, and that it will be sufficiently elastic in its functions to enable it to carry out satisfactorily the duties for which it will be responsible. This belief is supported by the experience of similarly controlled research organizations in other countries, and in Great Britain in particular. An organization of this nature was recommended in the Sir Frank Heath Report of 1926, which resulted in the establishment of the Department of Scientific and Industrial Research.

291. Relation to Dairy-produce Control Board :

The Institute should carry out all technical work on behalf of the Board so that laboratory services can be utilized to the best advantage. It is essential, therefore, that the establishment of the Institute as a corporate body be regarded as an integral part of the scheme of reorganization. Without scientific assistance the Dairy-produce Control Board cannot adequately perform those duties delegated to it which relate to the production and the quality of products.

292. Relation to other Research Organizations :

The work of the Institute has a close relation to the work of other research organizations, such as the Plant Research Station and the Veterinary Division of the Department of Agriculture. The necessary co-ordination of these three distinct lines of work should be effected through the Department of Scientific and Industrial Research.

293. Finance :

When the Institute was established in 1927, arrangements were made for the State and the Dairy-produce Control Board to contribute equal amounts towards research work. The necessary expansion of the work of the Institute required increasing amounts to be contributed from these two sources in the early stages of its development, but in recent years grants have been reduced and great difficulty has been experienced in carrying out a progressive programme of research. The Government has indicated that a greater proportion of the expenses should be borne by the industry. It was originally intended that after the Institute was firmly established the dairy industry should bear the greater part of the expenditure. It is likely that the demands upon the Institute will tend to grow in future years, and it is therefore desirable that the obligation of the State should be clearly defined. It is thought that the State should continue to support dairy-research work, but that the industry should contribute the greater amount. It is also considered that the grants made by the State should be arranged for a period of years so that a long range programme of research work can be decided upon and prosecuted. The State should contribute £7,000 per annum for a period of five years, and the Dairy-produce Control Board should contribute at least an equal amount. It is expected that finance amounting to approximately £25,000 per annum will be required by the Institute when it has established the complete scientific service outlined, and the Dairy-produce Control Board should provide the amount required in excess of the Government contribution. The Government contribution should be reviewed quinquennially.

Although the expenditure suggested above is in excess of the present revenue of the Institute, the duties to be performed are also greatly increased, and the suggested contribution amounts only to approximately 1d. per hundredweight of the dairy-products manufactured in the Dominion. The expenditure on dairy research in many other dairying countries far exceeds the amount suggested for the Dominion.

We believe that the organization suggested will place the dairy scientific service of the Dominion on a much more efficient basis, while the liaison of the Dairy Research Institute with the Department of Scientific and Industrial Research will give the Government a measure of control which is desirable in the interests of the State.

294. Recommendation :

It is recommended—

(1) That the New Zealand Dairy Research Institute be established as a body corporate, having perpetual succession and a common seal, and capable of holding real and personal property.

(2) That the Institute be governed by a Council of seven members nominated as follows :—
Three by the New Zealand Dairy-produce Control Board,
One by the Department of Agriculture,
One by the Council of Massey Agricultural College,
One by the New Zealand Factory Managers' Association,
One by the Council of Scientific and Industrial Research.
The Council will elect its Chairman from its members. Quorum will consist of four members. The Chief Executive Officer of the Institute and the Permanent Head of the Department of Scientific and Industrial Research will be members of the Council without voting-power, but with the right to attend all meetings and take part in all discussions and initiate proposals.

(3) That the Institute have power—(*a*) to own land, buildings, stock, and equipment; (*b*) to appoint and control such officers and servants as are required to carry out its functions; (*c*) to purchase, lease, erect, and control such laboratories, dairy factories, and stores as it considers necessary for carrying out its functions; (*d*) to enter into contracts with persons, institutions, firms, and companies; (*e*) to trade in such milk, cream, and products of milk and cream, and materials used in the processing, manufacture, and packing of such milk, cream, or products as may be required for experimental purposes; (*f*) by its officers to enter upon and conduct examination in and upon lands and buildings as if such officers were inspectors under the Dairy Industry Act, 1908.

(4) That the Institute have the following powers, functions, and duties :—

(*a*) Co-ordinating and controlling all dairy-research work and dairy-laboratory work financed by the State and/or the Dairy-produce Control Board, except the routine dairy-laboratory work carried out at dairy-produce export grading stores.

(*b*) Prosecuting research in all matters affecting the production and processing of milk and cream, and the manufacture, transport, and storage of products of milk and cream.

(*c*) Taking over from the Department of Scientific and Industrial Research and assuming control of the Dairy Research Institute (N.Z.).

(*d*) Establishing and controlling such district dairy laboratories as may be considered necessary for the carrying-out of its functions.

(*e*) Testing in such cases as it considers it desirable so to do the efficiency and suitability of ingredients, preservatives, materials, machinery, plant, and equipment used or intended to be used in the production, processing, manufacture, packing, transport, and storage of milk and cream and products of milk and cream ; with power to issue certificates at its discretion in respect of machinery, plant, and equipment that conform to the tests of efficiency and suitability laid down by it ; and with power to prescribe conditions and charges in respect of any test made by it ; and with power also to revoke any certificate granted by it.

(*f*) Entering into arrangements with the Department of Scientific and Industrial Research and/or any Department, institution, body, company, firm, or person for the prosecution of any approved research work which it cannot itself undertake.

(5) That the Institute have power to set up committees from its members and/or staff, and co-opt thereto such persons as it may think necessary, to carry out such duties, and to exercise such of the functions of the Institute as the Council may decide.

(6) That the Institute be required to carry out on behalf of the Dairy-produce Control Board such routine analyses of milk and cream and products of milk and cream and of materials, ingredients, and preservatives used in connection therewith as may be required by the Dairy-produce Control Board.

(7) That the State contribute to the funds of the Institute £7,000 per annum for five years, and thereafter contribute annually for quinquennial periods such sum, not being less than £7,000, as shall be decided prior to the termination of each such period.

(8) That the New Zealand Dairy-produce Control Board should contribute annually from its general fund to the funds of the Institute such sum as it considers necessary, but being not less than the sum contributed by the State.

(9) That the Institute have control of its funds and be empowered to accumulate and invest reserves, to receive and expend grants, subsidies, bursaries, and gratuities at its discretion, to pay salaries, wages, and travelling and other allowances, and generally to use its funds as it thinks fit in the discharge of its functions.

(10) That the Council be empowered to vote an honorarium not exceeding £100 per annum to the Chairman of the Council.

(11) That the Institute have the power to establish or participate in any scheme it thinks fit for the superannuation of its staff.

(12) That the Institute be required to submit annually to Parliament and to the Dairy-produce Control Board a report on its operations and a statement of accounts duly audited by the Audit Office.

ESTABLISHMENT OF COUNCIL OF PRODUCTION AND TRADE.

295. Introductory :

For a number of years several Produce Boards have been functioning independently in the control of the export of the primary products of New Zealand. There are the Dairy-produce Control Board, the Meat Producers Board, the Fruit-export Control Board, the Honey-export Control Board, and the Poultry Board. The export of flax products, though not controlled by a Board, is under the supervision of the Department of Agriculture in so far as grading is concerned.

296. Necessity for Co-ordinating Body :

The Boards have fulfilled a useful purpose in directing the export and marketing of the several commodities over which they respectively exercise control, but there has been little or no cohesion or co-ordination of effort among them. While a measure of co-ordination would doubtless have been advantageous in times of normal inter-Empire and international trading, its absence did not give rise to any notable difficulties. Under the conditions now prevailing, when an intense economic nationalism has severely restricted our export trade, not only with foreign countries but with other parts of the Empire and with Great Britain itself, a policy of co-operation and co-ordination for the Boards dealing with the products of the Dominion has become urgently necessary. Independent Boards, each concerned with the marketing of one group of commodities, are no longer able, as isolated units, to cope effectively with the problems confronting them. The investigation and opening of new markets for the disposal of surplus production can best and most economically be undertaken by a single central body acting in the national interest and having due regard to the requirements of all branches of production. In some instances, the interests of the producers served by the different Boards may conflict or appear to conflict, as is the case in respect of restrictions on the export to Great Britain of

bobby veal, boneless beef, and pig-meats, which concern the dairy-farmer to a far greater extent than the sheep-farmer and the grazier, but which are dealt with by the Meat Producers Board. Diversification of production urged by any individual Produce Board in order to meet restrictions imposed on imports into Great Britain of the produce with which it deals may have repercussions in creating a larger surplus of the products handled by another Produce Board, which also may be faced with restrictions. Comprehensive schemes of co-ordinated production cannot be undertaken successfully by the several Boards acting independently of one another, and we cannot be certain that they would be able to agree among themselves on a common policy. The negotiation of shipping contracts, the arranging of shipping facilities, time-tables, &c., and inquiries as to the desirabliity and necessity of the institution of new shipping services can be best dealt with by, or under the direction of, a body that is in a position to consider Dominion trade as a whole.

297. Recommendations for the Setting-up of a Council of Production and Trade :

For these reasons we recommend the setting-up of a Council of Production and Trade, to function in the co-ordination of production and trade generally in the industries dealt with by the Produce Boards and in such other industries as the Governor-General in Council may place under its control. Such a Council would have advisory functions and executive powers ; but its executive powers, in so far as they related to the handling of produce dealt with by the different Produce Boards, would usually be exercised through the appropriate Boards. It is necessary that the Council should be given overriding authority over all the Produce Boards in matters in which it considers the national interests are involved. It would be required to consult those Boards before taking any action directly affecting their interests or the interests of the producers represented by them, and the Boards would be required to submit new regulations and policy measures for the approval of the Council.

298. Functions of Council :

The advisory functions of the Council would include the following :—

(*a*) To advise and assist the Government in arranging new shipping services and negotiating trade agreements with overseas countries, and in all matters respecting the production and marketing of New Zealand produce.

(*b*) To collaborate with the Government in the appointment of trade representatives overseas.

299. Executive Powers of Council :

Its executive powers would include the following :—

(*c*) To arrange with Government Departments and other institutions and bodies for the undertaking and co-ordination of technical and scientific research and the collection of technical and scientific information affecting any commodity which is or may be exported and with which it is empowered to deal.

(*d*) To negotiate and complete contracts relating to shipping facilities and freights, regard being had to the effect of outward-freight rates upon inward-freight rates.

(*e*) To provide in different markets publicity of a general nature or in respect of a particular industry or industries.

(*f*) To undertake market investigations covering demand, quality, prices, storage, transport, packing, competition, &c.

(*g*) To undertake the development of new markets by arranging for the shipment and sale of New Zealand produce of any kind or description, if necessary by subsidizing or compensating any company, firm, or person or by the purchase and resale of such produce ; and to arrange for the production or manufacture for any market of special or new types of produce.

(*h*) To co-ordinate generally the maintenance and development of production and trade, and, in particular, the work of the Produce Boards ; and to assist the Rural Mortgage Corporation in matters relating to valuation and production and the budgeting of farmers' incomes.

(*i*) To regulate, when by reason of conditions associated with the export trade in any commodity it appears advisable so to do, the local trade in such commodity.

(*j*) To delegate from time to time, wholly or partially, absolutely or conditionally, to any Produce Board, Government Department, or other body, any of its functions or powers, but so that such delegation shall be in respect only of any matters affecting produce of the class dealt with by that particular Board, Department, or body, or having relation thereto ; and to revoke any such delegation.

(*k*) To collect, by way of levy or otherwise, as may be authorized by the Governor-General in Council, from the industry or industries concerned, funds for the purposes specified, such levies to be made where possible through the appropriate Boards.

(*l*) To hold real and personal property, and to borrow and lend money.

(*m*) To enforce any Act or regulation through the agency of any Government Department, Produce Board, or other body.

(*n*) To exercise such other advisory, executive, and co-ordinating functions and powers as may from time to time be conferred upon it.

300. Constitution of Council :

We recommend that the Council of Production and Trade shall consist of three members, to be appointed by the Government for a term of five years and to be eligible for reappointment, who shall devote their whole time to the work of the Council. It is proposed that the Council shall have available to it the services of existing Departments of State, principally the Departments of Agriculture and Industries and Commerce ; and that it be empowered to arrange for the seconding of departmental officers for special duties under the Council, the Dairy-produce Control Board, and the other Produce Boards. It is recommended that the Council shall be constituted and act as a permanent executive Commission of Agriculture, and have all the powers of a Commission appointed under the Commissions of Inquiry Act, 1908. In order to obviate any administrative difficulty that may arise from the Council functioning through and, to some extent, directing the work of Departments that are under different Ministerial control, we suggest that its approach to the Government should be through the Prime Minister.

We recommend, further, that the Council shall be required to hold formal meetings at stated intervals, and that the Dairy-produce Control Board and the Meat Producers Board and the Departments of Agriculture, Industries and Commerce, and Scientific and Industrial Research shall each appoint a representative to attend the regular meetings of the Council, with power to make representations and take part in discussions, but without voting-power. It is not necessary to designate these representatives by name or official status, and we think it wiser to leave the choice of a suitable representative to attend any meeting to the Board or Department concerned. We also recommend that the Council shall, as occasion requires, afford a similar opportunity of attending meetings to representatives of any other Government Departments, Produce Boards, and trade organizations which may be directly concerned in any matter that the Council has under consideration.

301. Provision of Finance :

It is recommended that the salaries and administrative expenses of the Council be a charge on the Consolidated Fund.

An adequate annual grant from the Consolidated Fund for general trade developmental purposes should also be made for consecutive periods of at least five years to ensure the carrying out of a progressive policy, and the Council should be empowered to accumulate reserves. Any expenses incurred in respect of any particular industry which may fairly be regarded as a charge on that industry should be recoverable by means of a levy upon that industry. In the case of industries controlled by Produce Boards, those Boards should be empowered to make such levies as may be required by the Council of Production and Trade.

302. Transfer of Powers to Produce Boards :

It is recommended that, when in the national interest it appears expedient so to do, the Governor-General in Council be empowered to transfer to the Council all or any of the powers conferred by any Act or regulation on any Produce Board, subject to the condition that in the exercise of any such power the Council shall act only after consultation with the Board from which such power has been transferred. This provision will enable the Council to take any action that it may consider necessary in the national interest or in the interest of a particular industry. It has already been recommended that the Council be empowered to delegate its own functions and powers to appropriate Produce Boards ; and it is intended that, when any of the powers of a Produce Board have been transferred to the Council, the Council shall decide matters of policy and delegate, wherever possible, the carrying into effect of its decisions to the Produce Board concerned. In so far as any power specifically conferred by legislation on the Council of Production and Trade is concerned, the Council should be empowered and authorized, in cases in which a similar power is conferred by any Act of Parliament on a Produce Board or other body, on giving notice to such Produce Board or other body, to exercise such power, either generally or in respect of a particular matter, to the exclusion of such Produce Board or other body.

LOCAL MARKETING OF BUTTER AND CHEESE.

303. History of the Movement for Organization and Control :

The need for a better organization of the local marketing of butter and cheese has been a subject of discussion by the dairy industry for some years. During the past two years this need has become increasingly apparent, particularly as the result of the prominence given to the question by Mr. A. J. Sinclair, the Secretary-Manager of the Te Awamutu Co-operative Dairy Co., Ltd. Mr. Sinclair's proposals for organization and control received very general support from butter-manufacturing companies through the Dominion. The Dairy-produce Control Board, though questioning the wisdom of certain details in the suggested procedure, was unanimously of opinion that some such scheme for stabilizing local marketing should be established.

Following the approval of the Dairy-produce Control Board, a remit embodying the principle of the proposal was submitted to the 1933 National Dairy Conference, and was adopted without dissent. A representative committee was appointed to investigate the proposal, to discuss the procedure, and to report to the conference. The report of this committee recommended " that the suggestion of establishing an artificial premium should be abandoned, that substantial savings could be effected by organization, and that the savings should be paid into a central pool for distribution over the whole industry *pro rata* with their production, regardless of the actual volume each individual company supplied to the local market."

This recommendation was unanimously accepted by the Conference, which set up a Committee to approach the Dairy-produce Control Board with a view to united effort to secure the necessary legislation.

Regarding the local marketing of cheese, the same Conference adopted the following resolution :—

"That it be a recommendation to the Dairy-produce Control Board that for the purpose of increasing the local consumption of cheese, the Dairy-produce Control Board take absolute control of the sales of the cheese on the local market by licensing factories to supply such markets and that the prices be fixed each fortnight on a London parity basis, and supplying factories be compelled to adhere to such prices."

304. Recommendations of Committee regarding Local Marketing of Butter and Cheese :

Following discussions, a joint committee of the Dairy-produce Control Board and the National Dairy Conference met in August, 1933, and unanimously approved the following report :—

"Report of Joint Committee on Local Butter Marketing.

"This joint committee, representing the New Zealand Dairy-produce Control Board and the National Dairy Conference, submits the following report :—

"That the sale of butter in each Island be placed under the supervision of a central organization in Wellington. The Committee is of opinion that the organization so constituted should be vested with power to draw up regulations with which all dairy companies and/or their distributing agents must comply.

"That the organization should have power to determine the following matters :—

"(*a*) The wholesale prices to be charged from time to time for bulk or pat butter sold for consumption within New Zealand, including whey butter.

"(*b*) The amounts which dairy companies must charge for patting and distributing butter on the local market ;

"(*c*) The maximum amount which any agent may receive by way of commission or payment for acting as distributor for any dairy company in the sale of butter on the local market :

"(*d*) The number of grades to be placed on the local market, the amount to be allowed for returned empty boxes, the discount to be allowed retailers for cash payment, and any other matters which may affect the price to be received by dairy companies catering for the local trade.

"We are of opinion that the best method of giving effect to these proposals would be by an amendment of the New Zealand Dairy-produce Export Control Act, enabling the Dairy-produce Control Board to supervise the marketing of butter within the Dominion.

"To make the supervision of the Board effective all dairy companies catering for the local market trade should do so under license. Wholesale (or distributing) agents should be licensed in a similar manner.

"It is not proposed to exercise any supervision over the retailers of butter. For this reason it is essential that no person or firm should act in the dual capacity of wholesaler and retailer. Any person or firm other than dairy companies retailing butter should automatically be excluded from holding a wholesaler's license. The Board to give consideration to the question of sales of butter by dairy companies to suppliers.

"That the question of existing contracts be investigated with a view to ascertaining if they prejudice in any way the proposed scheme. Should any such exist, consideration be given to the possibility of some mutual agreement whereby these might be brought into line.

"In the event of the wholesale price of pat butter being determined at a price higher than the parity of export butter plus marketing-costs, provision should be made for a stabilization fund, into which each dairy company should pay the excess amount as determined by the committee. This fund should be distributed *pro rata* among all buttermaking companies in proportion to their total output for the year. Separate pools to be established for the North and South Islands.

"That the committee recommends that the Dairy Board take the necessary steps to secure an alteration to the Dairy-produce Export Control Act to enable the proposal to be put into operation."

A similar scheme for the local marketing of cheese was approved by the joint committee, but in view of the special complexities of the cheese question it was decided that it should not be put into operation until the butter-marketing scheme had been working for a year.

In the opinion of the joint committee, the following points arose out of their investigation :—

"(1) That losses are being suffered by the industry as a result of present overlapping and duplication of operations.

"(2) That these can be saved and distributed to the industry by the means suggested without advancing prices to the consumers.

"(3) That suspicions and antagonisms have been developed which are the antithesis of co-operation under which we are supposed to be working.

"(4) That the industry can ill afford to bear these losses and is desperately in need of any assistance that can be given."

The Committee considered that, on its finance side, the proposal was designed to effect savings, and that therefore it could not be classified with the subsidy schemes organized in other countries, the object of which was to provide artificial assistance to farmers.

Requests were then made to the Government for the necessary legislation, and an indication was given by the Minister of Agriculture that legislation would be prepared and submitted to Parliament during the current session.

305. The Disabilities of the Present System of Local Marketing :

The disabilities and disadvantages of the present system of local marketing were stated by witnesses to be—

(1) Uneconomic competition and price-cutting, due to the determination of manufacturers and distributors either to gain a footing in a market already well provided for, or to increase their share of a market :

(2) By means of the low rates for long-distance railage, manufacturers and distributors have been able to invade markets outside their own districts, and fierce competition and irregular practices have resulted. It is stated that Auckland butter is railed to Wellington at the same rate as butter from Taihape or any other factory situated 175 miles from Wellington :

(3) Secret rebates have been given to encourage trade, notwithstanding that the person or firm giving the rebate may be a party to an agreement with other distributors to maintain a certain agreed price :

(4) The suspicion and uncertainty which surrounds the existing system of local marketing creates an atmosphere which is the antithesis of co-operation, and defeats any attempt to make agreements for regulation of procedure and prices on the local market. Agreements reached by district committees, and so-called " gentlemen's agreements," have been frequently evaded by means of secret rebates. In this connection, it is worthy of mention that thirty co-operative dairy companies interested in the Wellington butter-market formed the Dominion Producers' Co-operative Agency, Ltd., the objects of which are to equalize the returns from local butter-sales, and generally to rationalize the local marketing of butter. The operations of this co-operative agency have been only partially successful, and it is significant that the directors and officials of the agency are advocates of a universal system of control and rationalization upon the lines which the Commission is recommending :

(5) Anonymous butter-wrappers have been used to cloak price cutting :

(6) Inter-factory competition has led to the appointment of too many distributors, with the result that commission rates have in many cases been raised to a point far in excess of the value of the service rendered, and undue competition has been created for the limited volume of trade offering. Factories have competed for distributors, and distributors have fought for trade. The result has been higher costs, uneconomic distribution, secret rebates, and waste :

(7) A serious aspect is represented to be the selling from time to time of so-called " best-factory " and " best table " butter at lower prices, thus upsetting the trade. The public is misled into thinking that butter labelled " factory " or " table " butter is necessarily finest grade creamery butter, whereas it may be whey butter or an admixture of whey and creamery butter :

(8) In some districts second-grade butter is used as a " fighting " butter. Normally the difference in price between finest grade and first grade is 1d. per pound, and between first grade and second grade also 1d. per pound. For competitive purposes, second-grade butter is sometimes sold at 3d. per pound below the price for finest grade. For a similar purpose, finest- and first-grade butters are sometimes placed in second-grade wrappers and sold at second-grade prices :

(9) The decline in export prices has made local sales relatively profitable, and this has been the underlying reason for the competitive struggle on the local market. It is alleged, however, that some companies have sought to drive other companies off the market not so much to raise their own pay-out as to reduce the pay-out of their competitors to a level comparable with their own, and have adopted vicious price-cutting and other unfair marketing practices as a means to this end.

306. The Case for Control of the Local Market for Butter and Cheese :

The Commission considers that there is an unanswerable case for control of the local marketing of butter and cheese. Thirty witnesses gave their views on this question, and sixteen of these witnesses were directly connected with the local butter trade. All but one were in favour of the principle of a controlled system of local marketing, with a fixation of the wholesale price. The witnesses favoured control by the Dairy-produce Control Board, and considered that any surplus over and above the costs of patting and distribution should be applied for the benefit of all butter-manufacturers *pro rata* according to their respective total outputs. It was considered that probably separate pools would have to be established for the North and the South Islands.

307. Savings to be effected :

The evidence submitted indicated that, by rationalizing and controlling local marketing, the Dairy-produce Control Board could save approximately ¼d. per pound on butter and cheese locally sold by eliminating costly competitive practices. It should be able also to take over certain " hidden

savings," amounting to approximately ¾d. per pound, that accrue under the present method of determining local wholesale prices on the basis of net London prices. These savings, which could be secured without raising local wholesale prices and which at present enure to the benefit of a limited number of factory companies, should, in the opinion of practically all witnesses, be pooled with the Board. The Board would collect these savings by levying on all factories licensed to supply the local market, and would apply so much as was necessary of the proceeds of the levy, together with the proceeds of the present export levy, to defraying the expenses of the Board. The balance would be distributed among the owners of all factories manufacturing butter and cheese for the local or the export market in ratio to their respective total outputs. The adoption of this system would both ensure to the owners of factories licensed to supply the local market a reasonable profit on the additional costs incurred in supplying that market, and enable owners of all factories to share in the profits now made on local sales, and in the savings to be effected by the rationalization of the system of marketing. It was further suggested, in support of this plan, that it would provide the Board with the necessary funds to enable it to take effective measures for improving the quality of New Zealand dairy-produce, without necessarily placing any burden on the local consumer.

Under such a scheme it would be necessary to establish separate pools for butter and cheese.

308. Local Market not to be Exploited :

The proposals, in the form outlined above, would not exploit the local market in order to provide a subsidy on export sales. Most witnesses felt that the provision of a subsidy to producers would be regarded by the Government of the United Kingdom as a hostile or retaliatory measure, and that it would be objectionable to local consumers. Furthermore, it was pointed out that the volume of local consumption of butter and cheese in New Zealand was so small in comparison with the volume of exports that local prices would require to be very heavily loaded in order to provide a subsidy of any value to producers. In view of the evidence, the Commission favours a rationalized system of local marketing, which will overcome the disabilities previously mentioned and provide the finance necessary for a policy of quality improvement without material alteration of the local price level in relation to London parity.

309. Recommendations for Rationalization of Local Marketing of Butter and Cheese :

To give effect to the scheme for rationalization of the local marketing of butter and cheese, it is recommended that the Dairy-produce Control Board be empowered to control the marketing within New Zealand of butter and cheese, and that it be given the same full powers in respect of butter and cheese marketed locally as are given to it in respect of butter and cheese intended for export from New Zealand ; and that the Board be given power in particular,—

(i) To prohibit the sale on the local market of butter and cheese by owners of dairy factories and wholesale distributors except under license granted by the Board :

(ii) To require the owner of any dairy factory from time to time to supply for the local market such quantities of butter and cheese of such grades as the Board may consider necessary :

(iii) To limit from time to time the area within which the butter and/or cheese manufactured in any dairy factory may be marketed :

(iv) To require that all patted creamery butter be correctly wrapped and labelled according to grade, that all creamery butter sold in bulk be correctly described by impressed brand on both box and butter, and that whey butter be distinguished from all other butter by such means as the Board may deem proper :

(v) To fix from time to time the minimum wholesale prices to be charged for butter and cheese by licensees and to fix discounts, commissions, and other concessions, and in the interests of the industry to prohibit any marketing practices that it may consider to be unfair or undesirable :

(vi) To levy on owners of dairy factories in respect of butter and cheese marketed within New Zealand at such rates as the Board, with the approval of the Governor-General in Council, may from time to time determine, and to add the amount of such levy to the amount of the levy made under the provisions of section 15 of the existing Act, and to retain such part of the proceeds of such levies as it may require for the purposes set out in paragraphs (*a*) to (*e*) of section 17 of the existing Act, and for any other purposes recommended in this report, and to distribute the remainder to all owners of dairy factories in accordance with their total outputs of butter and cheese respectively. The Board may keep separate accounts for the North and South Islands respectively :

(vii) To terminate, on giving such notice as the Dairy-produce Control Board may deem reasonable, any contract for the sale of dairy-produce intended for consumption in New Zealand :

(viii) To arrange for the grading of butter and cheese for sale on the local market, by the licensing of managers or other officers of factories to carry out such grading, in accordance with such standards and subject to such conditions as the Board may determine, and by such other means as the Board may determine.

It has been proposed above that the finance for a comprehensive policy of quality-improvement should be obtained by the Dairy-produce Control Board from the savings that would accrue to it under the suggested scheme of local marketing control. It is estimated that the elimination of

wasteful marketing methods, and the retention by the Board of the "hidden savings" now distributed amongst the factories supplying the local market, would yield to the Board approximately 1d. per pound on butter locally sold. This would represent a total of about £240,000 per annum at the present level of local consumption. We have elsewhere in this report shown that approximately £288,700 per annum will be required to finance a quality-improvement and tuberculosis-eradication policy, and to provide additional funds for advertising; but that during the initial three years of the tuberculosis-eradication campaign £150,000 of the £288,700 will not be required. The annual yield from savings effected by the proposed local marketing control policy will therefore not only meet all expenses of the Board's operations for some time to come, but enable a reserve to be built up.

We are of the opinion that the utilization in this manner of savings realized by the operations of the Board is justified while butter prices are so low and dairy-farmers are in serious financial difficulties. We recommend, however, that, when and for so long as the London price of butter stands at or above 100s. per hundredweight in New Zealand currency, and the London price of cheese stands at a corresponding level, the incidence of local and export levies should be so adjusted as to return to consumers, in the form of lower prices, the whole or part of the savings effected under the scheme of local marketing control.

310. Local Marketing of Cheese by Board to be deferred :

With regard to control of the local marketing of cheese, it is recommended that action be deferred until the butter rationalization scheme has been established.

311. Consultation in regard to Details of Scheme :

It is realized that many details of the plan of rationalization which has been recommended will have to be worked out by the Dairy-produce Control Board. In this regard it is suggested that advantage be taken by the Board of the advice of those interested in the manufacture and distribution of butter for the local market.

312. Protection of Retail Purchasers from Misleading Descriptions :

We have dealt with the local sales of butter and cheese solely from the point of view of the wholesale trade, for we are satisfied, from a consideration of the evidence submitted to us, that it is unwise to attempt to control the retail trade, either by fixation of prices or by any other means. The methods of trading of different classes of retailers vary so widely that any interference would be fraught with difficulties and would produce inequitable results. We are, however, impressed with the desirability of ensuring that all butter, whether sold by wholesalers or retailers, should be sold according to its class and grade. At present creamery butters are sold under a multiplicity of trade names and descriptions, which do not indicate their grade. Whey butter, when sold in pats, is required by law to have the words "Whey butter" printed on the wrapper, and, when sold from the block, it is required to be designated as whey butter by means of a notice displayed on or beside the block.

Two weaknesses of the law as it stands have been brought to our notice. The first is that purchasers do not know the grade of creamery butter they are purchasing, for there is nothing, in many cases, to indicate the grade. Such terms as "choicest" and "best table" are misleading, and have no reference to grades. Further, the quality of the butter sold in wrappers bearing certain trade names and descriptions varies, and may be at different times of finest, first, or second grade. The second weakness of the law is that in the case of whey butter, as well as of creamery butter, there is nothing to prevent retailers from advertising any cheaply priced butter as, say, "best table-butter." It is well known that many customers write or telephone their orders for groceries, and this method of advertising makes it possible for them to be supplied with butter that they might not have cared to purchase if they had known its class and grade.

We recommend, therefore, that retailers shall be required, in advertising or displaying butter in any way, to state the class (creamery or whey) and grade (finest, first, or second) of the produce.

LOCAL UTILIZATION OF MILK AND MILK-PRODUCTS.

313. Introduction :

The Commission was directed to investigate the methods that might reasonably be adopted for promoting an increased consumption of raw and manufactured dairy-produce, and the economic practicability of the utilization of raw dairy-products for purposes other than the manufacture of butter or cheese.

314. Importance of Milk and Cream as Articles of Diet :

In other parts of this report we deal with alternative uses of milk and the by-products of milk in animal husbandry, and with the possibilities of increasing the consumption of manufactured dairy-products. In this section we propose to discuss means of increasing the consumption of milk and cream in liquid form, and means of increasing the quantity of milk and cream used in the manufacture of certain articles of food.

The opinion held by the great majority of the members of the medical profession is that the *per capita* consumption of milk is too low, especially in the case of children. The average consumption in New Zealand is estimated to be half a pint per day. Most medical authorities consider that an adult should consume a pint and that a child should consume a pint and a half daily. Milk contains proteins and mineral constituents that are of special value in building up and renewing the tissues and

bony structures of the body, and it is probably the most important single item of a child's diet. It is evident that if the value of milk as an article of diet for both adults and children were recognized as it should be, and if the price were reduced to a level that would enable the consumption to reach the optimum, an immense quantity could be diverted from manufacture.

315. Increased Consumption of Milk by Children :

One method of obtaining a larger consumption of milk in its liquid form, and at the same time assisting the interests of public health, is the distribution of milk to school-children. This method has been adopted in many parts of New Zealand through the co-operation of school authorities, philanthropic societies, and milk-vendors. It is regarded as a valuable means of maintaining the health and vitality of the children during the winter months. The difficulty in the way of its general adoption is lack of funds. We have recommended elsewhere the registration of dairy-farms supplying cheese and butter factories, with a view to raising the standard of their produce to the level of that required for urban milk-supplies. It would be possible, if that were carried out, to arrange with cheese-factory companies to supply, at low cost, pure pasteurized milk in bulk, to supplement the supplies that the milk-vendors were able to make available at a similar cost for the requirements of schools. We stress the necessity for pasteurization, for there is much misconception on the point. The medical witnesses who gave evidence to the Commission and all the recent authoritative medical publications that were submitted to us were insistent on the importance of pasteurization. Pasteurization, of course, is not intended as a substitute for cleanliness and care in the production and handling of milk, but as a means of destroying harmful bacteria that cannot otherwise be safeguarded against. We quote, as an indication of the opinion of modern medical science, the following passages from a leading article published in the *British Medical Journal* of the 16th February, 1934 :—

> "There is therefore every reason to believe that a daily ration of milk given to children, particularly to those who are living on the boderline of under-nourishment, is likely to exert a beneficial action on their mental and physical development. Raw milk, as laboratory examinations in various parts of the country have firmly established, is frequently infected, either from the cow or from human carriers, with micro-organisms that are pathogenic to man. The most authoritative figures reveal an infection of 6·7 per cent. of samples of raw market milk with living virulent tubercle bacilli and of 20 to 30 per cent. with *Brucella abortus*. Besides these two organisms it is known that milk becomes infected from time to time with hæmolytic streptococci, diphtheria bacilli, and members of the typhoid, para-typhoid, food-poisoning, and dysentery groups. The attitude of those who would minimize the importance of these organisms in milk is not easy to comprehend. . . . That a large amount of disease is carried by raw milk is no longer an opinion : it is a fact—a fact as well attested as any in the domain of medical science. The recommendation, therefore, that milk should be consumed in the raw state is equivalent to the support of a measure which must result in the occurrence of sickness and death among a proportion of those affected by it. The alternative to raw milk is not no milk, but milk rendered safe by some form of heat treatment. Of the various forms available, low-temperature pasteurization appears to be the most satisfactory.
>
> "Practical difficulties in the way of supplying children with properly pasteurized milk will be encountered in many towns and country districts. The alternative here is to see that the milk is boiled immediately before use. If these precautions are taken, all milk being rendered safe either by pasteurization or by boiling, the Children's Minimum Committee is likely to receive very strong support from the medical profession. If, on the other hand, they are neglected, it must be the duty of every medical officer concerned in implementing the scheme to point out the grave results that are likely to follow the consumption of milk in the raw state."

We may add that in many cities in other parts of the world the pasteurization of all milk, except certified grades of the highest standard of purity, is now compulsory.

The free distribution of milk to school-children is preferred by school authorities to any system under which the children are required to pay a small sum for the milk supplied to them.

As we have said, the difficulty in the way of a universal system of distribution of milk to school-children, if only for the winter months, is one of funds. It is possible, as we have shown, to reduce the cost to some extent ; but it would be regarded as an unfair burden on the taxpayer if the State were to find even the reduced cost, more especially as many parents are in a position to provide the small weekly sum necessary to pay for the milk supplied to their children. We think, however, that a voluntary fund might be provided in each town by means of individual subscriptions from parents and others, and that parents might be circularized by school authorities, and urged to contribute weekly or monthly such sums as they thought fit towards supplementary school funds administered by the teachers. Our attention has been drawn to a suggestion that the Government might authorize an art union, or a series of art unions, for the benefit of such a scheme. Without any desire to tread on what may be dangerous ground, we think we may say that it would be difficult to imagine a more worthy object. Should this suggestion be adopted, the resulting funds would, we assume, be handed over to the Government for distribution.

So far, we have been concerned with children of school age. The necessity for an ample ration of milk is greater still in the case of younger children, for whom no other food can take the place of milk. Here again assistance is given to needy cases by the Unemployment Board and the Hospital Boards. We are glad to commend the work that has been done, and we recommend its continuance.

316. Consumption of Milk and Cream generally :

Regarding the consumption of milk and cream generally, a number of witnesses discussed the high prices charged in cities and towns, as compared with the prices received by suppliers to cheese and butter factories. In the case of the City of Wellington, we had the opportunity of obtaining very full statements from representatives of the City Council's Milk Department and of private associations of producers and producer-vendors. We came to the conclusion that, owing to the costs of transport, handling, treatment, bottling, and distribution, the prices charged by the City Council to consumers could not be materially reduced, as long as the prices paid to producers remained unaltered. We were, however, impressed with the inability of the private producer-vendors, most of whose land is unsuitable for dairying, to operate on an economic basis, even at the prices charged by the City Council for a more efficient service to the consumer. In our opinion, the solution to the problem of providing supplies of milk and cream at low prices to urban consumers lies—(*a*) In the extension of the system of registration of dairy-farms to cover producers for factories as well as producers for urban supplies, so as to enable supplies to be drawn from larger areas; and (*b*) the concentration of distribution in fewer hands, with, where necessary, the introduction of a block system. With special reference to cream, an extension of the system of registration, with a daily delivery of cream to butter-factories, as elsewhere recommended, would certainly enable supplies of fresh cream for sale in cities and towns to be obtained through butter-factories at lower rates than are at present possible. There is, however, evidence that reductions in the prices of milk and cream are not always followed by corresponding increases in consumption. It appears to be necessary to take steps, by means of propaganda and instructive articles, to educate the people of New Zealand to realize the value of milk and cream as foods. In the United States of America the *per capita* consumption of milk and cream is considerably greater than in New Zealand. Hotels, restaurants, and milk-bars supply and popularize many kinds of palatable milk beverages, and it is probable that these beverages could easily be made popular in this country.

317. Milk and Cream used in Manufacture of Foods :

Milk is used in the manufacture of bread, and milk and cream are used in the manufacture of ice-cream, and there are possibilities of utilizing larger quantities than are used at present.

In the case of bread, there is no official prescription of the minimum milk content in bread that is sold as "milk bread." The proteins of milk have special properties and definitely increase the nutritive value of bread. Further, flour is deficient in calcium, phosphorus, and other minerals, of which a considerable quantity is contained in milk. Hence the addition of milk in the manufacture of bread is a very desirable method of improving its value as a food.

The public in New Zealand has never been systematically taught to appreciate the real value of milk in bread. A certain amount of advertising has been undertaken by individual bakers, but there is as yet no general realization by the public of the superiority in quality and value of a milk-made loaf as compared with an ordinary flour-and-water loaf. The public is not altogether to blame, for milk bread has no legal standing. A loaf of bread sold as milk bread may contain 50 per cent. or more of milk or milk equivalents in the liquid used for mixing the dough, or it may contain barely sufficient to enable the baker to say that it contains milk. It is possible to use milk in its liquid state, dried milk, or condensed milk, in the manufacture of bread. The additional cost of manufacture due to the use of milk is offset, wholly or in part, by the increased number of loaves obtainable from a sack of flour. The explanation of this circumstance is that the addition of milk-products increases the absorbent properties of the developing gluten, and consequently enables a smaller quantity of flour to produce a dough of the required consistency. The increase in the weight of dough obtained from a unit quantity of flour is of course reflected in an increase of bread weight.

318. Recommendation as to Milk Bread :

We have recommended elsewhere in this report that the Dairy-produce Control Board be given authority to apply its funds in advertising milk and cream, and we think that, if provision were made by law for the gazetting of the requirements to be complied with in respect of bread sold as full milk bread or milk bread, the Board might with advantage advertise the value of milk as a constituent of bread. We recommend that a "full-milk bread" should be defined as bread that contains milk solids, other than fat, equivalent to the milk solids that it would contain if all the liquid used for doughing were milk; and that a "milk bread" should be defined as bread that contains the equivalent of two pounds of milk solids to each sack of flour used in its manufacture.

319. Recommendations as to Ice-cream :

This commodity was formerly regarded as a luxury item of diet, but it is now accorded fuller recognition on account of its food-value. Regulation 61 made under the Sale of Food and Drugs Act requires that ice-cream shall contain 10 per cent. of milk-fat. In the United States of America, the minimum requirements are 14 per cent. of milk-fat in plain ice-cream and 12 per cent. in ice-cream blended with fruits or nuts. We recommend that, in order to increase the food-value of ice-cream and to provide an additional outlet for surplus cream the regulation regarding the constitution of ice-cream be amended to require a minimum milk-fat content of $12\frac{1}{2}$ per cent. A number of ice-cream manufacturers asked for the removal of the sales tax in respect of ice-cream products. We are of the opinion, however, that the low prices ruling for milk and cream afford sufficient justification for requiring a higher percentage of milk-fat to be used, without making any concessions of this nature. It is open to the manufacturers to make representations to the Government for any relief that may for other reasons be desired.

320. Recommendations as to other Food Uses :

The attention of proprietors of dairies is directed to the possibilities of developing a trade in cream cheeses, Devonshire cream, plastic—*i.e.*, double separated—cream, and small soft cheeses, all of which have proved popular in other countries. It is suggested also, that the Dairy-produce Control Board might publish and distribute recipes for making foods based on dairy-products, and thereby aid in increasing consumption.

HERD-TESTING SERVICES.

321. Beginnings of Herd-testing.

Herd-testing has been practised in the Dominion since 1909, when the Department of Agriculture inaugurated a scheme in the Wairarapa. The Department has fostered the herd-testing movement by performing the work free of cost in its early stages, by the adoption of its own systems of cow-testing, by the formation of associations, by the provision of forms, by the supply of equipment at cost price, and by the issue of instructive information. The group herd-testing movement, which is controlled entirely by farmers, was commenced in 1922, and has, within recent years, taken the leading part in extending and improving the methods of testing grade herds.

322. Value of Herd-testing :

Herd-testing is recognized as one of the most progressive movements for increasing the efficiency of dairy herds, and of dairy-farm management. It creates an intelligent interest, shared by the farmer, his family, and employees, in each animal in the herd ; raises butterfat-production per cow and per acre, thereby reducing costs of production ; and provides a check at monthly intervals on the efficiency of milkers, cows, feeding, season, and farm and herd management. It is the basis of constructive cow selection and herd replacement, and discloses to finance institutions and other lenders the comparative efficiency of individual production units on the dairy-farm. It is, therefore, a movement which is worthy of the greatest commendation.

323. Existing Organization :

At the present time herd-testing in the Dominion is administered by two separate bodies—namely, the Dairy Division of the Department of Agriculture and the Dominion Group Herd-testing Federation. These bodies function independently of each other. There is, however, a central organization known as the New Zealand Herd-testing Central Executive, on which both bodies are represented, and which advises the Government on the allocation of subsidies and on herd-testing matters in general ; but this organization has no executive powers or permanent staff.

The Central Executive consists at present of nine members, of whom four are nominated by the Dominion Group Herd-testing Federation, two by the Department of Agriculture, one by the New Zealand Dairy-produce Control Board, one by the Dominion Dairy Breeds Federation, and one by the Massey Agricultural College Council.

324. C.O.R. and O.H.T. Systems :

The Dairy Division of the Department of Agriculture controls the Certificate of Record and Official Herd-test systems, which are applicable only to pure-bred dairy cattle registered in the herd-books of the different breed associations of the Dominion. The work of testing, recording, compilation of records, and issue of certificates is carried out by permanent officers of the Dairy Division. Under these systems owners of cattle may specify the cows to be tested and are not obliged to place their whole herds under test.

325. Group H.T. System :

The Dominion Group Herd-testing Federation is a voluntary body registered under the Incorporated Societies Act, and comprises twenty-eight affiliated Group Herd-testing Associations, each of which is registered under the Incorporated Societies Act. Each association controls a number of groups, each consisting of approximately twenty-seven farmers, owning among them about 1,200 cows. One recording officer is assigned to each group. Under the group method, no distinction is made between pure-bred and grade cows, and all cows in a herd must be tested. The business of the federation is managed by a council consisting of one representative from each affiliated association. Each member of the council has only one vote, irrespective of the size of his association. The management committee elected from the council administers the policy laid down by the council.

326. Objects of Group H.T. Federation :

The objects of the federation are :—

(*a*) To standardize group herd-testing methods in New Zealand :

(*b*) To define areas in which associations shall operate, in order to avoid overlapping of activities of the different associations :

(*c*) To control a calf-marking scheme under which grade heifer calves are permanently and individually made identifiable and are registered in a special register kept by the federation. This scheme is restricted to the progeny of cows with a specified minimum butterfat production and pedigree bulls with a specified minimum of butterfat backing. This scheme is partly, but not entirely, protected by the Live-stock Amendment Act, 1927 :

(*d*) Generally to assist the herd-testing movement.

327. Finance of Group H.T. Federation :

The federation has a small permanent staff and is financed by an annual grant from the Government subsidy for herd-testing and by a levy of ½d. per cow in respect of all cows for which a charge is made by affiliated associations. The federation received in the financial year ended 31st March, 1934, £1,300 from the Government and £520 from affiliated associations.

328. Management of Associations :

Each association is administered by a management committee elected by its members, and has complete control of its domestic affairs, including the appointment of officers and the fixation of testing-fees.

329. Other Dominion Testing Organizations :

A few privately organized groups, not affiliated to the federation, are in existence. They are not obliged to conform to officially defined methods of testing and recording, and the charges made by them are on a lower scale than those made by the federation. Failure to adopt uniform methods gives rise to confusion, and tends to undermine confidence in the accuracy of herd-testing generally; and the combined effect of lack of uniformity of methods and the existence of different scales of charges is to bring about competition and overlapping of activities in the same districts. The Stock Amendment Act, 1927, prohibits the members of these groups from marking calves under the marked-calf scheme, but it is open to them to become incorporated and register a distinctive mark, in which case they could compete more seriously than at present with the National Federation, and gravely affect the value of the calf-marking scheme by setting up different standards.

Another method of herd-testing is carried on with the assistance of the owners of dairy factories and of officers of the Dairy Division. This method is known as the "Association own sample method." Under it the farmer weighs and samples milk from individual cows in his herd, and the factory management or an officer of the Dairy Division tests the milk and compiles the records of the individual cows. This is essentially a private test, and is entirely for the benefit of the farmer. No official or semi-official recognition is accorded to it.

330. Number of Cows tested, and Costs.—(*a*) C.O.R. and O.H.T. :

During the dairying season 1933–34, 815 cows belonging to 248 breeders were tested by the C.O.R. method, and 2,168 cows belonging to 175 of the 248 breeders were tested by the O.H.T. method. The Dairy Division charges £8 8s. for the first cow tested for a breeder under C.O.R. conditions and £3 3s. for each additional cow. It charges 5s. per cow for animals tested under O.H.T. conditions. The fees received by the Dairy Division during 1933–34 amounted to £4,495 18s. 6d. The total cost of the work to the Division was £6,933 3s. 8d. The Division also received the sum of £115 9s. 3d. in fees for testing cows under the association own sample method. Thus the testing of pure-bred cattle under the C.O.R. and O.H.T. systems entailed a net cost to the Consolidated Fund of £2,321 15s. 11d.

It has to be observed that breed associations make substantial grants to members who put cows under C.O.R. test. These grants vary with breed associations, but in the main are sufficient to defray the greater part of the fees.

331. (*b*) Group H.T. :

During the dairying season 1933–34 approximately 275,000 cows belonging to approximately 5,500 farmers were tested. This is equivalent to approximately 15 per cent. of the total number of cows milked. Of the total number tested by this method, approximately 10,000 were pure-bred animals. The average cost of testing by the group method is 4s. 6d. per cow. The total cost for the season 1933–34 was approximately £61,875. The Government has since 1928 granted annual subsidies for the encouragement of herd-testing by the group and association own sample methods, the amount so paid during the season 1933–34 being £5,693. Of this total, a sum of £1,300 was allocated to the Dominion Group Herd-testing Federation towards the payment of the salary and office and travelling expenses of the supervisor. The remainder was distributed to Group Herd-testing Associations and to owners of factories operating under the association own sample method, partly to assist in the expansion of group herd-testing and partly to reduce the cost of testing to individual farmers. From it an allowance of 3½d. per cow was made for animals tested by the group method and an allowance of 2d. per cow was made for animals tested under the association own sample method. Approximately 26,000 cows were tested during the season 1933–34 by the latter method. The present position is that the annual subsidy is being reduced by £1,000 per annum, and will be extinguished in a few years.

332. Limitations of Existing Organizations :

The existing organizations and systems are subject to the following limitations and disabilities :—

(1) Government officers responsible for the work of C.O.R. and O.H.T. testing and officers of Group Herd-testing Associations are operating in the same districts, thus creating needless overlapping of effort.

(2) The Dominion Group Herd-testing Federation is essentially a voluntary organization. While it has been successful in making methods of group herd-testing uniform throughout the greater part of the country, it has no powers to prevent the establishment of competitive organizations using different methods.

(3) Although the only calf-marking scheme in operation in the Dominion at the present time is operated by the Dominion Group Herd-testing Federation, the possibility exists of competitive schemes being introduced by independent registered associations. Since the marked-calf scheme aims at raising the butterfat production of grade stock, it is essential that the scheme be protected to ensure uniformity of standards and methods.

(4) The Government contribution towards cow and herd testing is not equitably distributed. During the year 1933–34 the net cost to the State of the C.O.R. and O.H.T. systems was £2,321 15s. 11d. for 2,983 cows, while the State subsidy towards group herd-testing and association own sample testing was £5,693 for approximately 301,000 cows. The latter sum, as has already been mentioned, is reducible by £1,000 per annum, while the former sum is not reducible, and includes a credit of £115 9s. 3d. for fees received in respect of association own sample testing.

(5) Since the annual subsidy is to be reduced by £1,000 per annum, it will be extinguished in 1938. By 1936 it will be sufficient only to provide a grant to the federation for essential supervisory work. Unless the subsidy is continued for this purpose, it is probable that the co-ordinating work of the federation will have to be abandoned.

(6) Under the existing C.O.R. and O.H.T. systems owners of herds are permitted to specify particular cows for testing, and can accordingly concentrate their attention upon these animals, with the object of obtaining high records from them for a single season. There is therefore the possiblity that a cow, though producing a high yield in one year in response to special treatment, may not be a consistently high producer over a period of years. While it is recognized that the C.O.R. and O.H.T. systems have certain advantages in respect of accuracy and as a means of assisting sales, the conditions under which results are obtained are such as to render the records of very little value from the viewpoint of farm practice.

(7) Though pure-bred animals are kept primarily for the purpose of breeding herd sires for grade herds, there is no obligation upon the breeders of pure-bred stock to test their cows, and frequently farmers purchase and use pure-bred bulls from cows of the productive capacity of which there is no record. Further, the testing of pure-bred herds, as a means of assisting the breeding of bulls with a high butterfat backing, loses much of its value if it is not continuously carried out.

333. Recommendations—(*a*) N.Z. Herd-testing Council Bill :

In order to place the herd-testing movement on a sound basis, it is recommended—

(1) (*a*) That there be set up a New Zealand Herd-testing Council which will prescribe uniform standards and methods and control all activities in respect of cow and herd testing (including C.O.R., O.H.T., and G.H.T. systems) within the Dominion. (Note.—It is intended that the Council should take the place of the Dominion Group Herd-testing Federation).

(*b*) That all Herd-testing Associations be registered with and be affiliated to the Herd-testing Council, and discharge their functions in accordance with the general policy laid down by the Council.

(*c*) That the Council consist of eight members, four to be elected and four to be appointed as follows :—

Four to be elected by affiliated associations :
One to be appointed by the New Zealand Dairy-produce Control Board :
One to be appointed by the Department of Agriculture :
One to be appointed by the New Zealand Dairy Breeds Federation :
One to be appointed from its staff by the Council of the Massey Agricultural College.

The Council to elect annually the Chairman from its own members. Each elected and appointed member to hold office for two years, retiring members to be eligible for re-election or re-appointment ; two elected and two appointed members to retire each year ; but two elected and two appointed members to retire at the end of the first year, as determined by lot.

The four elected members of the first Council will be elected by the New Zealand Group Herd-testing Federation, which will then cease to exist. The Council will thereafter call an annual meeting of representatives of affiliated associations, at which each affiliated association may be represented by one member. The representatives at this annual meeting will elect, on the basis of one representative one vote, two members of the Council.

(*d*) That the Council be empowered to appoint Standing Committees and to delegate to such Committees such of its powers as it may consider desirable.

(*e*) That the Council be empowered (1) to own and/or lease land, buildings, and equipment ; (2) to appoint and control such officers and servants as are required to carry out its functions ; (3) to enter into contracts with persons, institutions, firms, and companies ; (4) to trade in materials and equipment used for herd-testing purposes.

(*f*) That it be an offence for persons or associations that are not registered by the Council to undertake cow and herd testing for fee or reward.

(*g*) That the Council be empowered to define areas within which each association is to operate, and to confine the operations of any association to the area allotted to it.

(*h*) That the Council have sole control of a Dominion marked-calf scheme (as described above in paragraph (*c*) of objects of the federation), and that it be an offence for any person or association to operate under that scheme or any other scheme that has a similar object, unless such person or association is registered by the Council and unless the Council approves of any such scheme and the manner in and conditions under which it is operated.

(*i*) That the Council be empowered to require affiliated associations to adopt standardized methods of keeping records and to keep standardized books of account.

(*j*) That the Council be empowered to inspect the records and books of account of affiliated associations and to require such associations to supply it with whatever statistical and other information it may desire.

(*k*) That the Council be empowered to determine, in accordance with the Stock Amendment Act (proposed), the standard or standards of butterfat backing to which pure-bred dairy bulls offered for sale must conform, and to issue certificates evidencing such butterfat backing.

(2) (*a*) That the Council receive a Government grant of not less than £4,000 per annum towards the cost of administrative and statistical services. (Note.—The cost to the Government is at present £7,015 per annum, of which £4,693 represents the 1934–35 reducible subsidy and £2,322 represents the net cost of operating the C.O.R. and O.H.T. systems. Of the subsidy of £4,693, £1,300 is allotted to the federation for supervisory work, leaving £3,393 for general purposes. It is recommended that this portion of the subsidy be reduced by £1,000 per annum until it is extinguished, but that a permanent grant of £4,000 per annum be made as above).

(*b*) That the Council be empowered to require affiliated associations to pay annually to the Council such levy, to be approved by the Governor-General in Council, as may be required, in addition to the Government grant, to enable it to discharge its functions.

(*c*) That the Council have control of its funds and be empowered to accumulate and invest reserves, to receive and expend subsidies and grants in aid of herd testing, to pay salaries, wages, honoraria, and travelling and other expenses, and generally to use its funds as it thinks fit in the discharge of its functions.

(*d*) That the Council be required to submit annually to Parliament a report on its operations and a statement of accounts duly audited by the Audit Office.

(3) That provision be made for penalties for breaches of this Act.

334. (*b*) **Stock Act Amendment :**

(4) That the Stock Act be amended to require " That no person shall sell and no person shall purchase, except for immediate slaughter, a pure-bred dairy bull born after one year from the date of the passing of this amendment unless at the time of sale a certificate of butterfat backing in respect of such bull, issued under the authority of the New Zealand Herd-testing Council, is delivered by the vendor to the purchaser. The purchaser shall retain such certificate for such time as the bull remains his property, and shall on demand produce such certificate to any Inspector or to any officer of the Council." The Council, with the approval of the Governor-General in Council, will prescribe the conditions under which it may grant such certificates in accordance with the provisions of the proposed New Zealand Herd-testing Council Act. A " pure-bred dairy bull " should be defined as " any bull which is registered in, or the sire and dam of which are registered in, the herd-book of one of the following Breed Associations : Jersey, Guernsey, Ayrshire, Friesian, and Milking Shorthorn." Power should be taken to provide by Order in Council for the inclusion of other breed associations, as occasion may require.

PART IV.

SUMMARY OF CONCLUSIONS AND RECOMMENDATIONS.

335. (*a*) Conclusions:

(1) The conditions confronting the New Zealand Dairy Industry have assumed the proportions of a national crisis. The gravity of the position is revealed in the present London quotations for New Zealand dairy-produce, which are so low that farmers must expect a correspondingly lower pay-out for the current season than they received last season.

(2) Those dairy-farmers who found it difficult to carry on during the past two seasons with an average pay-out of approximately 9d. per pound will find it impossible to meet their full interest charges from a lower pay-out. The number of farmers who can produce butterfat and meet wages and living-expenses and provide any interest surplus on a substantially lower pay-out is negligible.

(3) Unless early and effective measures are taken, the result will be a general breakdown of the financial relations of mortgagors and mortgagees in the Dominion, and consequently it will become difficult, probably impossible, for New Zealand to meet in full its overseas interest charges.

(4) The critical position in regard to prices has been brought about through the flooding of the United Kingdom market by the dumping of subsidized dairy-produce from the Northern Hemisphere and Australia, and by the increase in our own supply.

(5) New Zealand's position is aggravated by the facts that no markets of importance outside the United Kingdom are available to us at the present time, that such new markets as might be developed could not possibly be immediately profitable, and that the possibilities of increasing the local consumption of dairy-products are very limited.

(6) Diversified and supplementary production on dairy-farms offers little or no prospect of relief owing to the prevalence of external trading restrictions and quotas.

(7) The general conclusion in regard to the external aspects of the present problem is that an early approach must be made by the Government of New Zealand to the Government of the United Kingdom to arrive at a preliminary understanding and provide a basis for further negotiations.

(8) The general conclusions in regard to the internal aspects of the problem are that immediate action must be taken by the Government of New Zealand to stabilize the financial position of dairy-farmers and that, as a means towards the evolution of a long-term policy of reconstruction, the industry must be reorganized.

336. (*b*) Recommendations:

(1) We recommend the setting-up at an early date of a Rural Mortgage Corporation, through which farmers will be able to obtain long-term mortgage credit at the lowest current rates of interest and on easy terms of repayment. The recommendation provides for existing mortgages being taken over by the Corporation in exchange for bonds carrying a State guarantee for the payment of interest. It is recommended that the rates of interest payable on bonds and on mortgages shall be adjusted triennially, in order to afford to bondholders the current rates of returns on Government securities and to give to mortgagors the benefit of the lowest possible current rates of interest. The recommendion makes provision for the taking-over by the Corporation of existing mortgages, and for differentiating between the sound and the less sound portions of mortgages taken over by the Corporation. It is proposed that the portions against which bonds cannot be issued be placed in a suspense account, and that the farming operations of those mortgagors whose surplus indebtedness is so dealt with be efficiently supervised in their own interests and in the interests of their creditors. The setting-up of expert bodies is recommended for the purpose of ascertaining which farming propositions are basically sound, and arranging compromises with mortgagees and other creditors where necessary.

(2) In the belief that the factors of efficiency of production and quality of product are of paramount importance in meeting competition in oversupplied markets, and building up an increasing preferential demand for New Zealand dairy-produce, we recommend that early steps be taken to improve its quality, and that the Government make available, at low rates of interest, to farmers and dairy-factory companies sufficient funds to enable farm and factory equipment and appliances to be modernized and rendered efficient for the production and manufacture of dairy-produce of the highest possible quality. We also recommend a comprehensive attack on animal diseases, which at the present time are the cause of considerable direct loss to the industry and have a bearing on the quality of dairy-produce. We further recommend that farm and factory instruction, research work, and herd-testing be placed on a sound basis, with the object of giving the dairy industry all possible assistance towards efficient economic production. In order to provide part of the finance required for the improvement of quality, we recommend that the Dairy-produce Control Board be empowered to control the local marketing of butter and cheese, and thereby to save, for the benefit of the industry as a whole, a large sum that is lost annually through wasteful competitive practices, which are considered to be specially undesirable in a co-operatively organized industry. Our detailed recommendations regarding improvement of quality are summarized in Section 234 of this report.

(3) In order that the dairying industry may be efficiently organized in all its phases and operations—instruction, production, manufacturing, and local and export marketing—we recommend the setting-up of a new Dairy-produce Control Board with a different constitution and wider powers than that of the present Board. It is intended that the new Board shall be so constituted and be given such powers as to enable it to deal effectively, in the interests of producers and of the State, with all the activities and problems of the dairying industry.

(4) With the object of providing an organization competent to deal with the wider aspects of farm-production and the marketing of our primary products generally, we recommend the setting-up of a co-ordinating body, which will function as a permanent executive Commission of Agriculture, to advise the Government on all matters relating to production and marketing, and co-ordinate (and where necessary control) the operations of the different Produce Boards. Co-ordination of effort is necessary in matters such as the penetration of new markets, in which all our primary industries have a common interest, and it is equally necessary in matters such as restrictions on the export of bobby veal, boned beef, and pig-meats, in which the interests of two or more primary industries may conflict. Should other trade negotiations fail, the Council will be an appropriate body to assist in negotiating barter agreements with other countries.

(5) We recommend that a confidential investigation be made at an early date into the whole system of the marketing of New Zealand dairy-produce in the United Kingdom, with a view to evolving a system that will enable the possibilities of that market to be more fully exploited, and an increased preferential consumptive demand built up for New Zealand dairy-produce. We recommend also that the possibilities of foreign markets and of diversified production be further explored.

(6) We recommend that the Government of New Zealand take an early opportunity of conferring with the Government of the United Kingdom as to the extent to which it is desired that the production and manufacture in the United Kingdom of dairy-produce should expand, and that, after a preliminary understanding has been reached, the Government of the United Kingdom should be requested to arrange a conference of representatives of countries exporting dairy-produce, in order to decide a course of action for the future. In the event of imports of Empire dairy-produce being subjected by the Government of the United Kingdom to quota restrictions and/or Customs duties, we recommend that full representations should be made regarding the special claims of New Zealand for preferential treatment.

(7) The foregoing paragraphs summarize our principal recommendations. We have also made recommendations regarding means for effecting economies in the collection of cream-supplies for factories, for increasing the consumption of liquid milk and cream, and for other matters. These have been dealt with in appropriate sections of this report.

(8) In the opinion of the Commission, it is necessary that these recommendations should be regarded as interrelated and interdependent and that effect should be given to them without delay. It is recognized that some time must necessarily elapse before a new Dairy-produce Control Board can function, but it is regarded as urgently necessary that the suggested Council of Production and Trade should be set up at as early a date as possible in order that problems requiring immediate action may be effectively dealt with in the national interest.

In witness whereof we have hereunto set our hands and affixed our seals, this 15th day of October, 1934.

[L.S.] F. V. FRAZER, Chairman.

[L.S.] G. A. DUNCAN
[L.S.] J. GILKISON } Members.
[L.S.] D. O. WILLIAMS

APPENDICES.

SPECIAL REPORTS, TRADE POLICIES, AND GENERAL.

		PAGE
Appendix	I.—Letter from Mr. W. A. Iorns	135
,,	II.—Import Duties on Dairy-products	135
,,	III.—Restriction of Butter and Cheese Imports into certain European Countries	137
,,	IV.—United Kingdom Trade Agreements with Foreign Countries	140
,,	V.—New Zealand Trade Agreements with Foreign Countries	142
,,	VI.—Legislation affecting Butter in certain Exporting Countries	144
,,	VII.—British Agricultural Marketing Acts	150
,,	VIII.—British Milk-marketing Schemes	152
,,	IX.—Report from the New Zealand Dairy-produce Control Board on the Shipment of Butter and Cheese to United Kingdom Ports	153
,,	X.—Report from the New Zealand Dairy-produce Control Board on the Insurance of Butter and Cheese	158
,,	XI.—Report from the New Zealand Dairy-produce Control Board on the Cold Storage and Handling of Butter and Cheese at United Kingdom Ports	158

STATISTICAL APPENDIX.

Table	1.—Total Cows in Milk and Dry, Butterfat-production per Cow, and Total Butterfat produced	163
,,	2.—Utilization of Total Estimated Butterfat-production	164
,,	3.—International Butter Trade—Imports	165
,,	4.—International Butter Trade—Exports	166
,,	5.—Butter Imports into Germany and France	167
,,	6.—Butter Imports into Belgium and Switzerland	168
,,	7.—International Cheese Trade—Imports and Exports	169
,,	8.—Imports of Cheese into Chief Importing Countries	170
,,	9.—Butter Imports into United Kingdom (Gross)	171
,,	10.—Cheese Imports into United Kingdom (Gross)	172
,,	11.—Gross Monthly Butter Imports into United Kingdom	173
,,	12.—Average Monthly Quotations of New Zealand and Danish Butter	174
,,	13.—Average Monthly Quotations of New Zealand and Canadian Cheese	175
,,	14.—Monthly Gradings and Stocks of New Zealand Butter and Cheese	176
,,	15.—Butter Stocks, afloat and in Store, in the United Kingdom	177
,,	16.—Imports of Butter, Cheese, Milk, and Cream into Various Eastern Countries	178
,,	17.—Value and Volume of New Zealand Exports of Dairy-produce to Various Countries	181
,,	18.—New Zealand's Trade with certain Countries	184
,,	19.—Descriptive Details, by Districts, of 550 Dairy Farms	191
,,	20A.—Costs per Cow, by Districts	192
,,	20B.—Costs, in Pence per Pound, of Butterfat, by Districts	193
,,	20C.—Percentage Costs, by Districts	194
,,	20D.—Returns and Costs per Acre, by Districts	195
,,	20E.—Returns and Costs per Pound of Butterfat, by Districts	196
,,	20F.—Percentage Position of Returns and Costs, by Districts	197
,,	21.—Returns and Costs per Acre, according to Level of Butterfat-production per Acre	198
,,	22.—Returns and Costs per Pound of Butterfat according to Level of Butterfat-production per Acre	199
,,	23.—Percentage Returns and Costs according to Butterfat-production per Acre	200
,,	24.—Cost and Returns per Acre according to Size of Herd	201
,,	25.—Returns and Costs per Pound of Butterfat according to Size of Herd	202

PART V.

APPENDICES.

SPECIAL REPORTS, TRADE POLICIES, AND GENERAL.

APPENDIX I.

Wellington, 27th September, 1934.

His Honour Mr. Justice Frazer,
Chairman, Dairy Industry Commission, Wellington.

DEAR SIR,—

You are aware that, with the consent of the Governor-General in Council and with your concurrence, I am leaving to-day for Australia on the advice of my medical adviser, who has stated that my recent severe illness makes this course imperative.

At this date the Commission has decided in general terms upon its recommendations, except those in regard to export marketing. I desire to state that, by virtue of my participation in the deliberations of the Commission during a considerable period, I am familiar with the recommendations which the Commission will be making upon all subjects except export marketing, and I wish to express my approval of them.

In regard to export marketing, I desire to state that I believe the Commission is not in a position to deal fully with the matter, because it has not had an opportunity of making an independent investigation in the United Kingdom. There has been much conflict of evidence, and, further, it must be remembered that many of the witnesses are themselves engaged in the business, and not unnaturally they must consider the effect of marketing proposals on their own particular business. Without in any way attempting to discredit the valuable report furnished by the London Committee set up to investigate marketing requirements and conditions in the United Kingdom, I am convinced that the most satisfactory method of investigation would be by means of a personal and confidential inquiry made throughout the United Kingdom by a small committee familiar with the present conditions of the dairying industry in New Zealand. It is essential that inquiries should be made in such a way as to ensure that the necessary information can be frankly given by merchants and others without fear of prejudicing their business interests.

I consider that the recent marketing regulations, as originally submitted to the Board on the unanimous vote of the London Importers' Association, were in the best interests of the industry, and were likely to improve the methods of marketing dairy-produce in the United Kingdom. I am not in favour of the restriction since imposed by clause 1 of these regulations, which makes it necessary for a f.o.b. or c.i.f. buyer to ship through a licensed importer or broker. I consider that such a f.o.b. or c.i.f. buyer should be permitted to ship direct to his customer in the United Kingdom, and that the only restriction on the buyer should be confidential notification to the Board of the particulars of the purchase, including the price.

Finally, I believe the dairy-farmers are entitled, through the agency of their Dairy Produce Board, to take an interest in the marketing of their produce, and to agree with the firms distributing such produce in regard to regulations governing the disposal and marketing of their produce.

Yours faithfully,
W. A. IORNS.

APPENDIX II.

IMPORT DUTIES ON DAIRY-PRODUCTS.

1. UNITED KINGDOM.

The following table gives the duties on dairy-products imported into the United Kingdom from foreign countries under the Import Duties Act, 1932, in operation on 1st March, 1932, amended, where applicable, by the Ottawa Agreements Act, 1932, in operation on 17th November, 1932, and by various Import Duties (Substitution) Acts since. The duties payable on imports from the Irish Free State, whether under the Import Duties Act in operation on 15th November, 1932, or under the various Irish Free State (Special Duties) Orders are also given. The position is as at 1st June, 1934. The Ottawa Agreements Act continues for three years from the 15th November, 1932, the provisions

in the Imports Duties Act, for the free entry into the United Kingdom of eggs, poultry, butter, cheese, and other milk products from Canada, Australia, New Zealand, Newfoundland, and Southern Rhodesia.

Product.	Foreign Countries.	Irish Free State.
Milk	10 per cent. *ad valorem*	10 per cent. *ad valorem*.
Cream	10 per cent. *ad valorem*	40 per cent. *ad valorem*.
Butter	15s. per cwt.	40 per cent. *ad valorem*.
Cheese	15 per cent. *ad valorem*	10 per cent. *ad valorem*.
Milk, condensed, unsweetened, whole	6s. per cwt.	10 per cent. *ad valorem*.
Milk, condensed, sweetened, whole	5s. per cwt. in addition to any duty payable on sugar content	10 per cent. *ad valorem* in addition to any duty payable on sugar content.
Milk, condensed, sweetened, separated or skimmed	10 per cent. *ad valorem* or the sugar duty, whichever is the greater	10 per cent. *ad valorem* or the sugar duty, whichever is the greater.
Milk-power, unsweetened	6s. per cwt.	10 per cent. *ad valorem*.
Milk-powder, sweetened	10 per cent. *ad valorem* or the sugar duty, whichever is the greater	10 per cent. *ad valorem* or the sugar duty, whichever is the greater.
Milk, preserved, other kinds, unsweetened	6s. per cwt.	10 per cent. *ad valorem*.
Lactose (sugar of milk)	10 per cent. *ad valorem*	10 per cent. *ad valorem*.

2. Germany.

From the 15th November, 1932, a flat rate of duty of 75 R.M. per 100 kg. (£3 2s. 9d. per cwt.) on imported butter was introduced, and at the same time total imports were limited to an annual quantity of 55,000 metric tons, the quota being divided among supplying countries in proportion to their average exports to Germany in the three years 1929 to 1931. At the end of 1933 butter was brought under the control of the Fat Monopoly, through which all butter, whether home or imported, must be purchased. Since early in 1934 imported butter has had to bear a surcharge, in addition to the Customs duty, to bring the price up to the fixed internal level. The quota for imports in 1934 has been fixed at 45,000 metric tons.

Several changes in the import duties on different types of cheese were introduced during 1933, and with the German-Netherlands Treaty a tariff quota came into operation which restricted imports of hard cheese from 1st May to 31st December, 1933, to 50 per cent. of average imports in the corresponding period of 1931 and 1932 at a duty of 20 R.M. per 100 kg. (16s. 9d. per cwt.), while a further 20 per cent. was allowed to enter at a rate of 50 R.M. (£2 1s. 10d. per cwt.). Cheese came under the control of the Fat Monopoly at the end of 1933, and imports, from early in 1934, have had to bear a variable surcharge in addition to the import duty. The bulk of the imports consists of hard cheese, only 5 per cent. of the total in 1933 being soft-cheese types.

The conversions have been made at the ruling rate on the 1st October, 1934—namely, 12·165 marks to the pound sterling.

3. France.

Control of imports of butter into France by quota and license was instituted in September, 1931. On 28th September, 1932, the quota was abolished and replaced by considerably increased tariff rates, which were further increased early in 1933. Quotas were again introduced on 9th March, 1933, and continued in force throughout the remainder of the year, along with the increased tariff rates of 850 francs "minimum" and 1,700 francs "maximum" per 100 kg. (£5 15s. 9d. and £11 11s. 6d. per cwt. respectively) and a license-tax of 50 francs per 100 kg. (6s. 9d. per cwt.). As from 17th February, 1934, the duty was reduced, but the license-tax was increased, leaving the total payments on imported butter unchanged.

Cheese imported into France is assessed with duty either at the minimum rate of 100 francs per 100 kilos or at the general rate of 200 francs per 100 kilos. (New Zealand comes under the general rate, which is equivalent to 27s. 1d. per cwt.). In addition, a license-tax to import cheese is imposed amounting to 100 francs per 100 kilos (equivalent to 13s. 7d. per cwt.) Cheeses weighing more than 143 lb. each, and in which the proportion of fat in dry matter is 45 per cent. or more, obtain a reduction of 30 per cent. off both import duty and license-tax. The conversions are made on the basis of 74·93 francs to the pound sterling.

4. Belgium.

The tariff on butter imported into Belgium was merely nominal (20 francs per 100 kilograms) up to 1931. In November of that year the rate was increased to 161 francs per 100 kg. (15s. 8d. per cwt.). A quota on imports was introduced in April, 1932, and this system applied throughout 1933, the quantity to be imported being determined monthly. In addition, since the second half of 1933, importers have been required to pay a license-tax for all butter imported, the actual amount which is fixed each month depending on the difference between the price in the home and external markets.

Cheese imported into Belgium is assessed for duty at the following rates: Gruyère, 72 francs per 100 kilos; other kinds, 82 francs per 100 kilos; New Zealand and Canadian Cheddar, 72 francs per 100 kilos (7s. per cwt.); all plus a turnover tax, which in the case of New Zealand is 5 per cent., and in the case of Canada 10 per cent. The conversions have been made at the rate of 20·94 belgas to the pound sterling (5 francs equal 1 belga).

5. Switzerland.

As from 12th August, 1929, the tariff on imported butter was raised from 20 francs to 70 francs per 100 kg., and numerous alterations to the rate followed in the three succeeding years. On 1st September, 1930, the rate was raised to 120 francs per 100 kg. and on 23rd December, 1931, to 180 francs. A temporary reduction to 150 francs on 22nd February, 1932, was followed by an increase to 180 francs on 20th March, 1932. As from 1st April, 1932, imports of butter became subject to restriction by license. The tariff rate was fixed at 120 francs (£4 1s. 5d. per cwt.) of which 50 francs were utilized as a fund to maintain prices to the producers. Importation was put in the hands of a Butter Control Board ("Butyra") which exercises monopoly control, and is required to purchase the home butter output. Independent importers must pay a license for imported butter equivalent to the difference between the Copenhagen quotation and the internal price.

The tariff on cheese is as follows: Hard Italian varieties, 8 francs per 100 kilos.; other varieties, 80 francs per 100 kilos. (£2 14s. 2d. per cwt.). Conversions are made on the basis of 15·01 francs to the pound sterling.

6. Italy.

Increased tariff rates on butter were imposed in March, 1932, and a further substantial increase in the rates of duty to 500 lire per 100 kg. (£4 8s. 6d. per cwt.) for fresh butter and 540 lire (£4 15s. 6d. per cwt.) for salted, plus 15 per cent. ad valorem, came into force in January, 1934. Further legislation in February of this year prohibited the sale of margarine for direct consumption.

The rates of duty on cheese imported into Italy are as follows: Hard cheese, 91·70 lire per 100 kilos (16s. 2d. per cwt.); soft cheese, 137·5 lire per 100 kilos. (24s. 3d. per cwt.). These rates are subject to a further tax of 15 per cent. ad valorem, and to a sales-tax of $2\frac{1}{2}$ per cent. of the value including packing and freight. The conversions are made on the basis of 57·532 lire to the pound sterling.

APPENDIX III.

RESTRICTION OF BUTTER AND CHEESE IMPORTS INTO CERTAIN EUROPEAN COUNTRIES.

(From "Dairy Produce Supplies in 1932," prepared in the Statistics and Intelligence Branch of the Empire Marketing Board, and "Dairy Produce Supplies in 1933," prepared in the Intelligence Branch of the Imperial Economic Committee.)

Germany.

Increased protection for the German butter industry was bound up with the Finnish-German Treaty, which specified a lower tariff rate of 27·50 reich marks per 100 kg. An amended Treaty raised the rate, as from 27th November, 1930, to 50 R.M. On 1st December, 1931, a quota was instituted, and came into force on 23rd January, 1932, by a further agreement with Finland, which permitted that country to export 5,000 tons of butter to Germany at the conventional rate, a quantity about equal to Finland's normal export to Germany. Supplies from all countries on a most-favoured-nation basis were automatically restricted to the same quantity at the lower rate. An emergency decree of 18th January, 1932, provided for the general raising of tariff rates, and butter was brought within its provisions as from the 23rd January. A surcharge on butter from countries with depreciated currencies was instituted, and the final result was that six separate tariff rates on imported butter came into operation. Countries with which Germany had commercial treaties and which were on the gold standard paid 50 R.M. per 100 kg. for quantities within the quota and 100 R.M. for the remainder; countries having commercial treaties with Germany but which were off the gold standard paid 86 R.M. and 136 R.M. respectively; countries having no commercial treaties with Germany paid 170 R.M. per 100 kg.; and Poland, as a result of a separate agreement, paid 100 R.M. The annual quota of 5,000 tons was put on a monthly basis as from 1st March, 1932, the maximum permissible quantity to be imported in any one month being 500 tons.

The application of the foregoing tariff quota operated particularly against those countries which figured as important sources of supply, particularly Denmark and the Netherlands. On the other hand certain less important sources, as the Baltic countries, were enabled to ship as much butter as formerly, at the lower rate. Considerable dissatisfaction ensued, which finally caused the tariff quota to be dropped altogether. Instead, a flat rate of 75 R.M. per 100 kg. on imported butter was introduced as from 15th November, 1932, and at the same time total imports were limited to an annual quantity of 55,000 metric tons, the quota being divided among supplying countries in proportion to their average exports to Germany in the three years 1929 to 1931.

At the end of 1933 butter was brought under the control of the Fat Monopoly, through which all butter, whether home or imported, must be purchased. Since early in 1934 imported butter has had to bear a surcharge, in addition to the Customs duty, to bring the price up to the fixed internal level. For 1933 as a whole, the Berlin quotation for first quality home-produced butter averaged 109 R.M. per 50 kg., as compared with 111·5 R.M. in 1932 and 125 R.M. in 1931. The quota for imports in 1934 has been fixed at 45,000 metric tons.

Total imports of butter into Germany in 1933, amounting to 58,212 tons, were 15 per cent. less than in 1932, and below the 1931 figure by 40,450 tons, or 41 per cent. The figure was slightly in excess of that for 1913, although the areas, of course, are not strictly comparable.

Declining imports have been accompanied by a considerable increase in home butter production. Official figures are not available, but an official estimate places butter production in Germany in 1933 at 460,000 metric tons, compared with 410,000 tons in 1932, an increase of 12 per cent. On this basis, home production accounted for 89 per cent. of the total quantity of butter available for consumption in 1933, against under 86 per cent. in 1932. Butter consumption last year was apparently about 8 per cent. heavier than in each of the two preceding years, being equivalent to approximately 17·6 lb. per head of the population, against a *per capita* consumption of 16·3 lb. in 1931 and 1932.

Imports of cheese into Germany have declined steadily since 1929, and a further reduction occurred in 1933, when the total quantity imported was less than in 1932 and 1931 by 16 per cent. and 24 per cent. respectively. Several changes in the import duties on different types of cheese were introduced during the past year and, with the German-Netherlands Treaty, a tariff quota came into operation, which restricted imports of hard cheese from 1st May to 31st December, 1933, to 50 per cent. of average imports in the corresponding period of 1931 and 1932 at a duty of 20 R.M. per 100 kg., while a further 20 per cent. was allowed to enter at a rate of 50 R.M. Cheese came under the control of the Fat Monopoly at the end of 1933, and imports, from early in 1934, have had to bear a variable surcharge in addition to the import duty.

The Netherlands is by far the chief source of imported cheese in Germany, but supplies in 1933 were 25 per cent. less than in 1932. Imports from Denmark, which had expanded in the previous years, increased by a further 49 per cent. during last year. Slightly larger quantities were received from Switzerland and imports from the United Kingdom increased by 15 per cent., but imports from most other sources were considerably reduced.

The bulk of the imports consists of hard cheese, only 5 per cent. of the total in 1933 being soft-cheese types, and Finland and Czechoslovakia were the main sources of supply for these descriptions.

France.

France has for long pursued a protectionist policy for agricultural products. In the case of butter the existing tariffs of 100 francs per 100 kg. (minimum) and 200 francs (general) were doubled in June, 1930, in an attempt to check the rapidly growing imports. Imports continued to increase, and on 30th September, 1931, butter was brought within the scope of control by quota.

The quota thus instituted was a "global" one with no reference to individual countries. A rush of imports followed and the permissible quantity to be imported in the last quarter of 1931 was quickly exhausted. A system of individual quotas and control by license was therefore inaugurated towards the end of the year. About the same time compensatory surtaxes were imposed on butter from countries with depreciated currencies.

A combination of circumstances early in 1932 caused butter prices to rise to exceedingly high levels, and the quota was increased on two occasions in the first quarter of the year. On 28th September, 1932, the quota on butter was abolished altogether and, in its place, the minimum tariff was raised to 700 francs per 100 kg. and the general to 1,400 francs. On 17th February, 1933, a further increase to 850 francs "minimum" and 1,700 francs "general" occurred, the compensatory surtax being removed about the same time. On 9th March, 1933, a quota was again introduced, the tariff rates remaining unaltered. A license-tax of 50 francs per 100 kg. was also introduced. As from 17th February, 1934, the duty was reduced, but the license-tax was increased, leaving the total payment on imported butter unchanged.

The effect of the quotas and tariffs was to reduce imports considerably in 1932. In the spring and winter months, when importation normally takes place, prices in 1932 were considerably higher than in 1931, while a lower level was reached during the period of heavy home production. Throughout 1932 butter prices in France were higher than in any other major market.

Imports of butter into France during 1933 were 22 per cent. smaller than in 1932 and approximately one-half of the record 1931 total. Prior to the reintroduction of the quota, imports had been on a fairly heavy scale, and the quantity imported in the first quarter of 1933 was twice as heavy as a year previously, but imports in subsequent months were appreciably below the 1932 level.

The Netherlands remained the chief source of supply during 1933, but imports from this and all the chief supplying countries were on a reduced scale compared with 1932.

Belgium.

The tariff on butter imported into Belgium was merely nominal (20 francs per 100 kilograms) up to 1931. Imports increased at a rapid rate, and when the Bill to raise tariff rates was introduced on 27th November, 1931, butter was brought within its scope as from that date, a coefficient of seven applied to the old rate, plus a surcharge of 15 per cent., bringing the rate to 161 francs per 100 kg. The increased duties were insufficient to curtail seriously the increasing imports, and a quota was introduced on 26th April, 1932, importation being made subject to license.

The effect of the quota was to reduce the quantity imported in the remaining months of 1932 compared with a year earlier. When the tariff was introduced, butter prices in Belgium varied with world prices and moved above them at a level approximately equal to the tariff. There was little significant difference for a short time after the introduction of the quota, as home production during the summer months is generally nearly sufficient for home requirements. When production fell off from late summer onwards, however, prices advanced considerably.

Early in 1933 a bill to impose a special tax on import licenses was introduced. Butter importers expressed willingness to submit to a voluntary tax before the bill became law, and, in return, the quota on butter was increased for that month. By May, however, imports were on a small scale.

Imports of butter in 1933 were smaller than in 1932 by 8,675 tons, or by 42 per cent. Denmark remained the principal source of supply, although imports from that country were reduced by 42 per cent. also. The quantity imported from the United Kingdom showed a substantial decline, and imports from most other sources were on a smaller scale, the decline being particularly pronounced in supplies from Baltic countries except Lithuania, which sent larger quantities. A feature was the relatively large increase in imports from the Irish Free State.

Switzerland.

The price of milk in Switzerland is controlled by the price of cheese for export, and as cheese prices were on a higher level than butter there was no incentive to increase butter-production. The home industry was protected to some extent by tariffs, but these were insufficient to prevent a relatively large importation of butter. As from the 12th August, 1929, the tariff on imported butter was raised from 20 francs to 70 francs per 100 kg., and numerous alterations to the rate followed in the three succeeding years. On 1st September, 1930, the rate was raised to 120 francs per 100 kg., and on 23rd December, 1931, to 180 francs. A temporary reduction to 150 francs on 22nd February, 1932, was followed by an increase to 180 francs on 20th March, 1932.

The Swiss cheese industry at this time was affected by reduced purchases by foreign countries, and one reason for the upward revisions in the butter tariff was to encourage a change from cheese to butter production. State subsidies to prevent an undue drop in the price of milk had been granted on several previous occasions, and as from the 1st April, 1932, imports of butter were subject to restriction by license. The tariff rate was fixed at 120 francs, of which 50 francs were utilized as a fund to maintain prices to the producer. Importation was put in the hands of a Butter Control Board (" Butyra "), which exercises monopoly control and is required to purchase the home-butter output. Independent importers must pay a license for imported butter equivalent to the difference between the Copenhagen quotation and the internal price.

The effect of these measures has been to reduce imports considerably, and during certain months of 1932 no butter was imported. At the same time the output of milk has continually increased. As a result, the funds for supplying the necessary credits fell short of anticipations, and further measures had to be adopted. These included the granting of an additional 6,000,000 francs and, in addition, considerably increased tariff rates were placed on imported feeding-stuffs, three-quarters of the extra rate being used to prolong the aid to milk-producers. The latter measures came into force on 22nd December, 1932, and operated until the 30th April, 1933.

Finally, a Federal decree of 13th April, 1933, indicated the aid which was to be granted for the twelve months beginning 1st May, 1933, in order to maintain the price of milk to the producer at 18 centimes per kg. A sum of 20,000,000 francs was put at the disposal of the Federal Council for this purpose, in addition to three-quarters of the additional duties on feeding-stuffs, and the proceeds of the supplementary tax on butter and profits of " Butyra." Of the foregoing credit 2,000,000 francs and one-quarter of the additional duty on imported feeding-stuffs were to be used for other measures to alleviate the effect of the agricultural crisis, including the promotion of the sale or exportation of cattle. The importation of feeding-stuffs was to be placed under the control of an import board.

Butter-production in Switzerland has increased considerably, being estimated at 23,500 tons in the year ended 30th April, 1933, compared with 22,910 tons and 16,130 tons in the calendar years 1932 and 1931 respectively. Consumption in 1932–33 was estimated at 13·7 lb. per head, compared with an average of 14·3 lb. in the three years 1930–32. The price of table butter was fixed at 4·25 Swiss francs per kg. from November, 1933.

A result of the measures outlined above was to diminish imports in 1932, and a further substantial decline occurred in 1933, the total quantity imported amounting to 510 tons, compared with 3,640 tons in 1932 and 10,425 tons in 1931.

Details indicated that imports from all the chief sources were materially smaller than in 1932, Danish supplies experiencing the greatest absolute decline. Among the smaller sources of supply, France and Latvia sent rather larger quantities than a year earlier.

Italy.

The butter industry in Italy is of secondary importance compared with cheese, the production being in the region of 50,000 tons per annum, as against an annual production of some 250,000 tons of cheese. During recent years Italy has figured as a net importer of butter. The growing imports were checked by increased tariff rates imposed in March, 1932, and a further substantial increase in the rates of duty to 500 lire per 100 kg. for fresh butter and 540 lire for salted, plus 15 per cent. ad valorem, came into force in January, 1934. Further legislation in February, 1934, prohibited the sale of margarine for direct consumption.

Imports of fresh butter in 1933 were 38 per cent. below the 1932 total, only Russia sending increased quantities. The decline was particularly marked in supplies from Argentina (the principal source) and from Australia.

Exports of butter from Italy increased slightly in 1933, larger quantities being sent to the United States, the chief market.

APPENDIX IV.

UNITED KINGDOM TRADE AGREEMENTS WITH FOREIGN COUNTRIES.

During 1933 and 1934 the United Kingdom Government entered into Trade Agreements with a number of foreign countries, and in certain cases the commodities affected included dairy, poultry, and pig products. In the following paragraphs extracts have been made of the relevant sections, from those Agreements in which the aforesaid commodities are specifically mentioned. The duration of these Agreements is as follows: Latvia and Estonia, until July, 1934; Denmark, until June, 1936; Norway and Sweden, until July, 1936; Finland, until November, 1936; Lithuania, until December, 1936.

The Agreements with Latvia and Estonia, which expired in July, 1934, were renewed in that month with certain alterations, and will remain in force until December, 1936. In the 1934 Agreement with Estonia, the commodities affected are butter, bacon, and hams, and it is agreed that if quantitative regulation of eggs, milk-powder, condensed milk, cheese, or poultry is introduced, the United Kingdom Government will endeavour to secure that imports of these products from Estonia will remain unregulated. In the 1934 Agreement with Latvia, cheese and poultry were included in the list of commodities which the United Kingdom Government undertook not to regulate. These Agreements, which do not come into force until after ratification, have not yet been ratified.

The Agreements can also be terminated if in any period of twelve months the amount of coal of United Kingdom origin imported into these countries is less than a certain percentage of total coal imports into that country. These percentages are: Denmark, 80 per cent.; Norway, 70 per cent.; Sweden, 47 per cent.; Finland, 75 per cent.; Estonia (1934 Agreement), 85 per cent.; Latvia (1934 Agreement), 70 per cent.; Lithuania, 80 per cent., or less than 178,000 metric tons.

Agreements were also concluded by the United Kingdom in 1933 with Argentina and Germany. The latter Agreement has no direct bearing on agricultural imports into the United Kingdom, and is therefore not dealt with here. The Agreement with Argentina, however, which provides particularly for importations of meat into the United Kingdom is briefly summarized below. The currency of this Agreement is three years from the date of ratification—namely, 7th November, 1933.

DENMARK.

Commodities affected: Bacon, hams, butter, eggs, cream.

1. United Kingdom Government undertakes not to regulate imports of aforesaid products from Denmark unless regulation is necessary to secure the effective operation of a marketing scheme for domestic supplies.

2. If regulation is introduced the position of Denmark in recent years as a source of supply for these products is to be considered.

3. If the total quantity of permitted imports from foreign countries is increased, additional quotas shall be given to Denmark; temporary inability on the part of Denmark to supply the additional quantity shall not prejudice her position.

4. If any other foreign country forfeits or renounces its quota, the Danish quota shall be increased in not less ratio than that of any other foreign country.

5. The control of the aforesaid imports from Denmark to the United Kingdom is entrusted to the Danish Government.

Quotas (provisional in regard to Butter).

Bacon and hams: 62 per cent. of the total permitted imports from foreign countries.

Butter: 2,300,000 cwt. in any year; if total imports of butter exceed 8,100,000 cwt. in any year, Denmark is to be allotted an equitable share of the imports in excess of that amount.

Eggs: Not less than 5,500,000 great hundreds in any year. This may be reduced if a reduction of total imports from foreign countries is necessary in order to secure a remunerative price-level. In any event, the Danish quota shall not be less than 38 per cent. of total foreign imports.

Cream: Any necessary reduction in imports from Denmark is to be effected as gradually as possible.

NORWAY.

Commodities affected: Bacon, ham, butter, cheese, eggs, poultry.

1. Because in recent years the imports from Norway into the United Kingdom of the aforesaid products have been insignificant in quantity in comparison with imports from other countries, the United Kingdom Government will endeavour to arrange that in the event of quantitative regulation being adopted, it shall not be applied to imports of these products from Norway.

2. But if the said imports increase to such an extent that it is necessary to regulate them quantitatively, the United Kingdom Government will enter into discussions with Norwegian Government as to the quantities to be allowed.

SWEDEN.

Commodities affected: Bacon, hams, butter, eggs.

1. United Kingdom Government undertakes not to regulate imports of aforesaid products from Sweden unless regulation is necessary to secure the effective operation of a marketing scheme for domestic supplies.

2. If regulation is introduced, Sweden is to have an equitable share of permitted foreign imports, having regard to the proportion supplied by her in recent years. Allocation to Sweden will be made on the same basis as, and on conditions not less favourable than, allocations to other foreign countries. Compulsory regulation of imports of Swedish bacon, hams, or eggs will not be enforced without previous discussion with the Swedish Government.

3. If the total quantity of permitted imports from foreign countries is increased, additional allocations shall be made to Sweden; temporary inability on the part of Sweden to supply the additional quantity shall not prejudice her position.

4. If any other foreign country renounces or forfeits its quota in whole or in part, the Swedish quota shall be increased in not less ratio than the quota of any other foreign country.

Quota (Provisional).

Butter: Not less than 185,000 cwt. per annum. If total imports of butter exceed 8,100,000 cwt. in any year, Sweden will be allotted an equitable share of the imports in excess of this number.

LATVIA (1933 AGREEMENT).

Commodities affected: Bacon, hams, butter, eggs.

1. The United Kingdom Government will not regulate imports of aforesaid products from Latvia unless regulation is necessary to secure the effective operation of a scheme for the marketing of domestic supplies.

2. If regulation is introduced Latvia is to have an equitable share of permitted foreign imports, having regard to the amount supplied by her in recent years; allocations to Latvia are to be made on the same basis as, and on conditions not less favourable than, allocations to any other foreign country. Compulsory regulation will not be introduced without previous discussion with the Latvian Government.

ESTONIA.

The commodities affected and the terms of the 1933 Agreement were identical with those of the agreement with Latvia.

FINLAND.

Commodities affected: Bacon, hams, butter, cheese, eggs, poultry.

1. The United Kingdom Government will not regulate imports of the aforesaid products from Finland unless regulation is necessary to secure effective operation of a marketing scheme for domestic supplies.

2. If regulation is introduced the position of Finland in recent years as a source of supply is to be considered; allocation to Finland is to be made on the same basis as, and on terms not less favourable than, allocations to any other foreign country. Compulsory regulation will not be enforced without previous discussion with the Finnish Government.

3. If the total quantity of the aforesaid products allowed to be imported into the United Kingdom from foreign countries is increased, additional allocation shall be made to Finland; temporary inability on the part of Finland to supply the whole or a part of any such additional allocation shall not prejudice her position.

4. If any other foreign country forfeits or renounces in whole or in part its allocation, the allocation to Finland shall be increased in not less ratio than the allocation to any other foreign country.

5. If the British Government imposes any quantitative regulation on imports into the United Kingdom of any agricultural product, the imports of which from Finland are insignificant in quantity, in comparison with imports from other countries, the British Government will endeavour to arrange that imports of such products from Finland will remain unregulated unless they increase to such an extent that it is necessary to regulate them quantitatively; such regulation will not be imposed without previous discussion with the Finnish Government.

6. Control of imports of the aforesaid products from Finland to the United Kingdom shall be entrusted to the Finnish Government.

Quota (Provisional).

Butter: Not less than 198,000 cwt. per annum.

LITHUANIA.

The commodities affected are bacon, hams, and butter. The terms of the agreement are practically identical with those of the agreement with Latvia. This agreement was signed on the 6th July, 1934, but has not yet been ratified.

ARGENTINA.

The Trade Agreement between the United Kingdom and Argentina, signed on the 1st May, 1933, includes the following provisions:—

(1) In Article 1, the United Kingdom, after expressing full recognition of "the importance of the chilled-beef industry to the economic life of Argentina," agreed not to restrict imports of chilled beef from Argentina below the quantity imported in the year ended 30th June, 1932, except to the extent necessary "to secure a remunerative level of prices in the United Kingdom market," and not to permit replacement of excluded supplies by increased imports of other kinds of meat (other than experimental shipments of chilled beef from within the British Empire). Chilled beef is not in any event to be reduced by more than 10 per cent. below the 1931–32 figure without reducing also the imports of Empire meat

by a percentage, equal to the excess, over 10 per cent. of Argentina's reduction. Argentina's frozen beef, mutton, and lamb are likewise not to be restricted below the figures in the Ottawa agreements unless British Empire imports are restricted also.

(2) Argentina agreed that the proceeds from the sale of Argentina products in the United Kingdom are to be applied, first, towards the service of public external debts, and then towards meeting applications for current remittances from Argentina to the United Kingdom. Provision is made also towards liquidating frozen assets in Argentina then awaiting remittance to the United Kingdom.

(3) The Argentine Government reserved the right to allot up to 15 per cent. of its exports of meat to the United Kingdom for undertakings owned, controlled, or managed by the Argentine Government of producers and "not conducted primarily for private profit."

(4) Tariffs and other provisions regarding import of goods were left over for a supplementary agreement. This (concluded in September, 1934) contains an undertaking by the United Kingdom not to impose duties on meat imported from the Argentine, nor to increase the wheat duty above 2s. per quarter (the Ottawa figure). The United Kingdom further undertook not to establish quantitative regulation of Argentine wheat, wool, or certain other products. The supplementary agreement contains also an undertaking by Argentina not to levy any duty on United Kingdom coal, coke, or other goods that were admitted free on 1st May, 1933, nor to increase the landing and similar charges on United Kingdom fuel.

(5) The Convention is to remain in force for three years from ratification (7th November, 1933) and thereafter until six months' notice has been given.

APPENDIX V.

NEW ZEALAND TRADE AGREEMENTS WITH OTHER COUNTRIES.

(*a*) United Kingdom. (Ottawa Agreement).

The Agreement concluded at Ottawa between the United Kingdom and New Zealand, and signed on the 20th August, 1932, includes the following provisions:—

(1) The United Kingdom undertook to ensure the continuance after the 15th November, 1932, of entry free of duty into the United Kingdom of New Zealand goods then free of duty under the laws and statutory regulations relating to the grant of imperial preference.

(2) As regards eggs, poultry, butter, cheese, and other milk-products, free entry for New Zealand produce was agreed to be continued for three years certain. The United Kingdom, however, reserved the right after expiration of the three years to review the basis of preference so far as these products are concerned if considered desirable, and, after notification, either to impose a preferential duty on New Zealand produce, whilst maintaining existing preferential margins, or, in consultation with the New Zealand Government, to bring such produce within any system which may be put into operation for the quantitative regulation of supplies from all sources in the United Kingdom market.

(3) The United Kingdom undertook to pass legislation necessary to impose on the foreign goods specified hereunder the rates of Customs duties shown in lieu of the duties (if any) then leviable:—

Butter: 15s. per cwt.
Cheese: 15 per cent. *ad valorem*.
Apples, raw: 4s. 6d. per cwt.
Pears, raw: 4s. 6d. per cwt.
Eggs in shell—
(*a*) Not exceeding 14 lb. in weight per great hundred, 1s. per great hundred;
(*b*) Over 14 lb. but not exceeding 17 lb., 1s. 6d. per great hundred;
(*c*) Over 17 lb., 1s. 9d. per great hundred.
Condensed milk, whole, sweetened, 5s. per cwt. in addition to the duty in respect of sugar content.
Condensed milk, whole, not sweetened, 6s. per cwt.;
Milk-powder and other preserved milk, not sweetened, 6s. per cwt.;
Honey: 7s. per cwt.

(4) The United Kingdom undertook that the general *ad valorem* duty of 10 per cent. imposed by section 1 of the Import Duties Act, 1932, on the following goods of foreign origin should not be reduced except with the consent of New Zealand:—

Tallow.
Canned meat.
Sausage casings.
Casein.
Meat extracts and essences.
Dried peas.
Seeds, grass, and clovers.
Leather.
Copra.
Sugar of milk.
Gums, other than gum arabic, gum tragacanth, shellac, sticklac, and seedlac.

(5) An understanding was arrived at between the two Governments in regard to frozen mutton, lamb, and beef.

(6) New Zealand undertook to substitute for the duties then levied on specified United Kingdom goods certain stated rates, and to exempt all United Kingdom goods from the application of nine-fortieths or one-twentieth of the Customs duty, as the case may be.

(7) New Zealand undertook that protection by tariffs should be afforded against United Kingdom products only to those industries which are reasonably assured of sound opportunities for success.

(8) New Zealand undertook to institute an inquiry into the existing protective duties and, where necessary, to reduce them as speedily as possible to such a level as would place the United Kingdom producer in the position of a domestic supplier—that is, that the protection afforded to the New Zealand producer should be on a level which would give the United Kingdom producer full opportunity of reasonable competition on the basis of the relative cost of economical and efficient production.

(9) New Zealand undertook that United Kingdom producers should have an opportunity of putting forward their views in connection with the inquiry referred to in (8).

(10) New Zealand undertook that no reduction should be made in the margins of preference of 20 per cent. *ad valorem* (or its equivalent) or less than enjoyed by United Kingdom goods over those of any foreign country, and that where the margin of preference then exceeded 20 per cent. *ad valorem* (or its equivalent) it should not be reduced below 20 per cent. *ad valorem* or its equivalent except with the consent of the United Kingdom.

(11) New Zealand undertook that the then existing primage duty of 3 per cent. *ad valorem* levied on United Kingdom goods, which were otherwise duty free, should not be increased and should be abolished as soon as financial conditions permitted.

(12) It was provided that the Agreement should remain in force for a period of five years, and if not denounced six months before the end of that period should continue in force thereafter until a date six months after notice of denunciation had been given by either party.

(*b*) Canada.

(1) A trade Agreement was arranged in 1932 between New Zealand and Canada, and this came into force on the 24th May of that year. Both countries agreed that their import duties on certain products specified in the schedules to the Agreement would not exceed the stated rates, and that the British Preferential Rate would apply to all other goods being the produce or manufacture of New Zealand and Canada respectively not specially mentioned.

(2) The schedule of rates applicable to New Zealand products entering Canada covers some sixty items, including meats of various kinds, both frozen and canned, sausage-casings, lard, tallow, eggs, casein, cheese, butter, condensed and powdered milk, hops, seeds, onions, apples, kauri-gum, hemp (*Phormium tenax*), wool, hides and skins, &c.

The rate on New Zealand butter under the Agreement is 5 cents per pound as against 8 cents under the British Preferential Tariff, 12 cents under the Intermediate Tariff, and 14 cents under the General Tariff. The rate on cheese is 1 cent per pound as against 3 cents under the British Preferential Tariff, and 7 cents under both the Intermediate and General Tariffs. So far as butter is concerned, the imposition of restrictions and provisions of other kinds has minimized the advantage given to New Zealand under the tariff, and has kept importations of butter from New Zealand down to comparatively negligible figures.

(3) The schedule of rates applicable to Canadian products entering New Zealand covers some twenty items, including onions, fish, apples and pears, hosiery, boots, shoes, and other footwear, paper pulp, agricultural implements and machinery, motor-vehicles, &c.

(4) The currency of the Agreement was one year, but the period has since been extended.

(*c*) Australia.

(1) A trade Agreement between New Zealand and Australia was arranged in 1933 and came into force on the 1st December of that year.

(2) Australia agreed to admit certain specified products of New Zealand into Australia at the rates set out in the Agreement. Such items include bacon and hams, cheese, fish, oats, peas, meats; preserved, condensed, dried, and powdered milk; onions, agricultural machines and implements, dairying machines and implements, tallow, whale-oil, casein, timber, &c.

(3) New Zealand agreed to admit certain specified products of Australia into New Zealand at the rates set out in the Agreement. Amongst the items specified are: Onions, potatoes, oats, peas, bacon and hams, fish, dried fruit (raisins), certain fresh fruits, certain fruits preserved in juice or syrup, meats, wine, rennet, boots, shoes, &c., wrapping-paper, building-materials, certain machinery and engines, timber, &c.

(4) Certain undertakings in relation to the supply of sultanas and lexias were also given by the Australian Government in consideration of the imposition of a duty of 1d. per pound upon the importation into New Zealand of foreign goods of this class.

(5) The agreement remains in force until the expiration of six months from the date on which either Government shall have given to the other notice in writing of its intention to terminate the agreement.

(*d*) South Africa.

(1) Under a reciprocal arrangement between New Zealand and South Africa (under Order in Council gazetted on the 10th September, 1925) the following goods are admitted into New Zealand upon importation from South Africa at certain specified rates of duty: Feathers, fish, fruits (dried, other than dried apples, and green), sugar, tea, wine. It is also provided that all other goods except spirits and tobacco shall be admitted at 3 per cent. less than the duty which would otherwise be payable.

(2) Tariff concessions are granted in respect of the following goods upon importation into South Africa from New Zealand: Butter, cheese, cornflour, other farinaceous foods and cereals (other than oatmeal and rolled oats) hops (in bulk), meats (fresh, frozen, salted, or cured), other meats (except bacon and ham). On butter the rate under the reciprocal arrangement is 2d. per lb., as against the general rate of 2¼d. per lb., and on cheese the rate is 25 per cent. or 5½d. per lb. (whichever is the greater), as against the general rate of 30 per cent. or 6d. per lb.

(3) The arrangement continues in force until the requisite notice of termination is given by either party.

(*e*) BELGIUM.

(1) A Trade Agreement was entered into between New Zealand and Belgium in 1933 and this was ratified in New Zealand by the Trade Arrangement (New Zealand and Belgium) Ratification Act, 1933, and came into force on the 16th December, 1933.

(2) Under the arrangement Belgium agreed to admit the following products of New Zealand origin at rates not higher than those set out in the agreement: Cheese, fats and greases from neat cattle, sheep and goats, hides and skins, wool, apples, *Phormium tenax*, and yarns of *Phormium tenax*. Further, Belgium undertook to admit New Zealand goods, other than those enumerated in the arrangement, on importation into Belgium, at rates not higher than those chargeable on similar goods from any other country. New Zealand Cheddar cheese is taxed at the rate of 72 francs per 100 kilos (7s. per cwt.) and in addition there is a turnover tax of 5 per cent.

(3) New Zealand, on the other hand, agreed to admit the following commodities on importation from Belgium at rates not higher than those specified in the agreement: Matches and vestas, boot and similar laces, floor-coverings, textile piece-goods (namely, moquette, tapestry, and tickings), rubber tires, glass (sheet, common window, or plate), glassware, sensitized surfaces, and albumenized paper, vegetable parchment paper, firearms and fittings therefor, lead and zinc (bars, rods, foil, &c.), and manures. New Zealand also undertook to grant to Belgium the same treatment in matters of commerce, Customs, and navigation as is or may be accorded to the most favoured foreign country.

(4) The agreement is to continue in force until the expiration of six months from the date on which either Government shall have given to the other notice of revocation of the arrangement.

APPENDIX VI.

LEGISLATION AFFECTING BUTTER IN CERTAIN EXPORTING COUNTRIES.

(The information concerning Denmark, Estonia, Finland, Latvia, Netherlands, Sweden, and Switzerland has been obtained from *Dairy-produce Supplies in 1933*, prepared in the Intelligence Branch of the Imperial Economic Committee, and from the weekly "Dairy-produce Notes" prepared by that Committee.)

The low prices to which butter and other dairy-products have fallen during the past few years, accentuated by Government action in importing countries, have called forth Government aid to the industry in exporting countries. This aid has taken different forms, either a direct subsidy or bounty, or a raising of the price to producers by a tax on domestic consumption. In the following section are enumerated the more important of these measures adopted by certain exporting countries within the past year or two. The information relates only to dairy-produce, generally butter, and does not include references to other forms of aid to agriculture as a whole, or which might benefit milk-producers indirectly.

DENMARK.

No direct aid was granted to the Danish dairy industry as such until near the end of 1933, although the varying prices obtained for butter on different export markets were equalized by means of a pooling arrangement.

A series of Orders, which came into force on 13th December, 1933, provided for the levying of a tax of 35 ore per kilogram on butter sold on the home market, so long as the Copenhagen quotation was between 1·75 kr. and 2·15 kr. per kilogram. When the quotation dropped below 1·75 kr., the tax was increased by the amount by which it dropped below that figure, and, similarly, if above 2·15 kr. the tax was reduced by the amount by which it was above 2·15 kr., ceasing to operate when the quotation touched 2·50 kr. The levies were to be paid into a special fund and distributed to farmers in proportion to the utilization of gross fodder production, 90 per cent. being based on milk-production.

Simultaneously, provision was made for the levying of a tax of 30 ore per kilogram on all oils and fatty substances used in the manufacture of margarine (but excluding lard and tallow) and an import duty of similar amount was imposed on imported fats and oils of this nature. An import duty of 25 ore per kilogram was imposed at the same time on imported margarine and margarine cheese. The proceeds of the tax on margarine were to be passed to the Treasury, but a proportion of the sums collected has been used for the purpose of purchasing margarine and beef for the poor.

In the first sixteen weeks of the operation of the scheme (15th December, 1933, to 5th April, 1934) the levy collected on butter sales amounted to approximately 4,500,000 kroner. The extent of the levy, being the difference between the Copenhagen quotation and 2·10 kr., was as follows in four-weekly periods: 43 ore, 74 ore, 59 ore, and 67 ore per kilogram. The funds were utilized in the manner outlined above.

A further scheme to stabilize butter prices was prepared early in the present year. The object was to relieve the market at critical periods of any surplus above ordinary requirements, such quantities of butter being placed in cold store and disposed of on the home market. A fund of 2,000,000 kr. was set up, one-half subscribed by the co-operative and private exporters and the other half from the Butter Quota Fund.

The fund of 2,000,000 kr. so created has been placed at the disposal of a committee who are authorized to buy in any week that portion of the output which is considered to be surplus to the normal requirements of the British market, and to dispose of this butter, either by storing for future requirements or by distribution locally to the unemployed and other needy people in Denmark.

Early in July the committee declared their intention to buy butter which could not be marketed through the ordinary channels at 62s. or more per hundredweight f.o.b. No butter, however, was actually purchased then by the committee, as the whole output was sold at not less than the minimum price.

One further measure deserves mention, although it has only an indirect bearing on dairy-produce. In view of a material restriction of Denmark's export markets for cattle and beef, a scheme has been in force since 1932 for the destruction of cattle at fixed prices and a considerable proportion of the number so slaughtered has consisted of old dairy cows. Approximately 130,000 animals were slaughtered under the scheme in 1933 and some 74,000 in the first six months of 1934.

Present rate of exchange ..	22·40 kroner to £1 sterling ; 100 ore equal 1 kroner.
Par of exchange	18·159 kroner to £1 sterling.

Estonia.

Measures to offset the low prices to which Estonian butter had fallen were contained in a law passed in January, 1934. Under this law the price of butter was fixed at 1·50 kr. per kilogram, and in order to maintain this price a fund was created financed by moneys transferred from various special funds and from general state revenues.

It was provided that if the price of butter fell below 1·50 kr. the difference between the market price and the fixed minimum price of 1·50 kr. would be computed each month by a Commission consisting of representatives of the Ministry of Agriculture, the Ministry of Finance, and the State Audit Department. This sum would be paid to producers of butter every month, the creameries being obliged to pass on this payment to them.

In order to secure and maintain foreign markets the Minister for Agriculture was empowered to fix the amounts which exporters must sell on each separate market. The Government can withhold export bounties from butter-exporters who do not comply with these conditions.

From the 16th May, 1934, the guaranteed price was lowered to 1·20 Est. kr. per kilogram, and on the 16th July to 1·10 kr., the latter price to rule until the 15th October, 1934.

Present rate of exchange	18·75 kroner to £1 sterling.
Par of exchange..	18·16 kroner to £1 sterling.

Finland.

Under the law of 21st December, 1932, a price stabilization bounty of 3 marks per kilogram was paid if the wholesale price of butter did not exceed 20 marks per kilogram. If the price of butter exceeded 20 marks but was below 23 marks per kilogram, the bounty paid was to equal the amount by which the wholesale price fell short of 23 marks.

In order to obtain this bounty exporters must present to the Export Customs House certificates of export issued by the State Butter Control Board, containing information regarding the origin of the butter, its suitability for export, net weight, number of packages, and the amount of the bounty. The bounty is not paid until the Customs House has certified that the goods entered on the certificate have been exported.

The amount of the bounty is determined by the Board of Agriculture, which fixes each week a wholesale price for butter calculated on the Copenhagen quotation, and adjusted according to the scale of prices in Finland.

In January, 1934, the bounty was raised from 3 to 5 marks per kilogram, and in February it was again raised to 6·50 marks per kilogram.

Imports of butter into Finland were prohibited on 28th February, 1934, as were also imports of margarine, lard, and fat. In order further to stimulate the domestic consumption of butter it was proposed to close the State margarine factory and to reduce the amount of margarine produced by private concerns, with the aim of reducing the total production of margarine from 6,000 to 3,000 metric tons per annum. In addition, a tax on margarine was proposed as a means of obtaining the funds necessary for the export bounties on butter.

A law of 14th April, 1934, gave power to the State Council to increase the duties on certain articles up to four times the basic rate. The commodities affected included butter, margarine, raw fat, and lard. In pursuance of this law the import duty on butter was raised from 5 to 12 marks per kilogram. Further assistance for the Finnish dairy industry was expected from the operation of the trade agreement with Germany which was approved in April and was believed to contain stipulations referring to export facilities for Finnish dairy-produce.

Present rate of exchange	226 marks to £1 sterling.
Par of exchange	193·23 marks to £1 sterling.

Latvia.

By a decree issued in August, 1930, a sum of money was set aside for the payment of bounties to butter-producers. Under this plan the Ministry of Agriculture were to award bounties to producers for milk delivered to dairies making butter for export.

A further law affecting the butter industry was passed in June, 1932, under which the State guaranteed to butter-producers a fixed price of Ls.2·50 per kilogram for first-grade butter and

Ls.2·40 for second-grade butter sold abroad. It was further provided that if the world price fell below the guaranteed price, the difference between the two would be paid by the Ministry of Agriculture to those who supplied milk to registered dairies making butter. If, on the other hand, the world price exceeded the guaranteed price, one-half of the excess would be credited to a special fund from which bounties would be paid to milk-producers if the price fell.

In May, 1934, a Bill was introduced to enable the State to establish a limited-liability company to undertake the production and purchase of dairy-products, both for home requirements and for export. The State was to hold not less than 50 per cent. of the total share capital issued, the remainder being available for local dairy co-operative societies and private butter-exporting concerns. The right to import butter and other dairy-products was to belong solely to the new company.

During the month of May, 1934, the amount of butter produced for export sold for a total of 1·14 mill. lat., while the value of the output on the guaranteed price totalled 2·05 mill. lat. There was thus a balance of 0·91 mill. lat. remaining to be paid by the State.

Present rate of exchange	16 lats. to £1 sterling.
Par of exchange	25·22 lats. to £1 sterling.

Netherlands.

The Netherlands is a large net exporter of butter, but imports began to increase in 1931 and control of importation by quota was established as from April, 1932.

The Crisis Dairy Act, which came into operation in July, 1932, contained provisions for granting relief to dairy-farmers, the professed aim being to raise prices for manufacturing milk to the cost of production level. (The main provisions were continued in the Agricultural Crisis Act of August, 1933.) The method adopted consisted in raising the price of butter (and other dairy-produce) on the domestic market by means of a consumption tax and by the compulsory admixture of butter with margarine sold on the home market (margarine "A"), thus reducing the exportable surplus of butter; margarine for export (margarine "B") did not require to contain butter. The administration of the measure was put under the control of a Dairy Crisis Central. The consumption-tax is raised by means of the sale of stamps, which must be affixed to all butter and other edible fats sold for consumption in the Netherlands. Butter for export is not subject to the consumption-tax. A fixed relation is maintained between the price of margarine and that of butter, the cost of the margarine stamp varying with the butter content. In addition, the fund is maintained by the levying of special taxes on imports and exports of fats through the compulsory use of "transport permits," the cost, in the case of imported goods, being based on the difference between the price of the goods in the Netherlands and world markets, and being additional to import duties.

The minimum proportion of butter used in margarine "A" was originally fixed at 25 per cent., but was later raised to 40 per cent. The consumption-tax on butter—*i.e.*, the cost of the stamps—was 0·42 florin per kilogram in July, 1932, but was subsequently raised several times and since March, 1933, has been 1 florin per kilogram. The increased price received by the factory for butter, &c., by the operation of the scheme is passed on to the farmer on the basis of the fat content of the milk delivered; for 1933 this premium was fixed at 2.24 florins per 100 kilograms of milk of 3·2 per cent. butterfat content, and at 2·32 florins for 1934.

The consumption of butter in the Netherlands in 1933 was provisionally estimated at about 56,000 metric tons, including 16,000 tons consumed in margarine "A." The price of butter on the home market has ruled above that for export by the amount of the tax, the average price at Hertogenbosch, a prominent inland market, being 159 florins per 100 kilograms in 1933, while the average quotation at Leeuwarden, the market for export butter, was 60 florins.

The Crisis Dairy Fund also had reserves to offset losses on the storage of export butter.

A plan to limit the number of cows, and so aid the market for milk as well as for beef, has been in operation since October, 1933, the intention being to reduce the cow population by 200,000. The controlling authority, the Cattle Central, also announced early this year that in order to control future production, the number of calves born in 1934 to be retained in the herds would be limited to 410,000.

Present rate of exchange	7·225 florins to £1 sterling.
Par of exchange	12·11 florins to £1 sterling.

Sweden.

A Royal Decree of 30th June, 1932, which came into force on 20th September, 1932, contained provisions for improving the organization of the sale of milk and dairy-produce by the imposition of levies.

It was pointed out in a report, which was incorporated in the law, that the price of the milk utilized in the manufacture of butter for export, although accounting for less than one-fifth of the total Swedish production of milk for sale, had tended to set the price for butter and also for other milk-products on the home market. The main purpose of the decree was to prevent this effect by the creation of machinery for establishing a uniform price to the producer for butter whether exported or not, and for milk whether sold for consumption or for manufacture. The machinery took the form of a general levy on all milk sold throughout the country or used for the manufacture of butter, cheese, or cream for sale, the proceeds being used to level up the price of export butter. Local levies were to be collected on milk and cream sold for consumption. The general levy, payment of which was obligatory on all producers, was imposed in the first instance for a period of eight months, from the 1st November, 1932, and was then continued by a further law containing certain new regulations, including the abolition of local levies and the setting of a maximum charge for the general levy. The operation of the measure is in the hands of a State Milk Committee and the funds are administered by the Swedish Dairy-farmers' National Union.

On the 24th July, 1933, the Customs duty on margarine imported into Sweden was raised from 0·15 to 0·35 kr. per kilogram, and concurrently an excise duty of 0·2 kr. per kilogram was imposed on margarine manufactured in Sweden. Finally, as from the 1st November, 1933, the State Milk Committee was granted a monopoly of the importation of dairy-products into Sweden. If necessary, licenses to import could be granted to importers when an amount would require to be paid for the goods equal to the export premium on such goods.

In the first twelve months during which the milk scheme was in operation (November, 1932, to October, 1933) the average quotation for butter on the home market was 195·5 ore per kilogram, and the average net export price, 149 ore.

Present rate of exchange	19·39 kroner to £1 sterling.
Par of exchange	18·16 kroner to £1 sterling.

Switzerland.

A Federal Decree prolonging aid to milk-producers in Switzerland on similar lines to that already in force has been issued and came into operation on 1st May, 1934. The main provisions of the decree are as follows:—

There have been put at the disposal of the Federal Council, in order to permit it to mitigate the agricultural crisis, and especially to maintain the price of milk, from 1st May, 1934, to 30th February, 1935—

(*a*) A sum of 15,000,000 francs charged upon the general revenues of the Confederation:
(*b*) The profits of the Swiss Central Butter Board instituted by decree of the Federal Council of 26th February, 1932:
(*c*) The proceeds received from the 1st May, 1934, to the 30th April, 1935, from the supplementary import taxes and surtaxes on feeding-stuffs.

The credits provided for in paragraphs (*a*) and (*b*) of Article I, as well as two-thirds of the amount received as provided for in paragraph (*c*), will be allotted to the Central Union of Swiss Milk-producers, which will employ them in maintaining the price of milk from 1st May, 1934, to 30th April, 1935.

If the proportion of the proceeds of the supplementary import taxes and the surtaxes as well as the profits made on imported butter by the Swiss Central Board of Butter Supplies are together less than 16,000,000 francs, the subsidy from the Confederation will be increased to the amount of the deficit. The increase must not exceed 3,000,000 francs.

One-third of the sums received as provided for in paragraph (*c*) is put at the disposal of the Federal Council for other measures calculated to mitigate the agricultural crisis. In particular, it will be used in order to facilitate the disposal of cattle reared in the mountain districts.

Prices of milk and milk-products for the year 1st May, 1934, to 30th April, 1935, have been fixed and show certain changes from those in force during the winter of 1933–34.

The basic price of milk for manufacture is unchanged at 18 centimes per litre. The price of butter, when the cream is delivered, is fixed at 4·25 Swiss francs per kilogram for the summer six months and 4·30 francs for the winter six months. The guaranteed price for butter made at cheese-factories is unchanged at 3·75 francs per kilogram. The quota granted to the dairy federations for the guaranteed price (for both butter and cheese) is fixed on the basis of 90 per cent. of the supplies delivered under the guaranteed price during the year 1933–34. For societies whose production is small a quota equal to the previous year's production is granted.

A Federal decree intended to promote the consumption of Swiss butter has been issued and came into operation on 23rd July, 1934. Under the decree edible fats of all kinds are prohibited from being offered for sale unless mixed with a certain proportion of Swiss butter. Lard and beef fat which are the product of animals slaughtered in Switzerland do not come under this regulation if they are marketed unmixed.

The minimum content of butterfat is fixed at 5 per cent. for ordinary fats and 15 per cent. for margarine and edible fats sold as purporting to contain butter. The required addition of butterfat may be made in the form either of cream or of milk.

By a further decree which came into operation on 1st August, 1934, the Federal Council have prohibited the importation into Switzerland of certain commodities, except by the Swiss Co-operative Society for Cereals and Forage. The commodities affected include edible oils; oleomargarine and edible suet; margarine, artificial fat, and other butter substitutes and edible fats; and cocoa-butter.

Present rate of exchange	15·01 francs to £1 sterling.
Par of exchange	25·22 francs to £1 sterling.

Argentina.

Under the Dairy Industry Control Board's scheme of payment for butterfat to producers, a subsidy of 15 centavos per kilogram of butterfat has been paid as from 1st July of this year. The payment is provided from funds collected on the sale of bills of exchange received by exporters in payment of butter shipped abroad. These bills are required to be cashed by the banks at a pegged rate of 15 paper pesos to the £1 sterling. The bills are sold by tender to importers of foreign goods, and the profits resulting from these transactions are credited to the Control Board. July payments per kilo for butterfat payable by the factories registered with the Board were as follows: extra quality, 70 to 100 centavos; first quality, 65 to 90 centavos; seconds, 50 to 70 centavos; to which in all cases there is to be added 15 centavos paid by the Control Board.

Present rate of exchange	36½d. per peso; 100 centavos equal 1 peso.
Par of exchange	47·62d. per peso.

Germany.

The year 1933 brought a complete transformation in the conditions of production and marketing of milk and fats in Germany. Whereas up to the beginning of 1933 the endeavour was to protect by means of raised tariffs the German market for milk, milk-products, fats, and oils against the violent fluctuations of the world market and the general price depression, an entirely new policy is now being adopted. This position was brought about by the difficulty of maintaining butter-prices, particularly in face of an expansion in the national supply, without systematic influencing of the whole supply of fats.

The first step taken to improve the market for home-produced butter and other edible fats was the issue of a Presidential Decree on the 23rd December, 1932, empowering the Government, *inter alia*, to prescribe the percentages of butter, tallow, lard, and other fats to be used in the manufacture of margarine in German factories, or to be mixed with imported margarine before it could be offered for sale. The decree also empowered the Government to prescribe the extent of the production of margarine, artificial food-fats, edible oil, vegetable oil, and train oil, as well as to require the use of home-grown oil-seeds in oil-mills.

A further Order was issued on 24th February, 1933, requiring all oil-crushing mills in Germany after 1st August to use a certain proportion of home-grown oil-seeds.

A second Presidential decree, dated the 23rd March, 1933, was issued for the purpose of further promoting the use of home-grown fats and feeding-stuffs. This provided for the establishment of a Fat Monopoly with control of the supply of all raw materials used in the manufacture of margarine, and with control over the production of margarine and other edible oils and fats.

The scope of the new policy has been considerably extended by a further series of enactments, and the import duties on oils and fats have been progressively increased. A law of the 20th December, 1933, provided for the application of the monopoly system to milk-products—viz., butter, cheese, processed milks, cream, and casein. The administration of this law was entrusted to the Fat Monopoly, which thereupon became the Reich Monopoly for Milk-products, Oils, and Fats.

By a decree dated 18th February, 1934, the scope of the Fat Monopoly was extended to certain products of meat-factories, lard-refiners, neutral-lard makers, tallow-melters, &c. Bacon-fat, lard, and beef and mutton fat are among the products covered by this decree. There are, however, exemptions with respect to these products.

Further regulation of the butter and cheese market was effected by two decrees of the 20th February, 1934, for the establishment of uniform kinds of butter and cheese respectively. These are intended to regulate the production and marketing of these commodities, and include such matters as marking, packing, &c.

The regulation of the marketing of preserved milk and cream products and casein was made by a decree of the 6th March, 1934. The main provisions of the decree refer to sizes and markings of the packages.

From the 1st April, 1934, a Commissioner was appointed for executing and supervising all matters relating to the regulation of the market for cattle, meat, milk, dairy-products, poultry, eggs, and fat.

As regards trade-policy measures, the new regulation concerning the trade in dairy-products between Holland and Germany (agreement of 15th December, 1933) should be mentioned. In accordance with this agreement, the Governments of both countries decided, among other things, that a mixed committee should be formed for the consideration of the interests of both parties as regards the dairy industry. This Committee may, under certain circumstances, prove to be of great significance for the future organization of the trade in dairy-products between these countries.

Australia.

Under the Commonwealth Dairy-produce Export Control Act, 1924, a Dairy-produce Control Board was set up for the purpose of controlling the export and the sale and distribution after export of Australian dairy-produce.

In 1926 a voluntary arrangement known as the "Paterson Butter Stabilization Scheme" was inaugurated in Australia, and prices on the local market advanced considerably.

On the 20th March, 1934, the Commonwealth Dairy-produce Equalization Committee, Ltd., was incorporated under the Companies Acts of New South Wales, the registered office being in Sydney, and this new organization, with legislative backing and a share capital of only £36, will return equal prices to all dairy companies for the whole of the produce marketed either locally or overseas, thus ensuring that the benefit of the higher prices obtained on the local market will be distributed equitably over the whole industry.

The principal objects of the Committee are—

(1) To secure to dairy companies equal terms for all dairy-produce sold locally or overseas:
(2) To fix a basic price at which all butter sold "intra-State, inter-State, or overseas" shall be taken into account for the purpose of bringing about equality of returns:
(3) To fix or prescribe the respective amounts to be charged for the handling and transport of dairy-produce, including the percentage allowance or discounts to be made to the purchaser.

The memorandum states specifically that the Equalization Committee is not allowed to manufacture or dispose of dairy-produce on its own behalf.

The capital is divided into 36 shares of £1 each, and is allocated as follows :—

Queensland	8 "A."
New South Wales	8 "B."
Victoria	8 "C."
Tasmania	4 "D."
South Australia	4 "E."
West Australia	4 "F."

The articles of association provide for not less than nine and not more than eighteen directors, who must be members of the Dairy-products Boards in their respective States. Pending the setting-up of these Boards in some of the States, however, special arrangements are made for representation. The first directors of the company are set out in clause 38 of the articles. They are twelve in number, and consist of four directors each for the "A," "B," and "C" groups. Under the heading of "Occupation," they are classified as follows : four dairy-farmers, one freeholder, one President of the Primary Producers' Union, two manufacturers, two company-managers, one secretary, and one solicitor. No member may hold more than one share.

To participate in the benefits of the scheme, each dairy company is required to enter into an agreement with the Equalization Committee, and the agreements do not become effective until they have been signed by companies representing 50 per cent. of the total quantity of dairy-produce manufactured in the Commonwealth for the year ended 30th June, 1933.

The agreement gives the Committee power to make a levy on the dairy companies for (i) administrative purposes, (ii) the establishment of a reserve fund, and (iii) the establishment of a Commonwealth fund for equalization purposes. For the first two objects, the levy cannot exceed in either case 2d. per hundredweight of butter and 1d. per hundredweight of cheese.

The Committee is given power to make payments to or reclamations from dairy companies to ensure "equal returns in respect of the dairy-produce consigned overseas and/or sold on any market in each month." Each dairy company is allotted a quota for the local market. Where this quota is exceeded, the surplus of the higher price is paid into the Commonwealth Equalization Fund, and this fund is utilized to make up the payments of dairy companies who have not reached their local market quota.

The dairy companies undertake to furnish, not later than the 10th day of each month, a highly detailed statement under twelve headings showing how the previous month's make has been disposed of. The Committee has power to appoint an officer to inspect the books of any contracting dairy company.

The basis used by the Committee in the process of equalizing payments to dairy companies is as follows :—

(*a*) For intra-State and inter-State sales—At the price fixed by the Committee :
(*b*) For Great Britain—The Committee first takes the average of the prices ruling in London for Australian shipments between the 7th and 14th day following the arrival of each shipment. With this as a basis, the Committee determines the general average price for all shipments of dairy-produce from each State during the month.

There are also special provisions relating to butter held in store for local trade, cheese reserved for maturing, sales under the heading of ships' stores, &c.

The agreement continues in force for three years, and each party covenants "that it shall not do, or permit or suffer to be done, any act, deed, or thing inconsistent or at variance with" the agreement.

Canada.

The seriousness of the national and industrial problems confronting the dairying industry led in March, 1934, to the formation in Canada of the Canadian Dairy-farmers' Federation. The purpose of the federation is to effect joint action on the part of dairy-farmers in the solving of their pressing problems, to establish contact with similar organizations in other Dominions, such as Australia and New Zealand, and to co-operate with the Provincial and Federal Governments in Canada in promoting the development of the industry on sound lines. This federation is urging that legislation be enacted to provide for the setting-up of a Dairy Produce Board similar to the Boards that are in operation in New Zealand and Australia.

Southern Rhodesia.

The Dairy Industry Control Act, 1931, provided for the establishment of a Board, to be known as the Dairy Industry Control Board, with power, *inter alia*, to make regulations governing the export of butter and cheese from the colony, and to function in the co-ordination of the production, manufacture, and marketing of dairy-produce.

Union of South Africa.

Legislative authority is provided in the Union of South Africa for the establishment of a Board with similar powers and functions.

APPENDIX VII.

BRITISH AGRICULTURAL MARKETING ACTS.

AGRICULTURAL MARKETING ACT, 1931.

A summary of the British Agricultural Marketing Acts, which are the result of the changes in agricultural policy in the United Kingdom, commences with the Act passed in July, 1931, under which a sufficient majority of the producers of any agricultural product was permitted, subject to the approval of the Minister of Agriculture and of Parliament, to adopt by vote a scheme regulating the marketing of that product, which would subsequently be binding on the minority who had voted against as well as on the majority who had declared in favour. It was, in fact, an Act to protect the main body of producers against minorities who could otherwise wreck any policy which the industry might attempt to pursue in its common interest. There had, for example, been a voluntary hops scheme supported by more than 90 per cent. of the producers, which had collapsed through the action of a numerically insignificant minority.

The Act provided for the conferring of powers upon Boards or other bodies to be constituted in connection with any such marketing schemes for the establishment of agricultural marketing funds for the purpose of making loans to the Boards, and for the encouragement of agricultural co-operation, research, and education. Schemes could be submitted to the Minister of Agriculture by producers or their representatives, this procedure being formally required even if, as has since been usual, the schemes were drafted by a Reorganization Commission set up by the Government.

For the producer there was the safeguard that no scheme could remain in force without the affirmative vote both of two-thirds of the registered producers of the product concerned, and of registered producers capable of producing two-thirds of the quantity which could be produced by all taking part in the vote. For the public interest there was the requirement of consultation between the Ministry of Agriculture and the Board of Trade, the provision for publication of a scheme and inquiry into objections before its approval by the Minister, who thenceforward took general responsibility for its scope, and the requirement of an affirmative resolution of each House of Parliament.

Extensive powers could be conferred on a Board under an approved scheme, including the right to assume a monopoly in selling the regulated product, or to determine "the price at, below, or above which . . . and the persons to whom, the produce may be sold." It was further provided that every scheme must require that no sale of the regulated product should be made by any person who is not either a registered producer or a person exempted under the scheme.

During the passage of the Bill, Conservatives moved to add a section to provide for restrictions on the sale of foreign produce, but this was rejected. The Act thus remained applicable only to home-grown produce. There was, however, no power to control production.

The 1931 Act also enables the Minister to set up Agricultural Marketing Reorganization Commissions to prepare schemes for regulating the marketing of any agricultural product. An important part in the new agricultural policy has been played by the Reorganization Commissions, consisting of men and women chosen for general capacity in business, accountancy, research, administration, and so forth, who prepare reports after exhaustive study with the resources of the Ministry of Agriculture behind them. On such reports the leading schemes have been based.

AGRICULTURAL MARKETING ACT, 1933.

A further Agricultural Marketing Act was passed in 1933. This gave power for the quantitative regulation of imports and for the control of production in Great Britain. It includes provision for the punishment of "every person who produces any article in contravention of any development scheme." The 1931 Act having provided for the control of marketing of home-produced commodities, the new Act was its logical extension. It provided also for bringing processors of agricultural products within the scope of schemes.

The regulation of imports of agricultural products, under order of the Board of Trade, was made conditional on proof that a scheme of efficient organization is under way in the interests of United Kingdom producers, and that the import regulation is necessary to the efficient organization and development of the United Kingdom agricultural industry. The Government are required to appoint a "Market Supply Committee" to review generally the supply of agricultural products in the United Kingdom and to make recommendations to the Government.

The 1933 Act also introduced the new model of organization, termed the Development Board. Previously, although both primary producers—for instance, of pigs—and secondary producers—for instance, of bacon—had had power to make schemes under the Act, they had had no power to establish and operate a joint authority for pursuing their common interests in the development of the industry as a whole. Under the 1933 Act two or more Boards may combine to establish a Development Board with wide powers over the industry, including the reduction, suppression, or prevention of redundancy in productive capacity.

REORGANIZATION COMMISSION FOR PIGS AND PIG-PRODUCTS.

The report of the Lane-Fox Reorganization Commission for Pigs and Pig-products—the first of such reports—recommended, for the purpose of ensuring the regulated expansion of the United Kingdom's pig industry, that all bacon-supplies, whether home-produced or imported, should be

regulated by quotas, and that in the United Kingdom bacon pigs should be sold only on annual (or longer-term) contracts at a national price closely related to feeding-costs.

The contract principle was recommended in the interests of producers, consumers, and curers. The producers, it was contemplated, "should be required to contract to deliver to bacon-factories numbers of pigs not yet born," and the factories should thus have an assured supply. The price should be determined on a national scale, its minimum being prescribed by reference to the cost of a defined ration of pig-feed during the four months prior to delivery. The contracts would specify the months of delivery, and each contract might stipulate on what day of the week pigs were to be despatched from certain areas.

The quota recommendation was based on the recognition that, as a first essential to United Kingdom producers, the supply of bacon marketed in the United Kingdom should be stabilized. "This would lead to the planned and steady production of bacon pigs, both at home and ultimately in bacon-exporting countries."

The "Constructive quota"—as distinct from the quota that is a "purely restrictive or retaliatory measure"—was generally commended as an instrument that could play a useful part in the economic development of both exporting and importing countries.

A Bacon Marketing Board was recommended as a necessary corollary to the scheme. The Commission also recommended the creation of a Pig Industry Development Board, representative of and financed both by the Pig and the Bacon Marketing Boards.

The Commission recommended that the United Kingdom supplies of bacon and hams from all sources should "for the present be stabilized at 10,670,000 cwt. per annum."

Extending beyond the particular commodities assigned to it, the Commission recommended the setting-up of a Quota Advisory Committee, and also of a permanent Reorganization Committee for the Agricultural Industry—"it should be a planning-body for the agricultural industry as a whole."

To a substantial degree the Commission's recommendations have been put into effect, though the Pig Industry Development Board has not been set up, nor has the comprehensive Agricultural Commission or planning-body. Instead of the latter, a body composed of the Chairmen of the various Marketing Boards now in existence is being widely suggested.

Reorganization Commission for Milk and Milk-products.

A Reorganization Commission for Milk and Milk-products was set up in April, 1932, and reported in January, 1933. Its draft scheme, revised by the producers' representatives—*i.e.*, by the National Farmers' Union—was submitted to a public inquiry and again modified, with the concurrence of its promoters. As amended, it was approved by Parliament in July, 1933, and on a poll of producers was endorsed by 96·4 per cent. of those who voted.

Two Milk Marketing Boards have been set up under the scheme, vested with full power to regulate sales of milk, including the right to determine "the prices at, below, or above which milk may be sold."

Eleven regional pools have been established in England and Wales and one in Scotland. Within each of the eleven regions producers receive the same price for milk, with premium for superior quality, whether the milk is sold for liquid consumption or for manufacture.

The scheme provides for the registration of all producers, excepting persons who have not more than four milk cows and do not sell milk by retail. An unregistered producer may not sell milk.

The scheme is discussed in more detail in Appendix VIII.

Other Reorganization Schemes.

The first Agricultural Marketing Act became law on the 31st July, 1931. The first scheme to be submitted under it was the Scottish Raspberries Scheme (23rd February, 1932). This failed to secure the required majority and was dropped. The first scheme to be approved was the Hops Marketing Scheme (7th July, 1932), this being amended and approved in its new form by the House of Commons on the 12th July, 1934. Schemes which have so far come into force cover hops (1932), pigs (1933), bacon (1933), milk (1933), and potatoes (1934). The Boards and the date of commencement of their operations are listed below, but this does not include Northern Irish or local Scottish organizations.

Hops Marketing Board	6th September, 1932.
Pigs Marketing Board	9th September, 1933.
Bacon Marketing Board	9th September, 1933.
Milk Marketing Board	6th October, 1933.
Scottish Milk Marketing Board	1st December, 1933.
Potato Marketing Board	9th March, 1934.

Additional reorganization schemes commenced during 1933 related to fat stock, eggs, and poultry.

Of the foregoing, the hops and the potatoes schemes were submitted by the producers concerned, while the other schemes in operation have been worked out through the alternative machinery of reorganization commissions of independent persons appointed by the Minister. This procedure has also been followed with fat stock, on which a Commission reported in March, 1934, and with eggs and poultry, and fish (under the related Sea Fisheries Act, 1933), on which subjects the Commissions, at the date of writing, have not reported. Further schemes for sugar manufacturing and refining and for sugar-beet growing have been submitted by the industry, but have not yet been approved.

The potatoes scheme is notable for the fact that, like the hops scheme, it visualizes a potential surplus in home production, and that it makes provision accordingly for restricting supplies, in part by varying from time to time the size of the mesh through which table potatoes are to be passed.

Under the fish scheme the principle of quantitative regulation is extended both to imports and local supplies of fish. A minimum size of the mesh of nets and a minimum size for fish allowed to be sold are fixed, and imports of foreign-caught fish are reduced.

The Fat Stock Commission's report follows generally previous reports in recommending quantitative regulation of imports, from Imperial as well as from foreign sources. It recommends increased control over slaughtering and marketing of home-grown meats, but does not look to regulation or restriction of production. Less that half—41 per cent. in the period 1927–1931—of Great Britain's meat-supplies are produced in the country, and considerable expansion is envisaged.

APPENDIX VIII.

BRITISH MILK-MARKETING SCHEMES.

Two milk-marketing schemes are operating in the United Kingdom, one in England and Wales and the other in Scotland. Each scheme is administered by a Board, mainly elected by producers. The two Boards adopt the same marketing principles, and, though they act independently, they have entered into agreements which avoid the conflict of interests in matters of inter-State trade in milk. The following statement refers to the scheme operating in England and Wales:—

The Board has very wide powers, which enable it to regulate the sale of practically all milk not used on farms. Thus all milk-producers need to be registered, the only exceptions being those who own less than four cows from which milk is sold by wholesale and those who manufacture the whole of the milk produced on their farms into dairy-products. Farmers who make cheese are separately registered to enable them to participate in any special allowances made by the Board or Government in respect of farm-made cheese. On the 31st December, 1933, there were registered with the Board 78,000 farmers who sold milk by wholesale and 50,000 producer-retailers.

The particular functions of the Board are to arrange either mutually or by arbitration with dealers, the price of milk for various purposes, to adjust the returns obtained by individual farmers from the sale of milk so that all farmers will receive a reasonable share of the trade in market milk and to take such measures as may be considered necessary to improve the milk and increase the consumption of milk. The adjustment of returns is made difficult by the volume and value of milk that is surplus to the needs of the city trade. Approximately 35 per cent. of the total milk produced on farms is surplus, and varies seasonally and by districts. The surplus is greatest in summer and in areas particularly suited to dairying. This milk has to be converted into products, the value of which is much less on a per-gallon milk basis than that of milk sold for consumption in the liquid state, and the products differ amongst themselves in price. Thus the Board has powers to divide equitably the gross returns from the sale of milk used for all purposes among the milk-producers so that the evils of cut-throat competition in the city milk trade can be avoided, and so that the excessive surpluses of some districts will not unduly lower the returns to farmers supplying milk to cities in less favoured districts. The area of England and Wales is therefore divided into eleven regions, which are separate accounting units.

Technically the Board buys all milk from registered producers and sells it to wholesale and retail dealers. In practice it effects this by drawing up a standard contract, which farmers use individually in concluding arrangements with their dealers and which is registered with the Board. The contract specifies the prices to be paid monthly on a per-gallon basis for milk used by the dealer for different purposes. The price of all milk, except that used for butter and cheese making is determined in advance at six-monthly intervals, and is subject to premiums for level supply and special quality. The price of milk used for cheese and butter manufacture is ascertained monthly by determining the average wholesale price per pound of finest New Zealand and Canadian cheese for the previous month, deducting from this amount $1\frac{3}{4}$d. to cover manufacturing costs, and assuming that the difference is the value of one gallon of milk.

All milk-producers send monthly to the Board a statement of their deliveries of milk to the dealers with whom they have contracts. Similarly, all dealers send a statement of all milk received and the uses to which they put the milk. The Board then collects the cash returns from dealers and distributes the gross amount amongst all producers, in proportion to their total milk-supply. Individual producers receive any special premiums to which they are entitled in accordance with their contract.

The cash returns for each region are dealt with separately. The basis of the return made to each farmer is the wholesale price of city milk in his region but several deductions are made before determining the net amount to be paid to him. One deduction, approximately $\frac{1}{4}$d. per gallon, is to provide for costs of administration, liabilities, and reserves. Another amounting to 1d. per gallon called the "inter-regional levy," is to create a general fund from which special payments can be made to districts where a large amount of the milk is surplus. To this end, the general net price received by farmers throughout

the whole country is weighted to some extent with the lower price obtained from milk converted into dairy-products. Other deductions are made to cover the cost of freight, transit, risk, and cost of collection, if any. Finally the regional levy is deducted. This is the net loss arising from the utilization of surplus milk.

The following example illustrates the method by which the net price paid to the farmer is arrived at. If the regional price of wholesale milk is 1s. per gallon, the following deductions are made: (*a*) administration costs, ¼d.; (*b*) inter-regional levy, 1d.; (*c*) freight, &c., 2½d.; (*d*) regional levy, 2d. The return is therefore 6¼d. There remain to be added the returns accruing from the inter-regional levy fund, say, 1½d. Thus the farmer receives a net return of 7¾d. per gallon.

It is obvious that the farmers' net price may be materially reduced by the low price for surplus milk. For example, in June, 1934, the wholesale price of milk was 1s. per gallon, and the value of milk going into manufacture was only 5·47d. per gallon. The latter had the effect of reducing the pool price in all districts, to extents varying from 1½d. to 2¼d. per gallon. Accordingly, all British dairy-farmers experienced losses when the price of imported cheese fell to a low level. For example, the value of milk made into butter and cheese in March was only 3¼d. per gallon. Thus the British Government agreed to subsidize for a period of two years, beginning 1st April, 1934, the price of all milk used in factories for the manufacture of butter and cheese and on farms for the manufacture of cheese so that the minimum price would be 5d. per gallon for the period, April–September, and 6d. per gallon for the period, October–March. The Board was delegated to undertake the distribution of the subsidy to farmers who made cheese on their farms. Realizing that the benefits of pool prices might attract an increased number of the latter farmers to the milk trade if the net pool returns were greater than those possible from cheese-manufacture, the Board granted an additional 1d. per gallon to farmers who made "hard" cheese, and ½d. per gallon to others. Cheesemaking farmers therefore get a direct subsidy of 1d. per pound cheese plus the difference between the Government guaranteed cheese price and the assumed net value of Canadian and New Zealand cheese. Recently the latter has been 1½d. and the total subsidy is thereby 2½d. The net effect of this scheme to the farmer and the Board depends on the relative price of cheese and pool price of milk. Therefore, if the pool price of milk is 8d., the cheesemaking farmer must realize 5½d. per pound for his cheese to get returns equal to the farmer selling only liquid milk. Thus farm cheese should command a price of 6½d. per pound to give the farmer a net return of 9d. per gallon and a profit of 1d. to make the continuation of farm cheesemaking attractive.

The Government subsidy was made conditional upon repayment if cheese prices recovered sufficiently within two years of the end of the subsidy period. It will be observed from the above explanation that both the British Government and British farmers are vitally interested in the present and future price of New Zealand cheese. The total volume of milk sold by registered producers under wholesale contracts in the period 6th October, 1933, to 31st July, 1934, is estimated to be approximately 593,848,000 gallons. Of this total quantity, approximately 157,308,000 gallons were used for manufacturing purposes in factories and city depots. Producer-retailers sold approximately 55,849,000 gallons in the period 6th October, 1933, to 31st March, 1934. In addition, milk made into cheese on farms in May, June, and July, is estimated to be approximately 10,575,000 gallons.

APPENDIX IX.

REPORT FROM THE NEW ZEALAND DAIRY-PRODUCE CONTROL BOARD ON THE SHIPMENT OF BUTTER AND CHEESE TO UNITED KINGDOM PORTS.

The efficient marketing of butter and cheese exported by the Dominion requires that a shipping service should be organized on a Dominion basis to prevent as far as possible irregular arrivals to ensure that the seasonal production is spread in arrival as evenly as possible.

The Board has been able to effect many improvements in the shipping service, but it is considered that further improvements are still necessary. Particularly is this so in the way of regular weekly arrivals. In the past if the arrivals on a monthly basis have been reasonably satisfactory this has been accepted, but the quantity is now so great that the time has arrived when arrivals at stated weekly intervals are necessary.

Under the present shipping contract, while the shipping companies undertake to arrange weekly arrivals if possible, there is nothing binding upon them in this direction. Not until a regular weekly arrival becomes part of the shipping contract will conditions be satisfactory for the systematic marketing of New Zealand's dairy-produce.

One of the greatest difficulties in arranging for such a regular weekly arrival is the multiplicity of ports in New Zealand, calling for vessels to steam for many hundreds of miles round the coast to obtain cargo. Not only does this hinder a definite time-table arrival, but it is undoubtedly responsible for the high rates of freight on all classes of cargo exported from the Dominion. Under conditions such as these the earning-power of all steamers must of necessity decrease, thus tending to increase freight rates, the burden of which falls upon the primary producers as a whole.

Freight reductions are of material assistance to producers at the present time, and the figures mentioned later in this statement will give some idea of what has been secured by the Board, but it might be claimed that a regularized weekly arrival, with a resultant steadier market, would give to the producer a greater financial return than any freight-reduction.

The total exports of butter and cheese from New Zealand to the United Kingdom for the year ended 31st July, 1934, amounted to 240,000 tons, and it is interesting to note that 174,000 tons, or approximately 72½ per cent., of this produce were shipped from Auckland and Wellington, leaving only 27½ per cent. of the total exported to be shipped from the other eight ports where vessels have at present to call to lift dairy-produce.

What is required is a time-table service, lifting produce from Auckland and Wellington, provided by steamers of equal speed so as to allow of their arriving at Great Britain at weekly intervals, leaving other vessels to cater for the smaller New Zealand ports. If this were done it would be possible to guarantee a minimum quantity of butter and cheese for all of the weekly steamers, which would give a regular supply to the market and avoid any possibility of gluts or shortages.

In addition to the ten ports at which dairy-produce is lifted there are five other ports where on occasions overseas vessels are called upon to load direct meat, fruit,or general cargo. The following figures give details regarding these fifteen ports, showing the tonnage which has been exported during the last three years :—

——	Butter and Cheese to the United Kingdom, Season 1933–34.	Exports of Meat for Year ended October, 1933.	Outward Tonnage of Tallow, Hides, Skins and Pelts, Year 1932.	Wool offered at Sales, Season 1933–34.	Fruit Exported to United Kingdom, Season 1934.
	Tons.	Tons.	Tons.	Bales.	Tons.
Auckland	114,200	31,100	13,000	66,200	2,500
Wellington	59,800	44,300	15,400	134,000	19,700
New Plymouth	29,600	15,300	2,300	..	..
Wanganui (R)	6,800	10,800	3,200	83,800	..
Napier (R)	3,800	29,700	5,500	102,000	700
Gisborne (R)	2,800	13,600	2,600	..	25
Opua	..	5,000	500	..	..
Tokomaru Bay (R)	..	3,700	600	..	..
North Island ..	217,000	153,500	43,100	386,000	22,925
Lyttelton	3,800	30,400	8,100	81,000	500
Dunedin (or Port Chalmers) ..	3,600	12,400	4,400	101,300	220
Bluff	14,400	20,700	3,700	50,000	..
Timaru	1,200	14,700	2,000	31,700	..
Oamaru	..	6,200	600	..	..
Nelson	..	800	500	..	4,500
Picton	..	2,500	500	..	..
South Island ..	23,000	87,700	19,800	264,000	5,220
Dominion totals ..	240,000	241,000	62,900	650,000	28,145

(R) signifies roadstead port.

It should be noted that the export from Wellington includes all the dairy-produce graded at Patea, which was exported through Wellington.

Further, a big percentage of the fruit shipped from Wellington was forwarded from Nelson, Marlborough, and Hawke's Bay for shipment overseas.

The figures relating to wool cover only the quantities offered at the wool-sales. There is, of course, a certain quantity shipped each season on consignment, and this does not appear in the figures quoted above.

The foregoing figures indicate that the total refrigerated cargo offering is in the vicinity of 510,000 tons, and general cargo we would estimate as approximately 200,000 tons, giving a total of 710,000 tons in all. Approximately 50 per cent. of this total is shipped from Wellington and Auckland, which provides the necessary argument in favour of a regular weekly shipping service from these two ports.

The roadstead ports—namely, Napier, Gisborne, Tokomaru Bay, and Wanganui, provide a real problem in connection with a time-table service. They are much more difficult to work than the ordinary ports, and while only 13,400 tons of dairy-produce was shipped from these ports, yet 185,800 bales out of a total of 650,000 bales of wool offered at the wool-sales last season were shipped from Wanganui and Napier.

By reason of the variation in the quantity of dairy-produce shipped from the different classes of ports, as compared with meat, the whole problem of shipping these two commodities really requires to be negotiated separately.

The Dairy Board negotiated its first shipping contract in 1924, and contracts were renewed in 1927, 1930, and 1933. All the negotiations were carried out between the shipping companies and representatives of the Meat and Dairy Boards, and the reductions obtained were on the same percentage basis to both Boards. During this period the quantity of dairy-produce has increased by a much larger percentage than meat. It is reasonable to suggest that the value of dairy-produce as a freight for the shipowners has been greatly enhanced, and should thus be entitled to a greater reduction in freight rates.

The following figures indicate the dairy-produce and meat exported from New Zealand for the 1923–24 season, and the 1933–34 season :—

	Butter (Tons).			Cheese (Tons).		
	Season 1933–34.	Season 1923–24.	Increase.	Season 1933–34.	Season 1923–24.	Increase.
Auckland	93,020	29,020	64,000	21,180	9,550	11,630
Wellington	18,420	8,930	9,490	41,380	32,630	8,750
New Plymouth	10,250	4,900	5,350	19,350	14,000	5,350
Wanganui	3,900	3,770	130	2,900	1,260	1,640
Napier	3,730	..	3,730	100	..	100
Gisborne	2,800	880	1,920	70	..	70
North Island ..	132,120	47,500	84,620	84,980	57,440	27,540
Lyttelton	2,590	2,080	510	1,210	1,610	Dec. 400
Timaru	390	500	Dec. 110	810	750	60
Dunedin	1,220	1,340	Dec. 120	2,380	1,890	490
Bluff	630	920	Dec. 290	13,770	9,940	3,830
South Island ..	4,830	4,840	Dec. 10	18,170	14,190	3,980
Dominion totals ..	136,950	52,340	84,610	103,150	71,630	31,520

NOTE.—Napier was not a grading port until 1925.

COMBINED TOTALS, BUTTER AND CHEESE.

	Season 1933–34.	Season 1923–24.	Increase.
	Tons.	Tons.	Tons.
Auckland	114,200	38,570	75,630
Wellington	59,800	41,560	18,240
New Plymouth	29,600	18,900	10,700
Wanganui	6,800	5,030	1,770
Napier	3,830	..	3,830
Gisborne	2,870	880	1,990
North Island	217,100	104,940	112,160
Lyttelton	3,800	3,690	110
Timaru	1,200	1,250	Decrease 50
Dunedin	3,600	3,230	370
Bluff	14,400	10,860	3,540
South Island	23,000	19,030	3,970

Increase, 93 per cent.

EXPORTS OF MEAT.

	For the Year ended 1923.	For the Season ended October, 1933.	Increase.
	Tons.	Tons.	Tons.
Auckland	8,262	31,100	22,838
New Plymouth	10,425	15,318	4,893
Wellington	31,333	44,287	12,954
Wanganui	11,953	10,764	Dec. 1,189
Napier	19,125	29,758	10,633
Gisborne	14,435	13,642	Dec. 793
Tokomaru Bay	3,165	3,669	504
Waikokopu	2,473	..	Dec. 2,473
Opua	3,160	5,042	1,882
North Island	104,331	153,580	49,249
Lyttelton	21,435	30,411	8,976
Timaru	11,486	14,694	3,208
Dunedin	5,675	12,406	6,731
Bluff	7,008	20,724	13,716
Oamaru	2,245	6,217	3,972
Picton	1,602	2,503	901
Nelson	292	772	480
South Island	49,743	87,727	37,984
Dominion totals	154,074	241,307	87,233

Increase, 56 per cent.

These figures show that the export of butter has increased by 161 per cent., exports of cheese by 44 per cent., or, taking the combined total of dairy-produce exports, the increase is 93 per cent. Meat has increased by 56 per cent.

It is interesting to note that the dairy-produce exported from the Auckland Province has increased by 196 per cent.

At the roadstead ports the tonnage of dairy-produce has increased by 7,590 tons, and meat by 16,682 tons, representing an increase of 19 per cent. for meat and 6½ per cent. for dairy-produce.

The total tonnage of meat has increased by 87,233 tons, and the total tonnage of dairy-produce by 116,130 tons.

In the North Island meat exports have increased by 49,249 tons, and dairy-produce by 112,160 tons.

In the South Island meat exports have increased by 37,884 tons, and dairy-produce by 3,970 tons.

The figures reveal that the increase in meat has been fairly evenly distributed, and at the fifteen loading ports no less than ten have a yearly tonnage in exports of over 10,000 tons, whereas dairy-produce, with ten ports of loading, has only four ports exceeding 10,000 tons. They would indicate also that the average cost per ton for loading dairy-produce in 1923 is being reduced to shipowners by reason of greater quantities being available at fewer ports.

The costs to shipping companies also have been reduced in the transport of dairy-produce by the Board's action in arranging cool storage contracts for dairy-produce landed in Great Britain. Prior to the arrangement which provides that dairy-produce shall go straight from the ships' holds into insulated barges to cool stores, the produce was landed over the ships' side to innumerable stacks in dock-sheds, entailing heavy charges for labour upon the shipping companies. It has been estimated that the cost of this work to the shipping companies was approximately 7s. 6d. per ton. Further, the actual time of discharge of overseas vessels has been considerably reduced by reason of more rapid delivery into barges as indicated above.

Coastal Carriage.—Prior to the inception of the Dairy Board in 1923 dairy-produce from such ports as New Plymouth, Patea, and Wanganui was wholly shipped to Wellington by coastal steamers. During the 1923–24 season of a total export of 123,970 tons, some 33,000 tons were shipped to Wellington from the three ports mentioned for loading into overseas vessels. This represented 27 per cent. of the total export of dairy-produce, and it is estimated that the cost to the shipping companies, by reason of the fact that they themselves paid the coastal freight, was £45,000. For the season just ended, out of a total export of 240,000 tons, transhipments totalled only 28,000 tons, costing the shipping companies approximately £35,000. This is another reason for claiming that dairy-produce is the most remunerative class of cargo that the shipping companies are handling at the present time.

Regulation of Shipment.—The Board's policy in spreading shipments has very greatly assisted the shipping companies, as it enables the Board to guarantee certain quantities being available each month for shipment overseas. Further, prior to this policy being adopted, a greater number of

vessels were needed to cater for shipments during mid-season, with a corresponding shortage of cargo for steamers during the off season. In other words, a greater number of vessels were necessary because of the huge quantity to be shipped in the peak period.

Handling of Bills of Lading, &c.—The work of the shipping companies is much simplified because of the Board's work in handling all details relating to shipments of dairy-produce from all ports in the Dominion. The Board not only arranges for space and the forwarding of all dairy-produce from grading-stores to the ships, but it handles all the bills of lading, insurance documents, &c., and the freight due for each steamer is paid in one lump sum to the shipping companies by the Board. The collecting of freight from each dairy company is undertaken by the Board, and also a vast amount of detail work which would otherwise fall upon the shipping companies. The Dairy Board's work in this connection differs from that of the Meat Board, which arranges for shipping space, but leaves all the work of shipping, handling of documents, &c., to the freezing companies. We submit that this is another argument in favour of reduced charges by the shipping companies on the transport of dairy-produce.

We give below the rates of freight on butter and cheese under each of the contracts made by the Dairy Board, showing the percentage reductions and the savings they have represented to the industry.

Rates prior to the Board's Inception.

Year.	Butter (per Box).	Cheese (per Pound).
	s. d.	d.
1914	2 6	$0\frac{1}{2}$
1921	6 0	$1\frac{1}{4}$, plus 10 per cent.
1922	5 0	$1\frac{3}{16}$, plus 10 per cent.
1923	5 0	$1\frac{1}{16}$, plus 10 per cent.
1924	4 6	1

Rates under Board's Contracts.

Year.	Butter (per Box).	Cheese (per Pound).	Annual Saving under Previous Rates ruling.
	s. d.	d.	£
1924–26	4 0	$0\frac{29}{32}$	130,240
1926–29	4 0, less $7\frac{1}{2}$ per cent.	$0\frac{7}{8}$, less $7\frac{1}{2}$ per cent.	116,000
1929–30	4 0, less $12\frac{1}{2}$ per cent.	$0\frac{7}{8}$, less $12\frac{1}{2}$ per cent.	74,000
1930–33	4 0, less 15 per cent.	$0\frac{7}{8}$, less 15 per cent.	35,000
1933–36	4 0, less 21 per cent.	$0\frac{7}{8}$, less 21 per cent.	140,000
Total annual saving as compared with 1923–24	..	..	495,740

(Since January, 1933, rates have been subject to a surcharge of $13\frac{2}{3}$ per cent. to compensate shipowners for rise in exchange premium to 25 per cent.)

Recommendations.

To ensure, as far as possible, that arrivals of butter and cheese will be on a regular weekly basis, it is recommended that an endeavour be made to vary present contract conditions for carriage in the following manner:—

1. That a contract be made with the overseas shipping lines calling for a vessel to be despatched each week with a minimum of 50,000 boxes of butter and 10,000 crates of cheese for London from Auckland and Wellington combined, with the inclusion of New Plymouth whenever possible. Such vessels to complete the journey in thirty-five days, and to arrive in London at weekly intervals.

2. That any vessel allotted to load the equivalent of 40,000 freight carcasses or more in dairy-produce and meeting with delay at roadstead ports for forty-eight running-hours through *weather conditions* other than rain, shall, at the request of the Board, proceed upon her voyage to the next port of loading. Any dairy-produce not loaded at any port through such circumstances shall, whenever possible, be replaced with other dairy-produce from following ports of loading, and any dairy-produce short-shipped at the port where delay occurs shall be added to the next available loading.

(In the event of failure on the part of the shipowner to agree to such a clause, then the Board reserves the right to reduce quantities allotted in order to minimize any overloading of the market in arrivals due to delays under the special circumstances mentioned.)

3. That the Dairy Produce Export Control Act be amended in order that the Dairying Industry may negotiate its freight agreements to the best advantage of the industry.

APPENDIX X.

REPORT FROM THE NEW ZEALAND DAIRY-PRODUCE CONTROL BOARD ON THE INSURANCE OF BUTTER AND CHEESE.

Prior to the inception of the Board, dairy companies arranged marine insurance on produce shipped by them through local agents of insurance companies, and in other ways.

The rates of premium varied, some of the larger companies being able to obtain much better rates than smaller companies. The risks covered varied also, although the produce was usually insured on W.P.A. terms.

The lowest local net rate to an ordinary-sized factory during the 1923–24 season of which the Board had knowledge was :—

Butter.—From and in factory : 9s. 6½d. per cent., including transhipment, 11s. 4d. per cent.

Cheese.—From and in factory : 11s. 4d. per cent., including transhipment, 13s. 1½d. per cent.

The National Dairy Association arranged for a cover for a number of factories during several seasons, but as it could not guarantee the amount which would be placed under the cover little progress was made in obtaining reduced rates.

It was evident that if the Board could offer the whole of the marine insurance on the Dominion's shipments of dairy-produce to a group of insurance companies or underwriters it could obtain a very comprehensive cover at greatly reduced rates of premium.

The Board decided to act, and placed the first contract with the insurance companies operating in New Zealand for the 1924–25 season at rates as set out in the statement below. As the New Zealand companies were not inclined to renew the contract for the 1925–26 season, this was placed through a firm of London brokers on Lloyds and with other insurance companies.

The contract has been renewed from time to time, the present contract expiring on 31st August, 1935.

The Board's contract is a very wide one, and protects the produce against " any risks whatsoever " from time of receipt at the factory, during manufacture, whilst in factory, during transit to grading-store by road, rail, or water, and continues the protection until thirty days after date of final discharge in the United Kingdom. (Milk or cream is, however, protected from time of receipt at factory, against fire risk only.)

Damage from earthquake is covered, but should serious damage be caused by a further earthquake underwriters reserve the right to charge an additional premium for earthquake risk thereafter.

The limit under the contract is £1,000,000 in any one bottom and in any one location prior to shipment. The risk after discharge in the United Kingdom is unlimited as to amount. The value of this latter provision is seen when there is any accumulation of stocks in Great Britain.

All claims under the contract have been promptly and generously settled.

Rates of premium have been :—

	Butter. Per Cent.	Cheese. Per Cent.
	s. d.	s. d.
1923–24 (prior to Board's inception)	9 6½	11 4
(Including transhipment)	11 4	13 1½
1924–25	7 0	8 6
(Including transhipment)	8 0	9 6
1925–27	7 4	9 10
1927–28	7 3	9 3
1928–29	7 3	9 0
1929–32	7 0	8 2
1932–35	6 4	7 0

The reduction of over 33⅓ per cent. in rates effected since the Board took over control of marine insurance means a saving on present-day values of approximately £35,000 per annum.

Rates of premium for other refrigerated cargo were increased during 1928–29, but have since been reduced. They show, however, only a very slight reduction on the rates ruling in 1923–24.

The conditions and rates under the Board's insurance contract can be reasonably claimed as a strong argument for rationalization.

As showing the interlocking nature of the activities undertaken by the Board, part of the reduction in insurance rates has only been obtained through the Board undertaking that its system of inspection of shipments and cold storage arrangements will be continued. These services have been instrumental in reducing considerably the claims for damage to dairy-produce.

APPENDIX XI.

REPORT FROM THE NEW ZEALAND DAIRY-PRODUCE CONTROL BOARD ON THE COLD STORAGE AND HANDLING OF BUTTER AND CHEESE AT UNITED KINGDOM PORTS.

The need for reform in methods of handling dairy-produce in London was noted by the first overseas delegation in 1925 (Messrs. Grounds, Motion, and Thacker) in their final report. They referred to the slow and out-of-date methods of handling ; the variety of methods by which produce was conveyed into storage and, in especial, the fact that the barges used for conveying produce up the river were " plain iron barges " not insulated. They stated, *inter alia*, " In the summer with a shade

temperature of 86 degrees, and with butter left in the barges awaiting discharge from Saturday to Monday, the result can be easily imagined."

Their main recommendation was :—

> "We think the only effective way of dealing with this (*i.e.*, deterioration of produce) is to insist that all butter not required for immediate distribution should be placed in cold storage straight from the ship's side."

They referred further to the reasons for lack of system in storage methods when they said :—

> "The absence of any settled policy in this matter, and the rivalry existing between merchants has on occasions led to deterioration in quality through holding too long in ordinary warehouses to avoid the expense of cold storage."

In regard to cheese, also, it was usually stored in ordinary warehouses under conditions which, though suitable in cold weather, would cause sweating in hot weather. Even in cold weather, defective ventilation and circulation of air led to mould growth and other troubles.

In 1926 the Board's shipping inspector, Mr. F. W. Grainger, was sent to the United Kingdom to investigate and make recommendations. His recommendations, later embodied in a contract, were :—

(1) All produce to be discharged over ship's side direct into barges, which were to be insulated in the summer months.
(2) Produce to be conveyed immediately to cold stores in suitable proximity to Tooley Street. The produce to be sorted in cool store (not on the docks as formerly) and unless immediately required for distribution to be at once placed into cold storage, under suitable temperatures for butter and cheese respectively.
(3) The Board to have an Inspector in London to supervise discharge.

In 1928 a definite contract was entered into with Hay's Wharf and the Port of London Authority embodying the first two recommendations, which, it should be added, had almost the unanimous approval of the Tooley Street merchants. Similar arrangements were entered into in 1929 for butter arriving at Liverpool, in 1930 for butter at Bristol, and in 1933 for butter for Manchester. The same system will doubtless be extended to other west coast ports when the quantities landed there justify it.

Early in 1927 the Board had put the last recommendation into effect by appointing Mr. W. Bence as Shipping Inspector in London.

Writing under date 9th June, 1931, the Board's London manager stated :—

> "Arrangements for landing New Zealand butter and cheese in London ex overseas vessel direct into insulated barge for transport to central stores for sorting to marks and cold storing have been working very satisfactorily for some three years, and our importers, with few exceptions, would be very sorry to revert to the conditions pertaining prior to the inception of the contracts. The conditions embodied in the contracts ensure a minimum temperature variation right up to the time of delivery to buyers, sorting is carried out in suitable buildings, and butter and cheese not immediately required is transferred at once to cold stores, where the proper temperature is maintained. The process of discharge, condition of barges, methods of handling, and temperature of cold stores, are under constant supervision of the Board's Inspectors."

Also another London letter stated, regarding the Liverpool arrangement :—

> "The Devon discharged her cargo at Liverpool last week under the arrangement. The writer was present, and no fault could be found with the work. *The butter did not touch the wharves at all, being discharged direct into insulated barge.* Landing into sorting floor was done expeditiously, and in a few hours the butter was in cold store. This was in marked contrast to the Manchester cargo ex the same steamer, 200-odd boxes of which lay in the wharf-sheds from Monday till Friday. This was sold ex ship, so was entirely out of our control."

It may here be remarked that the Board's system of inspection of loading of steamers in New Zealand is complementary to the work done in London.

As to the value to the industry of the cold storage and inspection arrangements, it is not possible to wholly assess this. The maintenance of produce in as nearly as possible the same condition as it was in when leaving the factory is no small work, and must have resulted in considerably improved returns to the producer.

Moreover, there has been an interlocking between the Board's various contracts for storage, freight, and insurance in that the economy of the Board's system of discharge in London was a potent argument in obtaining a reduction in the last freight contract. Furthermore, when effecting the two latest insurance contracts one condition under which the lower rates were agreed to was the continuance of the Board's system of inspection and storage in the United Kingdom.

The Australian Board, after watching the system for the past two or three years, is so satisfied that the New Zealand Board is working on the best lines, that at the end of last year they arranged a similar contract with Hay's Wharf, Ltd.

A further advantage of the cold-storage contract was evidenced this year when, owing to the heavy accumulations of stored butter in London, and the arrivals of fresh shipments, butter could not be accommodated in London cool stores, and had to be despatched to stores in provincial towns. In terms of the contract made, Hay's Wharf had to find accommodation, and at their own cost obtained space at the Royal Albert Dock cold stores for the produce, whereas if there had not been a contract the butter would have had to be placed on the market at any sacrifice, as was the case with produce from other countries.

Mention was made earlier of deterioration in storage of cheese due to heating. Since we made contracts for cheese, all chambers are properly insulated and ample cooling is provided, so that such claims as arose in 1926 are eliminated, and it is by these reforms that insurance rates have been reduced on cheese by 38·2 per cent., and on butter by 33·6 per cent. since 1924.

In estimating the savings effected by the contracts made from time to time, it is considered that the cost to the New Zealand dairy companies is usually covered by the first and second week's rate, any further storage being generally borne by the buyer, and as the consolidated rate for London covers all New Zealand produce discharged at that port, the following gives an approximate idea of the economies effected, presuming all butter had been handled in the same manner as is now being done. As previously mentioned, much of the produce was not cool-stored prior to 1926.

The actual reductions secured under contracts made in London were as follow:—

Year.	Reduction per Ton, Fourteen Days.	Gross Tons landed.	Savings effected over 1926 Rates.
	s. d.		£
1928	6 2	63,257	19,504
1929	6 2	68,581	21,145
1930	6 2	74,074	22,838
1931	8 3½	91,977	38,132
1932	8 11¼	90,392	40,393
1933	Extension of free storage term		52,500

LONDON.—COMPARISON OF RATES AT DIFFERENT PERIODS.

The consolidated rate, as set out below, includes the following services: Taking delivery from ocean vessel, stowage in insulated river-craft, barging from docks to Hay's Wharf (approximately seven miles), discharge from barge to cool sorting-floor, sorting to marks and sub-marks, transfer to and piling in cold store, redelivery to land conveyance, and one week's rent from first day of landing:—

Butter, per Ton of 35 Boxes.

Year.	First Week.	Second Week.	Third Week.	Fourth Week.	Remarks.
	s. d.	s. d.	s. d.	s. d.	
1926 ..	25 2	33 2	40 2	46 2	No contract.
1928 ..	21 0	27 0	32 0	37 0	First contract signed with Hay's Wharf.
1931 ..	18 10·5	24 10·5	29 10·5	34 10·5	Second contract from the 1st April, 1931.
1932 ..	18 2·75	24 2·75	29 2·75	34 2·75	Reduction due to general reduction in wages.
1933	..	17 9·03	23 9·03	28 9·03	This rate to apply from the 1st May to the 31st October, inclusive.
1933	17 9·03	23 9·03	28 9·03	33 9·03	This rate to apply from the 1st November to the 30th April, inclusive.

Cheese, per Ton of 13 Crates.

Year.	First Week.	Second Week.	Third Week.	Fourth Week.	Remarks.
	s. d.	s. d.	s. d.	s. d.	
1927 ..	19 1	21 4	23 7	25 10	No contract.
1928 ..	16 6	17 6 (Winter Rates.)	18 6	19 6	First contract, Hay's Wharf and P.L.A. This rate applies from the 1st November to the 31st March, inclusive.
1928 ..	18 6	20 9 (Summer Rates.)	23 0	25 3	This rate applies from the 1st April to the 31st October, inclusive.
1931 ..	17 5·1	19 2·1	20 11·1	22 8·1	No definite contract; arranged only.
1932 ..	..	..	..	..	The port dues were further reduced by 2½ per cent., equal to 0·45d.
1933 ..	16 4·65	18 1·65	19 10·65	21 7·65	A new contract entered into. The rates are for temperatures not below 46° F. Should 40°–46° F. be required, an additional charge of 6d. to second and following months will be added.

AVONMOUTH.

The consolidated rate includes dock dues, receiving at ship's rail, sorting to marks, delivery, and piling in cold store, redelivery to land conveyance alongside store, and seven days' rent.

Butter, per Ton of 35 Boxes.

Year.	First Week.	Second Week.	Third Week.	Fourth Week.	Remarks.
	s. d.	s. d.	s. d.	s. d.	
1927 ..	12 11·2	19 2·2	25 5·2	31 8·2	..
1928 ..	12 11·2	17 11·2	20 11·2	25 11·2	Rent for each subsequent week, 4s.
1930 ..	12 0	17 0	22 0	27 0	Rent for each subsequent week, 4s.
1932 ..	11 7	16 7	21 7	26 7	..

Cheese, per Ton of Thirteen Crates.

Year.	First Week.	Second Week.	Third Week.	Fourth Week.	Remarks.
	s. d.	s. d.	s. d.	s. d.	
1926 ..	12 8	18 11	25 5	31 5	Note.—Cheese was listed same as butter—4s. per week fifth and following weeks.
1928 ..	12 8	14 8	16 8	18 8	
1932 ..	12 3·8	14 3·8	16 3·8	18 3·8	

NOTE.—A contract for butter was signed with the Bristol Port Authority, in 1930 which does not take in cheese, but the rates mentioned apply for both commodities.

There is also a quay-side rate for immediate delivery—that is, produce must be lifted within seventy-two hours of ship discharging, no cold storage, the rate being 5s. 9¾d. per ton for both butter and cheese.

LIVERPOOL.

In 1926 the landing and storage rates on dairy-produce were as follows per ton :—

	Butter.	Cheese.
	s. d.	s. d.
Dock dues	4 4	2 7
Master porterage	3 9¼	4 8
Cartage docks to cold store	5 0	5 0
Cold-storage rent—		
First fourteen days	15 9	15 0
First twenty-one days	22 3	17 6
First twenty-eight days	27 6	20 0
The total charges first month	40 7¼	32 3

1927 : The Board's Shipping Inspector took up with the Manager of the Mersey Dock Authority the anomaly of the master porterage rate for cheese as against butter, and eventually a reduction was obtained from 4s. 8d. to 3s. 3¾d., a saving of 1s. 4¼d. per ton.

Arrangements were also made for rates for storage on butter, as follows : First week, 11s. ; second week, 14s. ; third week, 20s. ; fourth week, 24s. The total cost, therefore, including one week's storage, was 24s. 1¼d.

1929 : In this year a contract was arranged with the Union Cold Storage Co. to handle all butter discharged on a similar basis to London—namely, a consolidated rate, including dock dues, master porterage, transport from dock to cold store, sorting to marks, redelivery to land vehicle, and one week's storage from first day of landing.

As above, 18s. 6d., a reduction of 5s. 7¼d. Rent for second and following weeks : per week, 6s.

1931 : A reduction of 3½ per cent. on the consolidated rate was made, bringing this rate to 17s. 10·2d. per ton.

1932 : The contract having expired, a new contract was arranged, the consolidated rate now being 16s. 6d. per ton, the second and following week's rent remaining at 6s. per ton.

MANCHESTER.

Owing to difficulties that arose at this port through the Provision Exchange Rules, no contract was concluded until January, 1933, although the rates had practically been arranged in 1927 when the London rates were arranged.

The following arrangement was finalized on the above date. The consolidated rate includes the Manchester Ship Canal dues, taking delivery at docks, transport from docks to Trafford Park Cold Stores in insulated railway-vans, sorting to marks, piling in cold store, delivery to road vehicle, and first seven days' storage.

	s.	d.
First seven days	16	6
Each subsequent seven days or part thereof	3	6
If delivered from cold-store platform within seventy-two hours of landing and notice given of same before the arrival of vessel	10	11
In the event of the butter being discharged at Liverpool, the consolidated rate for immediate delivery ex cold-store platform at Trafford Park, delivery within seventy-two hours, no cold storage	13	4
If cold-stored, the rates are same as above, namely	16	6

Prior to 1928 for a similar service for cold storage and one week's rent, including canal dues and cartage to city stores, the rate was for city stores 25s. 8d., and at Trafford Park 19s. 11d.

If delivery taken at docks for immediate sale, no storage, the rates were 14s. 8d. in all cases, including canal dues.

GLASGOW.

No contract has been made so far as this port, but when negotiations were arranged in 1927 certain reductions were obtained without contracts.

		s.	d.
1926.	Rates—		
	Dock dues	3	0
	Master porterage	4	7½
	Cartage to cold store	3	0
	Union cold-storage rate (one month)	22	6
	Total	33	1½
1927.	The rates were arranged with Clyde Cold Stores—	s.	d.
	Dock dues	3	0
	Master porterage	4	7½
	Cartage	2	6
	One week's cold storage	10	0
		20	1½

	s.	d.
If fourteen days in cold storage	22	7½
If twenty-one days in cold storage	25	1½
If twenty-eight days in cold storage	27	1½

In 1932 a reduction of 5 per cent. was made on the master porterage rate, making this rate 4s. 4·6d. instead of 4s. 7½d.

It will be seen that an advantage was gained in obtaining a weekly storage rate, and if lifted within fourteen days of landing, a saving of *11s. was made under the rate as arranged.*

ACKNOWLEDGMENT.

The Commission has drawn extensively, for statistical and other information contained in the Appendices, on "Dairy Produce Supplies in 1932" and "Dairy Produce Supplies in 1933," published by H.M. Stationery Office, London.

STATISTICAL APPENDIX.

TABLE 1.

TABLE AND INDEX NUMBERS SHOWING INCREASE IN TOTAL COWS IN MILK AND DRY, AVERAGE BUTTER-FAT PRODUCTION PER COW, AND TOTAL BUTTERFAT PRODUCED.

Season.	Total Cows in Milk and Dry.		Butterfat per Cow: New Zealand Average.		Butterfat Production.	
	Total, in Thousands.	Index (1919–20 = 100).	Average, in Pounds.	Index (1919–20 = 100).	Total, in Millions of Pounds.	Index (1919–20 = 100).
1901–2 ..	381	42·7	127·20	83·7	49	35·7
1902–3 ..	429	47·9	123·48	81·3	53	39·0
1903–4 ..	468	52·4	130·34	85·8	61	44·9
1904–5 ..	498	55·7	127·83	84·1	64	46·9
1905–6 ..	518	57·9	124·74	82·1	65	47·5
1906–7 ..	544	60·9	124·79	82·1	68	50·0
1907–8 ..	541	60·6	127·66	84·0	69	50·8
1908–9 ..	537	60·0	139·25	91·7	75	55·0
1909–10 ..	583	65·3	148·45	97·6	87	63·7
1910–11 ..	634	70·9	139·46	91·8	88	65·0
1911–12 ..	656	73·5	140·10	92·2	92	67·6
1912–13 ..	678	75·9	150·78	99·2	102	75·2
1913–14 ..	701	78·5	156·52	103·0	110	81·0
1914–15 ..	725	81·2	154·07	101·3	112	82·3
1915–16 ..	750	84·0	160·52	105·7	120	88·7
1916–17 ..	777	87·0	163·96	108·0	127	93·8
1917–18 ..	793	88·9	152·23	100·2	121	88·9
1918–19 ..	826	92·5	150·64	99·1	124	91·6
1919–20 ..	893	100·0	152·04	100·0	136	100·0
1920–21 ..	1,005	112·5	154·25	101·4	155	114·1
1921–22 ..	1,137	127·2	174·97	115·1	199	146·5
1922–23 ..	1,249	139·7	180·62	118·8	226	166·0
1923–24 ..	1,313	146·9	174·10	114·5	229	168·2
1924–25 ..	1,323	148·1	182·09	119·8	241	177·4
1925–26 ..	1,304	145·9	179·40	118·0	234	172·1
1926–27 ..	1,303	145·9	198·50	130·6	259	190·4
1927–28 ..	1,352	151·3	195·38	128·5	264	194·5
1928–29 ..	1,371	153·5	210·84	138·7	289	212·8
1929–30 ..	1,441	161·2	218·05	143·5	314	234·9
1930–31 ..	1,602	179·1	201·05	132·2	322	237·5
1931–32 ..	1,702	190·5	199·65	131·4	340	250·7
1932–33 ..	1,846	206·6	215·10	141·5	397	292·9
1933–34 ..	1,933	216·3	220·80	145·3	427	313·9

TABLE 2.

UTILIZATION OF TOTAL ESTIMATED BUTTERFAT PRODUCTION IN THE DOMINION.

(The estimation is for all butterfat in milk as at the pail.)

Season.	Butterfat for Butter.	Butterfat for Cheese (including Whey Butter).	Butterfat in Milk consumed.	Butterfat in Cream consumed.	Butterfat for other Dairy Products.	Butterfat in Milk fed to Calves and in Milk and Cream spilt and wasted.	Total Butterfat produced.
	lb.	lb.	lb.	lb.	lb.	lb.	lb.
1901–2	35,016,472	4,291,375	7,095,863	877,532	275,000	970,536	48,526,778
1902–3	39,346,079	4,070,442	7,269,006	898,945	300,000	1,058,867	52,943,339
1903–4	46,486,236	4,551,224	7,478,910	924,903	355,000	1,220,332	61,016,605
1904–5	48,740,072	4,659,252	7,692,725	951,345	375,000	1,273,845	63,692,239
1905–6	47,874,011	6,152,024	7,905,592	977,670	380,000	1,291,618	64,580,915
1906–7	48,412,170	8,525,018	8,169,099	1,010,258	400,000	1,357,481	67,874,026
1907–8	44,512,787	13,431,226	8,346,393	1,032,183	405,000	1,382,196	69,109,785
1908–9	48,132,711	14,980,744	8,612,514	1,065,094	440,000	1,494,511	74,725,574
1909–10	54,055,145	20,374,669	8,802,841	1,088,631	520,000	1,731,455	86,572,741
1910–11	55,965,397	20,038,949	8,971,552	1,109,496	530,000	1,767,661	88,383,055
1911–12	56,128,690	22,998,934	9,183,710	1,135,733	550,000	1,836,675	91,833,742
1912–13	60,200,111	28,788,881	9,416,205	1,164,485	620,000	2,044,687	102,234,369
1913–14	63,478,200	32,540,372	9,689,816	1,198,322	670,000	2,195,443	109,772,153
1914–15	64,580,179	33,320,078	9,786,602	1,210,291	628,145	2,235,210	111,760,505
1915–16	65,553,753	40,634,519	9,844,681	1,217,474	784,177	2,408,869	120,443,473
1916–17	70,699,562	42,347,831	9,825,045	1,215,046	835,515	2,549,449	127,472,448
1917–18	64,415,332	41,797,167	9,800,353	1,211,992	1,112,672	2,415,051	120,752,567
1918–19	60,560,737	47,628,423	9,891,750	1,223,295	2,657,895	2,489,022	124,451,122
1919–20	62,529,400	57,625,002	10,481,353	1,296,210	1,189,405	2,716,763	135,838,133
1920–21	86,289,100	49,950,775	10,741,255	1,328,352	3,563,218	3,099,443	154,972,143
1921–22	122,901,762	56,213,282	11,042,590	1,365,617	3,443,789	3,978,919	198,945,959
1922–23	153,579,405	52,658,559	11,264,588	1,393,071	2,120,187	4,510,527	225,526,337
1923–24	145,802,150	63,780,243	11,470,742	1,418,566	1,474,766	4,570,336	228,516,803
1924–25	160,090,656	61,020,797	11,704,612	1,447,488	1,902,311	4,819,711	240,985,575
1925–26	149,932,385	64,083,464	11,967,905	1,480,049	1,770,993	4,678,261	233,913,057
1926–27	171,329,058	66,579,951	12,209,829	1,509,967	1,890,384	5,173,861	258,693,050
1927–28	177,580,362	65,553,951	12,385,219	1,531,658	1,900,715	5,284,733	264,236,638
1928–29	191,983,119	75,391,935	12,529,237	1,549,468	1,835,348	5,781,410	289,070,517
1929–30	219,334,751	72,304,066	12,688,458	1,569,159	1,890,361	6,281,363	314,068,158
1930–31	223,733,816	75,478,174	12,863,258	1,590,776	1,900,000	6,440,123	322,006,147
1931–32	237,385,977	79,631,084	12,998,445	1,607,494	1,397,837	6,796,344	339,817,181
1932–33	282,003,967	90,877,774	13,099,374	1,619,976	1,526,242	7,941,374	397,068,707
1933–34	308,009,466	93,366,960	13,203,745	1,632,883	1,952,203	8,533,985	426,699,242

TABLE 3.

INTERNATIONAL BUTTER TRADE.—IMPORTS (NET).

Importing Country, &c.	1909–1913.		1924–1928.		1928.		1929.		1930.		1931.		1932.		1933.	
	Tons.	Per Cent.	Tons.	Per Cent.	Tons.	Per Cent.	Tons.	Per Cent.	Tons.	Per Cent.	Tons.	Per Cent.	Tons.	Per Cent.	Tons.	Cent. Per
United Kingdom	208,400	72·2	289,000	69·0	297,500	64·5	313,700	63·3	332,500	63·6	385,500	69·4	402,800	76·4	437,500	82·3
Irish Free State			3,100	0·8	2,600	0·6	2,100	0·4	1,500	0·3	1,500	0·3	1,200	0·2	..	..
Germany	49,800*	17·3	95,300	22·8	124,600	27·0	132,300	26·7	131,100	25·0	98,700	17·8	68,400	13·0	58,200	10·9
Belgium	6,300*	2·2	2,700	0·6	1,300	0·3	4,200	0·8	10,000	1·9	18,500	3·3	20,900	4·0	12,200	2·3
France	6,200*	2·2	3,000	0·7	2,600	0·6	4,300	0·9	5,700	1·1	18,200	3·3	11,700	2·2	9,100	1·7
Switzerland	5,000	1·7	8,400	2·0	8,000	1·7	7,500	1·5	8,400	1·6	10,400	1·9	3,600	0·7	500	0·1
Italy	100*	0·0	100	0·0	1,600	0·3	800	0·2	1,400	0·3	2,700	0·5	1,700	0·3	1,000	0·2
Other countries†	12,800‡	4·4	17,100	4·1	22,900	5·0	30,600	6·2	32,500	6·2	19,400	3·5	17,100	3·2	13,100	2·5
Total	288,600	100·0	418,700	100·0	461,100	100·0	495,500	100·0	523,100	100·0	554,900	100·0	527,400	100·0	531,600	100·0
Empire	208,400	72·2	292,100	69·8	300,100	65·1	315,800	63·7	334,000	63·9	387,000	69·7	404,000	76·6	437,500	82·3
Foreign	80,200	27·8	126,600	30·2	161,000	34·9	179,700	36·3	189,100	36·1	167,900	30·3	123,400	23·4	94,100	17·7
Total	288,600	100·0	418,700	100·0	461,100	100·0	495,500	100·0	523,100	100·0	554,900	100·0	527,400	100·0	531,600	00·0

* Averages for period 1909–1913 are not strictly comparable with subsequent years owing to changes in territory or method of compilation.
† Czechoslovakia, Netherlands, Dutch East Indies, Algeria, British India, British Malaya, and Canada.
‡ Data unavailable for Czechoslovakia and British Malaya; average for Dutch East Indies is for 1912–1913 and for a portion of British India, 1911–1913.

TABLE 4.

International Butter Trade.—Exports.

Exporting Country.	1910–1914.		1922–1924.		1928.		1929.		1930.		1931.		1932.		1933.		Six Months ended June,	
	Tons.	Per Cent.	Tons.	Per Cent.	Tons.	Per Cent.	Tons.	Per Cent.	Tons.	Per Cent.	Tons.	Per Cent.	Tons.	Per Cent.	Tons.	Per Cent.	1933.	1934.
Empire Countries.																	Tons.	Tons.
New Zealand	18,433	5·7	60,663	18·3	72,500	15·1	82,700	16·4	94,200	17·9	99,500	17·6	109,300	20·1	131,800	24·1	62,468	72,000
Australia	37,063*	11·4	40,440	12·2	50,400	10·5	47,100	9·3	56,500	10·8	85,700	15·1	102,300	18·9	94,400	17·3	40,649†	54,902†
Irish Free State	37,470	11·5	23,845‡	7·2	27,400	5·7	28,000	5·6	26,200	5·0	18,900	3·3	16,500	3·0	20,200	3·7	§	§
Total Empire	92,966	28·6	124,948	37·7	150,300	31·3	157,800	31·3	176,900	33·7	204,100	36·0	228,100	42·0	246,400	45·1	..	..
Foreign Countries.																		
Denmark	88,486	27·2	108,444	32·8	145,400	30·4	156,500	31·0	166,400	31·7	168,900	29·8	155,000	28·6	147,900	27·0	77,329	78,367
Scandinavia‖	86,942	26·7	32,846	10·0	30,500	6·4	41,300	8·2	43,100	8·2	37,100	6·6	28,600	5·3	28,900	5·3	12,210¶	17,160¶
Russia					32,100	6·7	25,000	5·0	10,400	2·0	30,300	5·4	30,500	5·6	36,600	6·7	6,725**	7,966**
Baltic countries††					37,300	7·8	45,800	9·1	50,700	9·7	53,500	9·5	41,600	7·7	35,600	6·5	12,960¶	13,525¶
Netherlands	34,945	10·7	26,833	8·1	46,200	9·6	46,600	9·2	41,300	7·9	32,400	5·7	20,000	3·7	27,900	5·1	17,011	20,417
Argentina	2,994	0·9	26,282	7·9	19,600	4·1	16,600	3·3	22,200	4·2	22,000	3·9	25,400	4·7	13,200	2·4	8,320	3,720
Other countries‡‡	19,273§§	5·9	11,484§§	3·5	17,500	3·7	14,600	2·9	13,600	2·6	17,700	3·1	12,900	2·4	10,300	1·9	§	§
Total foreign	232,640	71·4	205,889	62·3	328,600	68·7	346,400	68·7	347,700	66·3	361,900	64·0	314,000	58·0	300,400	54·9	..	..
Grand total	325,606	100·0	330,837	100·0	478,900	100·0	504,200	100·0	524,600	100·0	566,000	100·0	542,100	100·0	546,800	100·0	..	..

* 1911–1913 only. † Exports to United Kingdom only. ‡ 1923–1924 only. § Not available. ‖ Norway, Sweden, and Finland. ¶ Not including Norway and Poland. ** For five month ended 31st May. †† Estonia, Latvia, Lithuania, and Poland. ‡‡ Canada, United States of America, Belgium, Austria, Hungary, France, Union of South Africa, and South West African Territory. §§ Canada, France, Union of South Africa.

TABLE 5.

BUTTER IMPORTS INTO GERMANY AND FRANCE, SHOWING EXPORTING COUNTRIES (IN TONS).

Exporting Country.	Germany.								France.							
	1930.		1931.		1932.		1933.		1930.		1931.		1932..		1933.	
	Quantity.	Per Cent.	Quantity.	Per Cent.	Quantity.	Per Cent.	Quantity.	Per Cent.	Quantity.	Per Cent.	Quantity.	Per Cent.	Quantity.	Per Cent.	Quantity.	Per Cent.
Denmark ..	43,270	33·0	30,155	30·6	13,035	19·1	16,362	28·1	2,530	44·0	5,138	28·2	1,998	17·2	1,365	15·1
Netherlands ..	27,910	21·2	16,091	16·3	8,764	12·8	11,358	19·5	928	16·1	3,259	17·8	3,150	27·0	2,496	27·6
Latvia ..	14,670	11·2	11,885	12·0	9,130	13·4	6,168	10·6	*	..	*	..	*	..	507	5·6
Finland ..	5,090	3·9	4,002	4·1	2,955	4·3	5,024	8·6	..	..	..	..	..	..	..	..
Sweden ..	10,980	8·4	6,660	6·8	3,895	5·7	4,838	8·3	..	..	..	..	..	..	..	..
Russia ..	3,085	2·4	7,519	7·6	13,079	19·1	4,632	8·0	..	..	..	..	..	..	..	..
Estonia ..	8,885	6·8	6,130	6·2	5,910	8·6	3,511	6·0	73	1·3	413	2·3	331	2·8	317	3·5
Latvia ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Poland ..	7,070	5·4	7,071	7·2	801	1·2	1,476	2·5	..	..	..	..	..	..	..	..
Hungary ..	1,020	0·8	897	0·9	986	1·4	511	0·9	*	..	*	..	*	..	758	8·4
Australia ..	20	..	1,482	1·5	1,158	1·7	268	0·5	} 731	12·7	3,687	20·2	1,118	9·6	192	2·1
New Zealand	525	0·4	100	0·1	900	1·3	99	0·2								
Argentine ..	190	0·1	342	0·4	587	0·9	84	0·2	568	9·9	1,276	7·0	2,875	24·7	2,191	24·2
Lithuania ..	5,615	4·3	4,206	4·2	5,488	8·0	2,917	5·0	..	..	..	..	..	..	..	..
Other countries	2,720	2·1	2,110	2·1	1,712	2·5	952	1·6	920	16·0	4,477	24·5	2,178	18·7	1,224	13·5
Totals ..	131,050	..	98,650	..	68,400	..	58,200	..	5,750	..	18,250	..	11,650	..	9,050	..

* Included in "Other Countries."

TABLE 6.

BUTTER IMPORTS INTO BELGIUM AND SWITZERLAND, SHOWING EXPORTING COUNTRIES (IN TONS).

Exporting Country.	Belgium.								Switzerland.							
	1930.		1931.		1932.		1933.		1930.		1931.		1932.		1933.	
	Quantity.	Per Cent.	Quantity.	Per Cent.	Quantity.	Per Cent.	Quantity.	Per Cent.	Quantity.	Per Cent.	Quantity.	Per Cent.	Quantity.	Per Cent.	Quantity.	Per Cent.
Denmark ..	3,740	37·4	6,530	35·2	9,780	46·8	6,570	53·8	4,169	49·6	5,735	55·1	1,980	54·3	208	41·6
Netherlands ..	3,725	37·3	4,570	24·6	3,150	15·1	2,347	19·2	..	..	..	..	..	..	..	..
Latvia ..	240	2·4	795	4·3	650	3·1	142	1·2	..	..	..	..	..	..	..	..
Finland ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Sweden ..	..	..	..	..	..	..	..	..	270	3·2	188	1·8	49	1·3	*	..
Russia ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Estonia ..	*	..	1,785	9·6	760	3·6	29	0·2	} ..							
Latvia ..	..	..	..	..	..	..	..	..	} 300	3·6	494	4·8	114	3·1	135	27·0
Lithuania ..	*	..	680	3·7	260	1·3	374	3·1	232	4·8	494	4·8	27	0·7	*	..
Poland ..	610	6·1	895	4·8	510	2·4	24	0·2	1,261	15·0	1,793	17·2	262	7·2	*	..
Hungary ..	..	..	..	..	..	..	..	..	*	..	*	..	5	0·1	10	2·0
Australia ..	} 760	7·6	2,145	11·6	4,065	19·5	1,131	9·3	{ ..	..	..	..	..	..	..	..
New Zealand ..									..	..	34	0·3	..	..	..	..
Argentine ..	*	..	*	..	550	2·6	179	1·5	438	5·2	778	7·5	712	19·5	39	7·8
Other countries	925	9·2	1,150	6·2	1,175	5·6	1,404	11·5	1,730	20·6	795	7·6	436	12·0	108	21·6
Totals ..	10,000	..	18,550	..	20,900	..	12,200	..	8,400	..	10,400	..	3,650	..	500	..

* Included in "Other Countries."

TABLE 7.

INTERNATIONAL CHEESE TRADE.

(NOTES.—Cheese quantities are given to nearest hundred tons. Calendar years.)

Importing Country, &c.	1909–1913.		1924–1928.		1928.		1929.		1930.		1931.		1932.		1933.	
	Tons.	Per Cent.	Tons.	Per Cent.	Tons.	Per Cent.	Tons.	Per Cent.	Tons.	Per Cent.	Tons.	Per Cent.	Tons.	Per Cent.	Tons.	Per Cent.
IMPORTS (GROSS).																
United Kingdom	118,000	47·9	149,500	46·4	150,300	45·3	149,700	44·0	155,600	45·5	144,300	44·0	150,300	49·9	150,900	54·4
Germany	21,700	8·8	62,100	19·3	60,500	18·2	65,400	19·3	61,400	17·9	53,800	16·4	48,500	16·1	40,600	14·6
Belgium	14,200	5·8	16,100	5·0	17,400	5·3	20,700	6·1	22,800	6·7	22,100	6·7	20,400	6·8	21,600	7·8
France	21,900	8·9	18,000	5·6	19,500	5·9	22,800	6·7	29,200	8·5	37,000	11·3	23,300	7·7	20,600	7·4
United States of America ..	20,700	8·4	32,200	10·0	36,300	10·9	34,100	10·0	30,500	8·9	27,700	8·5	24,800	8·2	21,600	7·8
Other countries	49,900	20·2	44,000	13·7	47,700	14·4	47,200	13·9	42,700	12·5	43,000	13·1	33,900	11·3	22,300	8·0
Total	246,400	100·0	321,900	100·0	331,700	100·0	339,900	100·0	342,200	100·0	327,900	100·0	301,200	100·0	277,600	100·0
Empire (United Kingdom only) ..	118,000	47·9	149,500	46·4	150,300	45·3	149,700	44·0	155,600	45·5	144,300	44·0	150,300	49·9	150,900	54·4
Foreign	128,400	52·1	172,400	53·6	181,400	54·7	190,200	56·0	186,600	54·5	183,600	56·0	150,900	50·1	126,700	45·6
Total	246,400	100·0	321,900	100·0	331,700	100·0	339,900	100·0	342,200	100·0	327,900	100·0	301,200	100·0	277,600	100·0
EXPORTS (GROSS).																
Canada	74,700	30·0	56,400	17·1	50,900	15·1	41,500	12·1	35,800	10·6	37,900	11·8	38,800	12·9	33,100	11·6
New Zealand	24,800	10·0	74,900	22·7	78,400	23·2	88,900	25·9	90,600	26·7	81,800	25·4	89,500	29·7	99,300	35·0
Netherlands	56,900	22·9	84,800	25·7	90,600	26·9	94,300	27·5	92,300	27·2	85,000	26·4	75,900	25·2	62,900	22·2
Switzerland	31,400	12·6	26,400	8·0	33,500	9·9	31,100	9·1	29,500	8·7	24,200	7·5	19,500	6·5	20,200	7·1
France	14,300	5·8	15,500	4·7	18,700	5·5	18,100	5·3	17,400	5·1	15,300	4·8	13,000	4·3	11,200	3·9
Italy	27,000	10·9	34,200	10·4	31,300	9·3	32,100	9·3	36,100	10·7	39,700	12·4	29,600	9·8	23,500	8·3
Other countries	19,400	7·8	37,600	11·4	34,000	10·1	36,900	10·8	37,200	11·0	37,600	11·7	35,000	11·6	33,800	11·9
Total	248,500	100·0	329,800	100·0	337,400	100·0	342,900	100·0	338,900	100·0	321,500	100·0	301,300	100·0	284,000	100·0
Empire (Canada and New Zealand)	99,500	40·0	131,300	39·8	129,300	38·3	130,400	38·0	126,400	37·3	119,700	37·2	128,300	42·6	132,400	46·6
Foreign	149,000	60·0	198,500	60·2	208,100	61·7	212,500	62·0	212,500	62·7	201,800	62·8	173,000	57·4	151,600	53·4
Total	248,500	100·0	329,800	100·0	337,400	100·0	342,900	100·0	338,900	100·0	321,500	100·0	301,300	100·0	284,000	100·0
RE-EXPORTS.																
United Kingdom	3,100	..	3,000	..	1,500	..	1,600	..	1,500	..	1,500	..	1,400	..	..	..

TABLE 8.

Imports of Cheese into Chief Importing Countries (in Tons).

From	Germany.								United States.							
	1930.		1931.		1932.		1933.		1930.		1931.		1932.		1933.	
	Quantity.	Per Cent.	Quantity.	Per Cent.	Quantity.	Per Cent.	Quantity.	Per Cent.	Quantity.	Per Cent.	Quantity.	Per Cent.	Quantity.	Per Cent.	Quantity.	Per Cent.
Netherlands ..	38,080	62·6	33,462	62·2	32,033	66·0	23,898	58·9	1,116	3·7	1,125	4·1	1,039	4·2	825	3·8
Switzerland ..	5,440	8·9	2,612	4·9	1,202	2·5	1,315	3·2	3,580	11·7	5,760	20·8	4,578	18·4	3,738	17·3
Italy ..	1,940	3·2	2,746	5·1	827	1·7	232	0·6	14,833	48·6	14,528	52·4	13,912	56·0	11,110	51·4
Denmark ..	5,015	8·5	3,728	6·9	5,484	11·3	8,162	20·1	..	..	..	..	..	..	..	..
France ..	1,220	2·0	520	1·0	185	0·4	..	..	2,057	6·8	1,928	7·0	1,901	7·7	1,330	6·2
Other countries	4,340	7·1	4,226	7·9	2,718	5·6	2,188	5·4	8,910	29·2	4,335	15·7	3,400	13·7	4,600*	21·3
Finland ..	2,015	3·3	2,397	4·5	2,768	5·7	2,354	5·8	..	..	..	..	..	..	..	..
Norway ..	115	0·2	750	1·4	1,118	2·3	1,063	2·6	..	..	..	..	..	..	..	..
United Kingdom	1,140	1·8	666	1·2	701	1·4	804	2·0	..	..	..	..	..	..	..	..
Czechoslovakia	1,470	2·4	2,648	4·9	1,498	3·1	577	1·4	..	..	..	..	..	..	..	..
Totals ..	60,750	..	53,754	..	48,523	..	40,592	..	30,496	..	27,675	..	24,830	..	21,606	..

From	France.								Belgium.							
	1930.		1931.		1932.		1933.		1930.		1931.		1932.		1933.	
	Quantity.	Per Cent.	Quantity.	Per Cent.	Quantity.	Per Cent.	Quantity.	Per Cent.	Quantity.	Per Cent.	Quantity.	Per Cent.	Quantity.	Per Cent.	Quantity.	Per Cent.
Netherlands ..	12,672	43·3	13,567	36·7	9,423	40·4	6,882	33·4	18,729	82·1	17,573	79·3	17,375	84·9	17,042	78·9
Switzerland ..	3,425	11·7	4,743	12·8	4,971	21·3	6,156	29·9	848	3·7	891	4·0	809	4·0	824	3·8
Italy ..	8,109†	27·7	12,061†	32·6	6,045†	25·9	4,743†	23·0	†	..	†	..	†	..	†	..
Totals ..	29,250	..	36,950	..	23,300	..	20,600	..	22,800	..	22,150	..	20,450	..	21,600	..

* Finland most important. † Source of balance of imports not known.

TABLE 9.

Butter Imports into the United Kingdom (Gross).

Country whence consigned.	1900–1904.		1909–1913.		1922–1926.		1927–1930.		1931.		1932.		1933.		Eight Months ended August,			
															1933.		1934.	
	Tons.	Per Cent.	Tons.	Per Cent.	Tons.	Per Cent.	Tons.	Per Cent.	Tons.	Per Cent.	Tons.	Per Cent.	Tons.	Per Cent.	Tons.	Per Cent.	Tons.	Per Cent.
Empire Countries.																		
New Zealand	10,350	5·3	15,200	7·3	57,250	21·7	66,800	21·3	96,300	23·9	106,950	25·6	125,600	28·4	86,200	28·1	96,800	27·2
Australia	12,850	6·8	31,050	14·9	40,350	15·3	38,500	12·3	77,900	19·3	89,750	21·5	84,700	19·2	59,450	19·4	76,700	21·5
Irish Free State	..	..	..	..	18,550	7·0	27,900	8·9	19,050	4·7	15,750	3·8	18,950	4·3	16,550	5·4	17,250	4·8
Canada	10,950	5·6	1,000	0·5	5,550	2·1	50	0·0	3,900	1·0	950	0·2	1,650	0·4				
Union of South Africa									2,000	0·5	1,850	0·4	1,300	0·3				
South-west African Territory	50	0·0	50	0·0	300	0·2	150	0·0	..	..	1,100	0·3	300	0·1	1,800	0·6	1,500	0·4
Kenya									300	0·1	350	0·1	250	0·1				
Other British countries									50	0·0	100	0·0	100	0·0				
Foreign Countries.																		
Denmark	82,700	42·7	85,200	40·9	85,600	32·5	106,650	34·0	123,300	30·6	129,200	30·9	125,950	28·5	86,700	28·2	90,700	25·5
Russia					8,650	3·3	14,300	4·5	20,200	5·0	16,150	3·9	28,150	6·4	17,350	5·7	19,100	5·4
Finland					7,250	2·8	10,900	3·5	12,700	3·2	10,850	2·6	6,700	1·5	4,800	1·6	6,000	1·7
Estonia	19,700	10·2	32,600	15·7	1,150	0·4	4,300	1·4	6,250	1·5	4,150	1·0	4,150	0·9	2,900	0·9	4,450	1·3
Latvia					2,100	0·8	2,700	0·9	1,950	0·5	5,600	1·3	7,300	1·7	4,900	1·6	6,100	1·7
Sweden	9,850	5·1	16,850	8·1	3,500	1·3	10,850	3·4	10,600	2·6	8,800	2·1	11,350	2·6	6,600	2·1	11,700	3·3
Netherlands	15,700	8·1	6,750	3·2	5,700	2·2	6,500	2·1	4,800	1·2	2,350	0·6	7,300	1·6	6,800	2·2	12,700	3·6
Argentina	2,800	1·4	3,050	1·5	23,850	9·1	18,800	6·0	18,700	4·6	19,550	4·7	10,150	2·3	7,650	2·5	3,550	1·0
Lithuania									2,000	0·5	3,400	0·8	5,200	1·2				
Hungary									..	..	..	..	1,550	0·3				
Austria									..	..	..	..	450	0·1				
Germany	28,650	14·8	16,600	7·9	3,450	1·3	5,500	1·7	400	0·1	200	0·0	200	0·0	5,050	1·7	9,450	2·6
Norway									650	0·2	750	0·2	150	0·0				
France									50	0·0	100	0·0	50	0·0				
Poland									1,650	0·4	150	0·0	..	..				
Other foreign countries									250	0·1	150	0·0	250	0·1				
Totals, Empire countries	34,200	17·7	47,300	22·7	122,000	46·3	133,400	42·5	199,500	49·5	216,800	51·9	232,850	52·8	164,000	53·5	192,250	53·9
Totals, foreign countries	159,400	82·3	161,050	77·3	141,250	53·7	180,500	57·5	203,500	50·5	201,400	48·1	208,900	47·2	142,750	46·5	163,750	46·1
Totals, all countries	193,600	100·0	208,350	100·0	263,250	100·0	313,900	100·0	403,000	100·0	418,200	100·0	441,750	100·0	306,750	100·0	356,000	100·0
Re-exports	..	..	..	..	..	..	8,700	..	17,550	..	15,250	..	4,300	..	..	..	..	..

TABLE 10.

CHEESE IMPORTS INTO THE UNITED KINGDOM (GROSS).

Country whence consigned.	1900–1904.		1909–1913.		1920–1924.		1925–1929.		1931.		1932.		1933.		Eight Months ended August, 1933.		Eight Months ended August, 1934.	
	Tons.	Per Cent.	Tons.	Per Cent.	Tons.	Per Cent.	Tons.	Per Cent.	Tons.	Per Cent.	Tons.	Per Cent.	Tons.	Per Cent.	Tons.	Per Cent.	Tons.	Per Cent.
New Zealand	3,500	2·7	23,100	19·6	67,050	48·1	78,550	52·2	86,650	60·1	92,450	61·6	102,950	67·7	80,800	78·4	81,500	80·1
Canada	85,150	65·1	72,950	61·8	52,800	37·8	48,000	31·8	35,350	24·5	37,350	24·9	31,500	20·7	9,950	9·7	8,250	8·1
Australia	50	..	250	0·2	3,350	2·4	2,850	1·9	3,400	2·4	3,700	2·5	4,650	3·1	3,800	3·7	3,650	3·5
Union of South Africa									750	0·5	850	0·6	650	0·4				
Irish Free State	..	..	..	..	200	0·1	200	0·1	100	0·1	100	0·1	50	0·1	650	0·6	200	0·2
Other British countries									..	..	..	..	..	..				
Netherlands	14,650	11·2	12,900	10·9	7,650	5·5	9,850	6·6	8,400	5·8	8,500	5·6	6,100	4·0	3,850	3·8	3,950	3·9
Italy	100	0·1	4,300	3·7	2,900	2·1	7,200	4·7	6,600	4·6	5,300	3·5	4,500	3·0	2,900	2·8	3,200	3·1
Switzerland	..	..	600	0·5	750	0·5	1,450	1·0	1,600	1·1	700	0·4	700	0·5	450	0·4	450	0·5
France	1,800	1·4	900	0·8	650	0·5	1,200	0·8	600	0·4	450	0·3	350	0·2				
Denmark	..	..	..	..	1,200	0·9	350	0·2	250	0·2	300	0·2	300	0·2				
Belgium	3,600	2·7	50	..	600	0·4	100	0·1	100	0·1	50	..	50	..				
United States of America	21,950	16·7	2,850	2·4	2,050	1·5	600	0·4	200	0·1	..	..	..	..				
Finland									150	0·1	150	0·1	100	0·1	550	0·6	600	0·6
Germany									50	..	50	..	..	..				
Norway	100	0·1	100	0·1	350	0·2	250	0·2	50	..	100	0·1	50	..				
Other foreign countries									50	..	100	0·1	50	..				
Total, Empire countries	88,700	67·8	96,310	81·6	123,400	88·4	129,600	86·0	126,250	87·6	134,450	89·7	139,800	92·0	95,200	92·4	93,600	91·9
Total, foreign countries	42,200	32·2	21,700	18·4	16,150	11·6	21,000	14·0	18,050	12·4	15,700	10·3	12,200	8·0	7,750	7·6	8,200	8·1
Total, all countries	130,900	100·0	118,000	100·0	139,550	100·0	150,600	100·0	144,300	100·0	150,150	100·0	152,000	100·0	102,950	100·0	101,800	100·0

TABLE 11.

GROSS MONTHLY BUTTER IMPORTS TO THE UNITED KINGDOM FROM NEW ZEALAND, AUSTRALIA, DENMARK, AND OTHER COUNTRIES, IN THOUSANDS OF TONS.

——	New Zealand	Australia.	Denmark.	Others.	Total.	New Zealand	Australia.	Denmark.	Others.	Total.
			1929.					*1930.*		
January	10·0	5·9	8·1	6·1	30·1	9·8	7·6	8·1	6·7	32·2
February..	8·0	3·9	8·1	4·1	24·1	7·4	4·1	8·3	6·4	26·2
March	12·8	4·4	7·8	5·3	30·3	7·1	6·0	9·1	6·1	28·3
April	5·0	4·8	10·8	9·7	30·3	10·7	3·4	8·8	6·3	29·2
May	6·7	4·9	9·4	10·8	31·8	6·6	5·0	9·3	9·5	30·4
June	3·2	2·8	10·6	13·9	30·5	3·8	3·4	13·0	14·0	34·2
July	2·4	1·2	9·8	16·8	30·2	4·5	1·0	10·6	10·9	27·0
August	2·2	0·7	11·0	12·4	26·3	5·5	1·2	10·0	10·5	27·2
September	1·8	0·9	8·1	7·8	18·6	3·6	1·4	9·8	10·0	24·8
October	1·6	1·1	9·5	6·7	18·9	3·7	2·7	10·6	8·8	25·8
November	5·8	2·8	7·5	6·2	22·3	6·7	3·5	8·1	4·8	23·1
December	6·2	5·0	9·5	6·2	26·9	9·1	8·3	10·2	5·4	33·0
			1931.					*1932.*		
January	11·5	9·6	7·9	4·8	33·8	10·5	9·2	8·7	4·9	33·3
February..	11·5	6·1	7·7	4·6	29·9	8·4	11·6	9·0	5·4	34·4
March	8·1	6·1	9·1	4·8	28·1	12·9	8·9	7·3	3·7	32·8
April	9·1	7·6	10·7	6·1	33·5	9·3	5·6	9·1	6·0	30·0
May	8·5	7·4	10·8	9·5	36·2	8·7	5·9	12·8	7·4	34·8
June	5·7	7·4	12·6	12·2	37·9	7·1	6·1	14·3	11·7	39·2
July	7·8	4·0	12·2	16·4	40·4	7·5	4·4	13·4	15·0	40·3
August	5·8	3·3	11·4	12·4	32·9	5·1	5·7	13·0	10·8	34·6
September	4·9	3·4	11·0	10·5	29·8	7·7	4·5	11·0	11·8	35·0
October	4·4	5·7	11·2	10·7	32·0	3·1	5·4	10·7	8·8	28·0
November	6·6	5·7	9·5	8·0	29·8	11·3	8·5	10·1	3·8	33·7
December	12·8	11·6	9·2	5·6	39·0	15·4	14·0	9·8	3·0	42·2
			1933.					*1934.*		
January	12·7	12·0	8·7	3·9	37·3	16·1	13·6	10·3	5·0	45·0
February..	9·5	9·2	8·6	4·0	31·3	13·8	11·8	8·9	5·0	39·5
March	13·9	11·7	10·0	5·8	41·4	18·1	12·5	10·6	5·8	47·0
April	11·0	9·4	11·2	6·6	38·2	9·3	9·0	10·4	8·0	36·7
May	8·7	8·7	11·9	9·0	38·3	14·4	10·0	13·2	12·1	49·7
June	12·8	4·0	13·3	12·6	42·7	8·5	7·8	14·4	19·6	50·3
July	6·3	2·3	12·2	15·8	36·6	9·8	7·6	12·3	17·8	47·5
August	11·3	2·2	10·8	16·6	40·9	..	..	..	..	40·3
September	7·9	1·6	11·2	11·4	32·1	..	..	..	..	28·3
October	7·6	3·5	9·7	9·2	30·0	..	..	..	..	..
November	11·4	6·5	8·9	5·2	32·0	..	..	..	..	..
December	12·5	13·6	9·5	5·3	40·9	..	..	..	..	..

TABLE 12.

AVERAGE MONTHLY QUOTATIONS FOR NEW ZEALAND BUTTER.
(Shillings per hundredweight, to nearest shilling.)

—	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
1924	210–213	200–204	171–174	154–157	167–170	176–178	187–191	198–202	210–212	223–226	210–212	202–205
1925	165–168	170–172	174–177	164–166	167–170	179–181	189–192	196–198	206–209	220–224	206–209	173–177
1926	173–175	173–176	171–174	172–175	169–171	174–176	170–172	172–174	160–164	145–150	143–148	166–169
1927	172–174	170–173	154–157	151–154	160–162	162–166	158–161	167–172	177–182	176–179	172–175	162–165
1928	154–158	161–166	170–174	165–168	164–168	171–174	179–183	181–184	181–184	177–184	173–179	181–185
1929	183–186	177–180	165–168	162–164	165–167	168–171	170–173	170–174	176–181	178–184	170–174	160–165
1930	153–157	147–150	134–137	124–128	127–131	131–134	134–137	131–134	125–128	113–119	105–112	109–113
1931	114–116	119–122	116–118	109–111	108–110	109–112	112–114	110–114	111–115	116–121	107–113	100–103
1932	97–100	105–107	108–110	104–107	95– 97	96– 98	103–104	107–109	110–114	101–110	90– 96	83– 85
1933	81– 82	76– 79	72– 75	67– 69	76– 78	78– 81	79– 80	88– 90	98–102	95– 99	82– 86	68– 70
1934	66– 67	69– 70	71– 72	71	76– 77	71– 78	74– 75	79– 81	71– 74	..	..	..

AVERAGE MONTHLY QUOTATIONS FOR DANISH BUTTER.
(Shillings per hundredweight, to nearest shilling.)

—	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
1924	220–222	214–217	204–207	171–174	196–198	182–185	201–205	211–214	219–221	241–244	226–229	234–237
1925	206–208	223–226	226–228	196–198	182–184	194–196	195–197	210–211	222–222	226–230	217–218	187–190
1926	180–181	194–195	190–192	182–183	174–175	176–178	174–176	177–179	179–181	179–182	173–174	184–186
1927	180–181	190–192	181–182	176–179	163–165	164–166	160–162	173–174	191–194	192–194	170–174	187–188
1928	175–177	184–186	194–196	182–184	177–178	171–173	180–182	185–187	195–197	192–194	197–199	208–209
1929	192–193	192–194	177–179	161–166	165–167	173–174	173–175	175–176	193–196	197–201	189–191	175–179
1930	171–173	174–176	157–159	138–140	132–134	138–140	149–151	147–148	149–151	149–151	140–142	138–139
1931	134–136	146–149	135–137	123–124	119–120	117–119	117–119	122–125	130–131	132–134	131–132	136–137
1932	124–125	142–143	125–127	116–117	104–104	101–102	111–112	112–113	122–124	118–119	122–123	121–122
1933	109–111	107–107	95– 98	93– 94	92– 94	90– 91	95– 97	103–104	112–114	111–112	118–119	109–110
1934	89– 90	92	93– 94	83	85	86	89	106	105	..	..	..

TABLE 13.

AVERAGE MONTHLY QUOTATIONS FOR NEW ZEALAND CHEESE.

(Shillings per hundredweight, to nearest shilling.)

—	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
1924	103–105	97–101	84– 87	84– 86	83– 85	91– 93	91– 94	94– 96	94– 95	94– 96	92– 94	95– 95
1925	95– 96	95– 97	101–103	100–101	94– 95	98– 99	107–109	107–109	109–111	117–118	..	101–102
1926	100–102	99–101	97– 98	95– 96	92– 93	94– 95	89– 90	88– 89	84– 86	83– 85	85– 86	95– 96
1927	93– 94	92– 93	81– 82	76– 77	84– 86	84– 85	87– 88	92– 94	99–101	103–105	99–101	93– 95
1928	90– 92	93– 94	98–100	96– 98	96– 98	101–102	109–111	112–112	113–114	110–112	105–107	97– 99
1929	93– 94	89– 89	89– 90	87– 88	86– 87	91– 92	89– 91	87– 89	93– 94	94– 95	94– 95	89– 91
1930	88– 89	88– 89	81– 83	75– 77	80– 81	77– 78	76– 78	75– 77	73– 75	72– 75	70– 73	60– 62
1931	56– 58	55– 57	54– 56	50– 51	48– 50	53– 55	59– 60	61– 63	61– 62	68– 69	66– 67	60– 61
1932	57– 59	61– 63	60– 61	61– 61	57– 58	56– 57	58– 59	60– 61	64– 64	65– 66	63– 63	55– 56
1933	47– 48	45– 46	41– 42	38– 39	46– 47	47– 48	49– 49	48– 49	51– 52	48– 50	50– 50	48– 48
1934	44– 45	43– 44	43– 44	43	44– 45	48	48	49– 50	48	..	..	..

AVERAGE MONTHLY QUOTATIONS FOR CANADIAN CHEESE.

(Shillings per hundredweight, to nearest shilling.)

—	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
1924	104–110	104–107	..	..	..	86– 88	92– 94	93– 95	94– 95	95– 96	94– 97	96– 99
1925	98–101	101–103	108–110	109–111	..	95– 95	106–108	107–109	109–111	107–119	114–117	107–110
1926	105–109	107–112	106–111	106–111	98–101	99–101	88– 90	86– 88	85– 87	85– 88	86– 88	94– 97
1927	96– 98	98–101	94– 97	92– 94	95– 97	98–101	106–108	92– 95	101–102	103–105	102–104	102–105
1928	101–104	101–105	106–111	109–113	112–115	107–109	107–109	110–112	112–113	109–113	109–112	110–112
1929	108–112	108–112	108–112	108–112	105–111	104–110	103–112	94– 98	93– 96	95– 97	95– 98	97– 99
1930	96– 99	96–100	96–100	96–100	100–103	88– 89	80– 83	80– 82	77– 79	77– 79	76– 80	74– 80
1931	74– 78	73– 78	74– 77	72– 75	70– 74	69– 74	64– 68	64– 67	61– 63	68– 70	68– 70	65– 70
1932	68– 70	68– 71	68– 73	68– 72	68– 72	65– 73	61– 66	59– 61	65– 66	67– 69	65– 69	61– 68
1933	60– 68	60– 68	60– 68	61– 68	65– 70	66– 69	65– 72	63– 68	55– 58	51– 54	49– 54	46– 52
1934	46– 52	51– 54	51– 55	52– 56	51– 56	53– 57	57– 59	59– 61	50– 52	..	..	..

TABLE 14.

MONTHLY GRADINGS OF BUTTER IN NEW ZEALAND, AND STOCKS HELD IN NEW ZEALAND AS AT THE END OF EACH MONTH.

——	1925.	1926.	1927.	1928.	1929.	1930.	1931.	1932.	1933.	1934.
					Graded (Tons).					
January ..	10,413	8,614	10,058	10,368	12,142	13,607	12,933	13,684	15,530	18,487
February ..	8,121	7,310	8,082	6,951	8,698	11,230	10,848	10,472	13,196	13,869
March	6,814	6,339	7,500	5,990	6,473	9,855	9,345	10,037	13,332	13,853
April	4,380	4,114	5,201	4,421	5,194	6,698	6,214	7,107	9,731	9,079
May	1,961	2,314	3,250	3,201	3,417	3,503	4,224	4,873	5,941	4,897
June	590	740	1,360	1,439	1,243	978	1,433	1,847	2,367	1,878
July	355	344	629	865	796	754	1,109	1,276	1,772	1,888
August ..	1,501	1,647	2,246	2,852	2,949	3,038	3,637	4,207	5,903	6,137
September ..	3,976	4,295	5,547	5,968	6,092	7,421	7,377	8,949	11,855	10,671
October ..	7,110	7,793	9,110	9,889	11,140	11,492	12,507	15,014	17,581	..
November ..	9,237	10,251	11,970	12,305	13,800	13,540	14,585	18,922	20,539	..
December ..	10,958	11,629	12,615	12,679	14,704	15,434	16,809	18,838	20,396	..
					Stocks (Tons).					
January ..	7,762	9,070	12,478	5,388	6,212	11,336	15,707	16,659	18,015	19,173
February ..	8,641	9,166	13,811	6,371	5,024	12,834	16,038	17,140	20,576	17,726
March	9,875	11,129	13,960	6,244	3,896	14,431	15,944	18,622	22,701	22,210
April	5,248	9,227	10,697	5,535	5,543	15,396	16,759	17,011	21,130	21,045
May	3,997	9,029	8,710	4,381	6,385	11,437	13,944	14,265	17,527	14,128
June	2,441	6,255	5,783	3,124	3,812	7,039	9,411	11,806	8,945	8,726
July	1,206	2,489	1,985	1,392	2,010	2,854	2,921	5,475	6,068	3,973
August ..	1,534	1,587	1,889	2,211	1,868	2,134	3,979	3,466	4,044	3,007
September ..	4,767	2,699	3,113	2,868	3,051	4,488	3,919	5,283	5,738	4,008
October ..	6,699	3,591	4,754	6,179	3,873	4,952	5,457	8,596	7,294	..
November ..	4,384	6,912	4,630	5,229	6,158	9,788	8,812	10,876	15,227	..
December ..	5,735	10,747	7,255	5,663	8,787	11,176	13,538	15,326	18,787	..

MONTHLY GRADINGS OF CHEESE IN NEW ZEALAND AND STOCKS HELD IN NEW ZEALAND AS AT THE END OF EACH MONTH.

——	1925.	1926.	1927.	1928.	1929.	1930.	1931.	1932.	1933.	1934.
					Graded (Tons).					
January ..	10,257	10,405	10,973	11,473	13,114	12,540	13,725	12,068	13,722	14,120
February ..	8,640	8,829	9,600	8,942	10,215	10,613	10,902	10,446	11,034	11,710
March	7,828	9,126	9,253	7,240	8,658	9,814	8,962	9,745	11,820	11,310
April	6,216	6,581	6,852	5,954	7,287	8,038	7,131	7,695	9,204	9,247
May	4,001	4,053	4,048	4,768	5,189	5,274	4,162	5,259	6,894	5,787
June	1,267	1,362	1,548	1,904	2,072	2,328	1,314	2,304	2,286	2,258
July	184	316	199	364	469	591	389	663	874	612
August ..	308	211	346	755	524	646	240	432	639	603
September ..	3,708	3,078	3,431	4,407	3,566	4,836	3,040	3,594	4,784	4,327
October ..	6,751	7,020	7,272	9,008	8,620	9,826	9,307	10,261	12,368	..
November ..	9,724	10,655	11,528	12,160	11,989	12,139	12,441	15,095	15,440	..
December ..	12,982	12,875	12,532	13,271	13,351	15,197	14,986	15,782	15,476	..
					Stocks (Tons).					
January ..	9,486	9,390	11,989	7,997	9,666	11,619	13,832	14,283	13,423	18,300
February ..	8,242	13,016	13,224	8,988	10,874	12,731	14,163	14,216	15,174	20,278
March	6,576	13,635	14,397	6,971	9,428	13,214	10,388	16,341	17,617	20,118
April	5,139	11,572	12,956	6,314	9,934	14,381	12,899	14,610	18,221	21,656
May	2,917	10,862	9,431	4,280	8,842	13,381	10,877	12,160	15,171	15,924
June	1,441	4,361	3,629	2,301	4,370	8,701	7,946	10,810	10,328	13,040
July	284	1,883	503	291	1,225	1,201	4,802	6,349	6,392	7,534
August ..	431	295	686	809	1,068	833	1,830	2,904	1,726	2,115
September ..	4,068	1,716	2,400	3,450	2,295	3,590	3,025	2,558	2,855	3,128
October ..	8,224	4,791	3,402	4,409	3,850	5,366	5,957	6,980	8,074	..
November ..	7,014	6,040	5,538	6,552	6,888	8,708	7,738	9,825	14,083	..
December ..	8,136	10,045	9,058	7,498	8,921	11,366	11,786	13,582	15,553	..

TABLE 15.

TOTAL BUTTER SHIPMENTS AFLOAT FROM AUSTRALIA, NEW ZEALAND, AND ARGENTINA AS AT 15TH OF EACH MONTH.

——	1929.	1930.	1931.	1932.	1933.	1934.
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
January	..	17,551	20,097	20,446	28,106	33,131
February	..	17,643	18,789	23,583	23,323	28,108
March	..	19,025	19,577	20,884	27,093	27,315
April	..	15,850	16,473	17,352	23,743	26,131
May	..	12,238	15,470	16,293	22,220	24,706
June	6,809	7,469	15,389	12,832	13,848	21,689
July	5,057	5,997	10,234	12,618	12,879	17,334
August	3,706	5,398	9,488	13,961	14,153	9,461
September	3,122	5,931	8,759	11,991	6,754	14,675
October	5,503	8,993	14,882	12,591	17,938	..
November	10,248	17,796	21,127	29,232	28,811	..
December	16,446	22,066	24,859	28,306	31,566	..

STOCKS OF BUTTER IN COLD STORAGE IN GREAT BRITAIN AS AT THE 15TH OF EACH MONTH, AND REPRESENTING OVER 90 PER CENT. OF STOCKS IN COLD STORAGE.

——	1930.	1931.	1932.	1933.	1934.
	Tons.	Tons.	Tons.	Tons.	Tons.
January	9,118	6,469	9,521	15,434	14,029
February	12,148	7,300	8,330	20,186	18,183
March	15,291	7,011	9,378	20,284	21,492
April	17,719	7,376	19,674	23,827	26,115
May	22,533	11,912	11,613	25,285	30,185
June	28,384	15,857	16,773	31,956	38,535
July	29,035	20,849	21,056	32,506	46,806
August	25,113	25,437	21,571	31,259	46,059
September	22,906	22,877	18,108	24,332	37,500
October	19,041	18,352	18,853	19,600	..
November	10,959	14,635	11,439	13,403	..
December	6,815	9,973	12,898	10,640	..

TABLE 16.

IMPORTS OF BUTTER, CHEESE, AND MILK AND CREAM INTO VARIOUS EASTERN COUNTRIES.

(*a*) *Butter.*

Importing Country.	Year.	Total Imports from all Sources.	Imports from					
			New Zealand.		Australia.		United Kingdom.	Netherlands.
			Quantity.	Rate of Freight from New Zealand.	Quantity.	Rate of Freight from Australia.		
		(1) Tons.	(2) Tons.		(3) Tons.		(4) Tons.	(5) Tons.
India	1932–33	189	56	2d. per pound ..	35	5s. per box of 56 lb. ..	91	..
Ceylon, frozen	1932	181	14	2d. per pound ..	207	5s. per box of 56 lb. ..	2	..
,, tinned	1932	87	..	..	..	..	..	..
China	1933	689	87	7s. 6d. per box of 56 lb.	483	1½d. per pound	7	..
Dutch East Indies ..	1933	4,470	7	2d. per pound ..	3,631	2d. per pound	..	365
Malaya, frozen	1933	279	47	2d. per pound ..	527	2d. per pound	5	..
,, tinned	1933	429						
Philippine Islands, frozen ..	1929	418	3	7s. 6d. per box of 56 lb.	488	1½d. per pound	(Not available)	..
,, tinned	1929	179	..	..	..	..	(Not available)	..
Hong Kong	1932	£44,043 (quantities not available)	50	7s. 6d. per box of 56 lb.	414	1½d. per pound	£18	..
Burma	1930–31	49	6	No quotation for outports	..	No quotation for outports ..	(Not available)	..
Japan	1932	73	19	7s. 6d. per box of 56 lb.	128	1½d. per pound	(Not available)	..

(1) and (4) According to official trade statistics of each importing country for the year stated in the second column.
(2) According to official trade statistics of New Zealand for the calendar year 1933.
(3) According to official trade statistics of Australia for the year 1932–33.
(5) According to official trade statistics of the Netherlands for the calendar year 1933.

TABLE 16—*continued.*

IMPORTS OF BUTTER, CHEESE, AND MILK AND CREAM INTO VARIOUS EASTERN COUNTRIES—*continued.*

(*b*) *Cheese.*

Importing Country.	Year.	Total Imports from all Sources.	Imports from					
			New Zealand.		Australia.		United Kingdom.	Netherlands.
			Quantity.	Rate of Freight from New Zealand.	Quantity.	Rate of Freight from Australia.		
		(1) Tons.	(2) Tons.		(3) Tons.		(4) Tons.	(5) Tons.
India	1932–33	444	1	85s. per 40 cubic feet ..	20	1⅛d. per pound	98	259
Ceylon	1932	84	..	1½d. per pound ..	12	1⅛d. per pound	8	59
China	1931	130	26	1⅝d. per pound ..	26	1⅝d. per lb. or 65s. per 40 cubic feet	(Not available)	34 (*a*)
Dutch East Indies ..	1933	769	..	85s. per 40 cubic feet ..	..	75s. per 40 cubic feet ..	2	750
Malaya	1933	125	..	85s. per 40 cubic feet ..	51	75s. per 40 cubic feet ..	12	50
Philippine Islands ..	1929	353	..	1⅝d. per pound ..	5	1⅝d. per pound or 65s. per 40 cubic feet	(Not available)	146
Hong Kong	1932	£9,539 (quantities not available)	15	1⅝d. per pound ..	33	1⅝d. per pound or 65s. per 40 cubic feet	£1,068	£2,945 16 (*a*)
Burma	1930–31	44	..	..	..	..	(Not available)	(*a*)
Japan	..	(Not available)	..	1⅝d. per pound ..	16	1⅝d. per pound or 65s. per 40 cubic feet	(Not available)	23 (*a*)

(1) and (4) According to the official trade statistics of each importing country for the years stated in the second column.
(2) According to the official trade statistics of New Zealand for the calendar year 1933.
(3) According to the official trade statistics of Australia for the year 1932–33.
(5) According to the official trade statistics of each importing country for the years stated in the second column, with the exception of the items marked (*a*), which are taken from the official trade statistics of the Netherlands for the calendar year 1933.

TABLE 16—*continued*

IMPORTS OF BUTTER, CHEESE, AND MILK AND CREAM INTO VARIOUS COUNTRIES—*continued*.

(*c*) *Milk and Cream of all Kinds.*

Importing Country.	Year.	Total Imports from all Sources.	Imports from									
			New Zealand.		Australia.		United Kingdom.	Netherlands.	Norway and Denmark.	Switzerland and Italy.	Canada.	United States of America.
			Quantity.	Rate of Freight from New Zealand.	Quantity.	Rate of Freight from Australia.						
		(1) lb.	(2) lb.		(3) lb.		(4) lb.	(5) lb.	(6) lb.	(7) lb.	(8) lb.	(9) lb.
India ..	1932–33	19,301,184	78,509	95s. per 40 cub. ft. ..	2,395,631	60s. per 40 cub. ft...	2,331,840	8,083,936	3,482,192	2,914,800	..	143,360
Ceylon ..	1932	1,552,333	11,200	95s. per 40 cub. ft. ..	689,364	60s. per 40 cub. ft...	122,894	669,214	384,895	117,430	..	..
China ..	1933	9,196,152	276,683	80s. per 40 cub. ft. ..	422,150	50s. per 40 cub. ft...	123,823	3,709,806	231,154	966,644	131,138	3,171,119
Dutch East Indies	1933	12,595,839	26,812	60s. per 40 cub. ft. ..	2,136,887	45s. per 40 cub. ft...	163,495	7,332,697	918,122	854,462	142,276	3,159,981
Malaya ..	1933	Cases. 897,944(*a*) lb. 379,434(*b*)	822,206	60s. per 40 cub. ft. ..	8,619,635	45s. per 40 cub. ft...	Cases. 209,763 lb. 151,473	11,542,069(*c*)	(Not available) (Not available)	(Not available) (Not available)	(*d*) (*d*)	641,802(*e*)
Hong Kong	1932	£305,613 (quantities not available)	36,001	80s. per 40 cub. ft. ..	439,899	50s .per 40 cub. ft...	£10,041	6,170,538(*c*)	£2,936	£38,326	494,480(*d*)	2,200,417(*e*)
		lb.										
Philippine Is.	1929	29,999,984	..	80s. per 40 cub. ft. ..	3,433,518	50s. per 40 cub. ft...	(Not available)	1,603,808(*c*)	(Not available)	(Not available)	1,008(*d*)	21,689,997(*e*)
Burma ..	1930–31	17,896,256	3,173	123s. 6d. per 40 cub. ft.	..	88s. 6d. per 40 cub. ft.	(Not available)	(*c*)	(Not available)	(Not available)	(*d*)	(*e*)
Japan ..	1930	10,076,640	24,400	80s. per 40 cub. ft. ..	426,624	50s. per 40 cub. ft...	(Not available)	1,297,094(*c*)	(Not available)	(Not available)	96,208(*d*)	3,447,270(*e*)

(*a*) Condensed, evaporated, and sterilized milk and cream. (*b*) Powdered, preserved, and other kinds of milk.

(1) According to the official trade statistics of each importing country for the years stated in the second column.
(2) According to the official trade statistics of New Zealand for the calendar year 1933.
(3) According to the official trade statistics of Australia for the year 1932–33.
(4) According to the official trade statistics of the importing countries for the years stated in the second column.
(5) According to the official trade statistics of the importing countries for the years stated in the second column excepting those marked (*c*), in which cases the official trade statistics of the Netherlands for 1933 have been taken.
(6) and (7). According to the official trade statistics of the importing countries for the years stated in the second column.
(8) According to the official statistics of the importing countries for the years stated in the second column excepting those marked (*d*), in which cases the official trade statistics of Canada for the year 1932–33 have been taken.
(9) According to the official trade statistics of the importing countries for the years stated in the second column excepting those marked (*e*), in which cases the official trade statistics of the United States of America for the calendar year 1932 have been taken.

NOTE.—The discrepancy which occurs in some cases between the figures of total imports and the cross-totals of figures of imports from individual countries arises by reason of the tables being compiled from different sources and in respect of different periods.

TABLE 17.

EXPORT QUANTITIES AND VALUES OF BUTTER, CHEESE, AND MILK AND CREAM.

(*a*) BUTTER, BY COUNTRIES, 1931–33.

	1931.		1932.		1933.	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
	Cwt.	£	Cwt.	£	Cwt.	£
United Kingdom ..	1,962,320	10,494,687	2,156,127	10,487,595	2,597,008	11,472,680
Burma	106	680	126	747	126	675
Ceylon	703	4,266	431	2,375	277	1,300
Hong Kong	453	2,619	1,079	5,698	1,032	4,910
India	786	5,244	968	5,494	1,120	6,232
Malaya	1,650	9,931	363	2,051	931	4,536
Palestine	..	..	..	..	..	..
South African Union ..	..	..	..	..	..	..
British West Indies ..	400	2,280	..	..	4,556	20,571
Canada, via East Coast ..	1,675	9,500	4,735	23,489	1,050	4,503
Canada, via West Coast ..	1,937	11,297	1,304	5,952	5,948	26,817
Australia	529	3,276	1,880	10,179	1,481	6,678
Fanning Island ..	4	27	8	43	27	128
Fiji	121	829	52	330	67	424
Gilbert and Ellice Islands	1	10	10	54	6	33
Nauru Island	1	5	15	83	8	38
Norfolk Island	89	582	134	775	29	149
Papua	..	..	4	34	6	40
Solomon Islands ..	4	27	4	31	4	24
Tonga	213	1,364	207	1,219	111	559
Western Samoa ..	341	2,234	329	1,899	248	1,220
China	648	3,767	1,449	7,586	1,732	8,036
Dutch East Indies ..	555	3,322	368	1,882	134	611
Japan	712	4,095	603	3,133	375	1,661
Philippine Islands ..	855	5,336	188	1,022	50	210
Siam	..	..	..	..	..	..
Panama Canal Zone ..	6,161	32,921	8,980	43,754	13,400	59,054
United States of America, via East Coast	163	937	..	..	500	2,158
United States of America, via West Coast	..	..	3	11	156	746
Hawaii	7,421	44,806	5,234	27,120	3,493	17,147
New Hebrides	..	1	4	24	..	..
Society Islands ..	716	5,472	938	6,456	1,361	7,516
Tutuila	2	12	2	17	..	..
New Caledonia ..	..	..	..	..	10	40
Syria	..	..	..	..	1	3
Total produce of New Zealand	1,988,566	10,649,527	2,185,545	10,639,053	2,635,247	11,648,699

TABLE 17—*continued.*

EXPORT QUANTITIES AND VALUES OF BUTTER, CHEESE, AND MILK AND CREAM—*continued.*

(*b*) CHEESE, BY COUNTRIES, 1931–33.

	1931.		1932.		1933.	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
	Cwt.	£	Cwt.	£	Cwt.	£
United Kingdom ..	1,635,233	4,456,746	1,788,989	4,945,822	1,980,872	4,759,723
Ceylon	..	..	..	2	..	..
Hong Kong	65	224	83	294	303	1,031
India	1	2	14	44	11	50
Malaya	19	60	12	101	..	..
Nyassaland	..	..	1	3	24	81
British West Indies ..	..	..	..	..	..	..
Canada, via West Coast	73	213	3	9	811	2,133
Australia	152	1,200	129	1,022	61	574
Fanning Island ..	1	3	3	14	3	8
Fiji	219	761	251	921	231	807
Gilbert and Ellice Islands	..	..	1	5	..	..
Norfolk Island.. ..	17	83	42	206	3	9
Papua	1	2	..	..	..	..
Solomon Islands ..	..	..	1	8	..	..
Tonga	20	78	11	50	8	25
Western Samoa ..	40	158	30	133	31	104
France	..	..	1	15	..	..
Germany	..	..	..	..	..	..
China	445	1,564	745	2,239	524	1,632
Dutch East Indies ..	8	34	..	..	..	5
Japan	..	..	8	50	6	22
Panama Canal Zone ..	44	118	84	227	33	75
United States of America, via East Coast	..	3	..	2	..	..
United States of America, via West Coast	1	6	..	..	..	..
Hawaii	..	..	5	31	..	..
New Hebrides ..	..	..	3	6	1	2
Society Islands ..	8	38	14	57	9	30
Tutuila	..	..	1	7	1	8
Total produce of New Zealand	1,636,347	4,461,293	1,790,431	4,951,268	1,982,932	4,766,319

(*c*) TOTALS, 1924–33.

Year.	Quantities.		Values.		
	Butter.	Cheese.	Butter.	Cheese.	Total.
	Tons.	Tons.	£	£	£
1924	63,472	79,724	11,641,668	7,023,297	18,664,965
1925	62,266	68,837	10,240,132	5,800,808	16,040,940
1926	58,402	73,077	8,695,188	5,939,359	14,634,547
1927	72,776	74,639	10,915,233	5,582,546	16,497,779
1928	72,478	78,363	11,302,667	6,693,951	17,996,618
1929	82,690	88,954	13,228,027	7,017,463	20,245,490
1930	94,211	90,649	11,854,056	6,438,438	18,292,494
1931	99,428	81,817	10,649,527	4,461,293	15,110,820
1932	109,277	89,521	10,639,053	4,951,268	15,590,321
1933	131,762	99,146	11,648,699	4,766,319	16,415,018

TABLE 17—*continued.*

EXPORT QUANTITIES AND VALUES OF BUTTER, CHEESE, AND MILK AND CREAM—*continued.*

(*d*) MILK AND CREAM.

Article and Country to which exported.	1931.		1932.		1933.	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
Dried, Full-cream Powder.	lb.	£	lb.	£	lb.	£
United Kingdom	2,889,966	103,147	2,996,386	106,491	4,225,420	142,555
Burma	600	39	300	19	1,373	31
Hong Kong	14,004	272	2,848	97	4,770	103
India	1,000	51	400	15	72,475	2,536
Malaya	1,648	139	1,650	103	31,650	479
Australia	15	2	..	..	5,920	122
Fiji	1,265	173	240	6	1,052	59
Norfolk Island	98	5	..	..	..	..
Papua	..	..	..	..	1,215	33
Solomon Islands	..	..	..	..	108	3
Tonga	793	115	..	..	132	18
Western Samoa	1,206	105	..	..	1,027	26
China	..	..	370	16	73,449	1,330
Dutch East Indies	..	..	..	..	2,172	69
Japan	..	..	29,500	971	13,200	425
Panama Canal Zone	..	..	1,200	83	14,370	318
Uruguay	6,800	246	..	..	..	..
Hawaii	1,240	121	..	..	..	..
Society Islands	84	7	..	..	..	..
Tutuila	..	..	..	..	1,391	28
Total: Produce of New Zealand	2,918,719	104,422	3,032,894	107,801	4,449,724	148,135
Dried, other Kinds.	lb.	£	lb.	£	lb.	£
United Kingdom	8,286,308	108,619	10,188,152	110,605	10,900,893	126,971
Burma	..	..	548	12	..	..
Ceylon	31,360	605	16,800	261	11,200	173
Hong Kong	6,720	108	12,114	174	6,616	245
India	4,460	93	7,820	147	5,824	91
Malaya	89,480	1,571	58,672	950	51,390	874
Australia	400,040	8,121	500,479	10,231	138,880	2,276
Fiji	1,364	56	2,664	85	1,624	51
Norfolk Island	650	32	1,130	40	480	16
Papua	..	..	795	19	..	..
Tonga	172	5	..	..	..	..
Solomon Islands	..	..	192	4	144	4
Western Samoa	498	16	2,387	60	3,223	81
China	1,248	17	188,592	3,006	23,224	365
Dutch East Indies	58,880	1,146	16,528	311	16,240	264
Japan	6,720	104	18,480	263	11,200	159
Philippine Islands	2,800	48	..	..	..	..
Egypt	2,800	48	5,600	84	6,160	101
Panama Canal Zone	28,960	482	165,131	2,613	52,481	770
Society Islands	..	..	1,668	33	..	..
Tutuila	..	..	..	..	80	2
Total: Produce of New Zealand	8,922,460	121,071	11,187,752	128,898	11,229,659	132,443
Preserved or Condensed (other than Dried).	lb.	£	lb.	£	lb.	£
United Kingdom	22,556	267	271,416	3,087	551,983	7,347
British Borneo	..	..	4,200	70	2,100	35
Burma	..	..	126	3	1,800	37
India	..	..	..	..	210	5
Hong Kong	..	..	882	17	24,615	439
Malaya	2,520	54	1,302,252	22,203	799,166	13,613
British West Indies	..	..	..	..	303	3
Australia	768,894	13,875	12,840	224	13,404	359
Fiji	45,384	1,376	25,519	793	36,320	1,146
Gilbert and Ellice Islands	..	..	142	4	48	1
Nauru Island	..	..	..	..	42	1
Norfolk Island	552	24	1,202	44	42	1
Papua	..	..	..	..	2,025	53
Solomon Islands	1,470	69	252	13	426	13
Tonga	5,992	195	4,257	138	4,023	127
Western Samoa	13,747	498	18,678	557	20,998	621
China	..	..	8,766	154	180,010	2,947
Dutch East Indies	..	..	42	1	8,400	140
Japan	..	..	80	2	..	..
Panama Canal Zone	2,772	60	2,100	46	67,750	1,116
New Hebrides	126	6	..	..	..	..
Society Islands	140,202	4,566	159,869	5,069	246,268	7,357
Tutuila	..	..	48	1	756	25
Produce of New Zealand	1,004,215	20,990	1,812,529	32,422	1,960,689	35,386
Produce of other countries	..	..	142	4	..	..
Total exports	1,004,215	20,990	1,812,671	32,426	1,960,689	35,386

TABLE 18.

STATEMENT SHOWING NEW ZEALAND'S TRADE WITH CERTAIN COUNTRIES FOR THE CALENDAR YEARS 1929 TO 1933.

—	1929.	1930.	1931.	1932.	1933.
Burma.	£	£	£	£	£
Exports to: Miscellaneous items ..	1,070	984	779	827	743
Imports from—					
Rice	16,134	18,294	6,973	11,581	11,871
Waxes	2,744	3,698	2,967	730	1,005
Other items	2,060	3,451	519	1,126	915
	20,938	25,443	10,459	13,437	13,791
Total trade	22,008	26,427	11,238	14,264	14,534
Ceylon.					
Exports to—					
Butter	5,771	6,624	4,266	2,375	1,300
Other items	1,284	2,442	827	1,123	1,370
	7,055	9,066	5,093	3,498	2,670
Imports from—					
Cocoanut, desiccated	15,998	14,185	11,391	9,100	12,583
Tea	896,057	680,310	596,868	335,985	423,421
Other items	11,693	10,264	8,783	6,513	6,624
	923,748	704,759	617,042	351,598	442,628
Total trade	930,803	713,825	622,135	355,096	445,298
Hong Kong.					
Exports to—					
Butter	2,147	1,935	2,619	5,698	4,910
Fungus	9,195	11,446	9,788	5,944	3,269
Other items	1,403	704	1,758	2,511	6,964
	12,745	14,085	14,165	14,153	15,143
Imports from—					
Jams, jellies, &c.	304	61	14	..	..
Other items	6,603	5,617	2,528	4,832	5,039
	6,907	5,678	2,542	4,832	5,039
Total trade	19,652	19,763	16,707	18,985	20,182
India.					
Exports to—					
Butter	2,726	5,276	5,244	5,494	6,232
Wool	32,205	405	3,809	5,907	1,911
Tallow	27,322	31,399	24,315	35,549	18,126
Gold	280,858	325,907	..	..	..
Silver	40,717	38,670	21,909	..	..
Other items	2,593	5,221	3,908	6,428	8,057
	386,421	406,878	59,185	53,378	34,326
Imports from—					
Rice	9,143	5,263	4,501	848	2,642
Coffee and chicory	6,647	7,584	6,029	4,789	6,213
Tea	25,552	23,510	49,730	39,470	70,279
Linseed	8,601	..	..	2	4,645
Shellac	13,705	12,878	2,831	2,924	2,606
Carpets and floorcloth	17,494	14,792	9,740	10,016	9,231
Hessian and scrim	83,555	54,894	37,604	36,608	54,839
Bags and sacks—					
Corn sacks	230,759	196,489	99,169	85,379	131,055
Jute and hessian bags	169,495	159,237	99,593	78,601	68,114
Woolpacks	140,152	110,241	58,698	72,348	82,364

TABLE 18—*continued.*

STATEMENT SHOWING NEW ZEALAND'S TRADE WITH CERTAIN COUNTRIES FOR THE CALENDAR YEARS 1929 TO 1933—*continued.*

——	1929.	1930.	1931.	1932.	1933.
India—continued.					
Imports from—*continued.*	£	£	£	£	£
Vegetable oils	6,189	5,251	2,671	3,710	3,842
Sporting and athletic requisites ..	8,621	8,099	4,811	4,493	5,591
Bonedust	7,198	8,944	900	..	..
Other items	39,645	30,650	15,711	15,564	20,111
	766,756	637,832	392,088	354,752	461,532
Total trade	1,153,177	1,044,710	451,273	408,130	495,858
Malaya.					
Exports to—					
Butter	18,035	16,778	9,931	2,051	4,536
Milk and cream	5,707	2,119	1,764	23,256	14,966
Other items	2,814	1,463	3,227	1,561	3,427
	26,556	20,360	14,922	26,868	22,929
Imports from—					
Pineapples, tinned	39,554	36,414	25,293	28,228	17,907
Sago and tapioca	24,876	14,476	13,374	12,733	10,500
Spices	26,467	20,671	9,606	11,054	4,667
Motor-spirit	26,115	..	..	..	..
Goloshes, gumboots, canvas shoes ..	1,139	3,022	4,904	27,039	12,395
Other items	360	8,371	3,772	7,377	5,076
	118,511	82,954	56,949	86,431	50,545
Total trade	145,067	103,314	71,871	113,299	73,474
China.					
Exports to—					
Butter	31,598	29,721	3,767	7,586	8,036
Cheese	2,964	3,223	1,564	2,239	1,632
Milk and cream	789	1,016	17	3,176	4,642
Wheat	..	..	..	..	35,280
Other items	1,033	2,533	12,277	2,412	4,974
	36,384	36,493	17,625	15,413	54,564
Imports from—					
Rice	7,659	7,940	4,971	4,704	4,193
Nuts, edible	27,245	37,426	23,385	26,472	15,052
Tea	9,328	4,323	3,494	3,109	4,470
Furs, dressed	9,239	11,916	2,179	1,323	296
Miscellaneous drapery	10,530	9,648	7,329	8,894	4,142
Silk, satin, and velvet piece-goods ..	10,633	7,147	13,665	6,615	6,245
Brushmakers' materials	7,452	3,779	2,627	3,833	2,405
Other items	48,945	38,515	24,607	22,333	21,425
	131,031	120,694	82,257	77,283	58,228
Total trade	167,415	157,187	99,882	92,696	112,792
Dutch East Indies.					
Exports to—					
Butter	8,808	6,530	3,322	1,882	611
Other items	10,383	6,499	6,883	3,373	4,885
	19,191	13,029	10,205	5,255	5,496
Imports from—					
Nuts, edible	10,072	12,262	14,718	13,780	9,495
Sugar	408,688	108,966	487,824	441,545	446,618
Tea	4,369	2,128	389	99	323
Kapok	58,225	56,457	31,701	28,279	19,173

TABLE 18—*continued.*

STATEMENT SHOWING NEW ZEALAND'S TRADE WITH CERTAIN COUNTRIES FOR THE CALENDAR YEARS 1929 TO 1933—*continued.*

——	1929.	1930.	1931.	1932.	1933.
Dutch East Indies—continued					
Imports from—*continued*	£	£	£	£	£
Mineral oils	590,645	576,544	274,257	276,020	285,707
Paraffin-wax	37,638	19,614	15,059	15,606	26,290
Other items	43,068	35,401	24,268	18,318	10,973
	1,152,705	811,372	848,216	793,647	798,579
Total trade	1,171,896	824,401	858,421	798,902	804,075
Japan.					
Exports to—					
Butter	17,217	11,603	4,095	3,133	1,661
Casein	63,601	60,012	50,248	30,865	52,436
Hides, skins, and pelts	2,636	34	4,009	7,257	15,716
Wool	339,126	76,101	179,049	181,246	233,229
Tallow	1,408	5,149	28,719	9,491	10,922
Metals, scrap	..	..	..	..	37,038
Other items	4,589	1,842	1,779	4,807	3,460
	428,577	154,741	267,899	236,799	354,462
Imports from—					
Onions	4,368	..	411	4,654	88
Apparel	49,251	47,119	30,707	41,441	76,609
Boots and shoes and parts thereof	1,342	2,125	8,854	22,875	54,171
Textile piece-goods—					
Cotton, linen, and canvas	58,066	56,364	22,500	23,838	50,123
Silk, satin, and velvet	377,624	302,785	148,667	209,211	184,910
Timber	60,986	61,084	14,916	13,006	13,265
Earthenware, chinaware, porcelainware	8,450	9,061	8,558	10,212	26,287
Glass and glassware	3,759	4,401	2,782	4,191	8,750
Fancy-goods and toys	16,570	17,338	12,474	11,198	31,389
Sulphur	5	31,645	26,110	60,867	15,775
Other items	45,293	33,342	28,553	33,253	79,975
	625,714	565,264	304,532	434,746	541,342
Total trade	1,054,291	720,005	572,431	671,545	895,804
Philippine Islands.					
Exports to—					
Butter	19,293	12,278	5,336	1,022	210
Other items	49	213	78	59	203
	19,342	12,491	5,414	1,081	413
Imports from—					
Hemp	24,311	20,291	8,263	5,334	4,085
Other items	4,618	2,593	1,104	320	1,541
	28,929	22,884	9,367	5,654	5,626
Total trade	48,271	35,375	14,781	6,735	6,039
British West Indies.					
Exports to—					
Butter	103	938	2,280	..	20,571
Other items	18	105	81	15	399
	121	1,043	2,361	15	20,970
Imports from—					
Cocoa-beans, uncrushed	14,668	13,532	7,387	4,165	4,972
Rum	7,972	8,214	3,844	2,578	4,081
Asphalt and bitumen	6,277	3,085	7,278	1,176	1,817
Other items	6,838	42,001	4,376	5,126	2,056
	35,755	66,832	22,885	13,045	12,926
Total trade	35,876	67,875	25,246	13,060	33,896

TABLE 18—*continued.*

STATEMENT SHOWING NEW ZEALAND'S TRADE WITH CERTAIN COUNTRIES FOR THE CALENDAR YEARS 1929 TO 1933—*continued.*

—	1929.	1930.	1931.	1932.	1933.
Panama Canal Zone.	£	£	£	£	£
Exports to—					
Butter	37,558	55,826	32,921	43,754	59,054
Milk and cream	300	846	542	2,742	2,204
Other items	4,018	2,474	169	529	88
	41,876	59,146	33,632	47,025	61,346
Imports from : Miscellaneous items	35	97	57	..	..
Total trade	41,911	59,243	33,689	47,025	61,346
Belgium.					
Exports to—					
Hides, pelts, and skins	50,429	89,440	51,824	10,256	34,900
Wool	182,849	92,062	91,887	151,662	288,728
Phormium fibre	2,682	2,026	..	..	84
Tallow	4,723	11,840	291	734	1,064
Other items	8,022	3,680	2,353	4,977	5,508
	248,705	199,048	146,355	167,629	330,284
Imports from—					
Apparel (including boots and shoes)	28,323	31,114	8,765	7,831	4,868
Cotton, linen, and canvas piece-goods	43,776	50,935	23,528	24,027	28,704
Telephone and telegraphic materials	53,877	41,562	8,310	1,557	87
Electrical machinery and apparatus	2,450	2,366	1,186	880	824
Glass and glassware	48,807	43,801	15,841	17,367	14,643
Vegetable paper	17,737	14,977	7,639	6,386	12,088
Jewellery	10,265	24,730	17,127	3,172	2,396
Manures	304,483	175,955	163,628	99,671	56,177
Matches	13,019	10,997	7,745	3,786	4,267
Motor-vehicles and parts	8,556	4,814	871	104	131
Other items	56,170	47,511	34,836	15,083	14,435
	587,463	448,762	289,478	179,864	138,620
Total trade	836,168	647,810	435,833	347,493	468,904
France.					
Exports to—					
Apples	..	..	..	14,125	10,806
Hides, pelts, and skins	62,850	64,793	41,925	64,124	171,740
Wool	1,689,560	445,399	370,601	425,304	548,705
Phormium fibre	2,838	2,983	..	..	..
Kauri-gum	5,776	3,062	3,281	2,339	4,052
Other items	7,375	3,490	3,209	3,068	2,873
	1,768,399	519,727	419,016	508,960	738,176
Imports from—					
Confectionery	8,050	5,892	1,133	355	647
Nuts, edible	4,155	3,025	135	384	312
Brandy	46,254	49,841	28,430	24,374	22,342
Wine	24,789	17,969	8,361	4,038	6,789
Seeds	5,140	2,866	1,692	2,686	2,870
Apparel—					
Furs, dressed	21,199	17,375	5,776	2,256	701
Hats, caps, millinery	24,034	16,131	7,390	6,017	1,688
Other, including boots and shoes	129,677	86,953	33,411	16,777	11,855
Drapery	34,856	21,569	13,631	7,970	6,955
Textile piece-goods—					
Cotton, linen, canvas	16,762	19,714	8,110	3,962	1,509
Silk, satin, velvet	151,731	125,417	79,884	79,866	43,232
Woollen	21,411	17,744	9,601	2,413	892
Fancy-goods and toys	46,753	46,309	38,899	40,450	21,393
Perfumery and toilet preparations	20,214	13,461	8,479	6,076	4,618
Manures	22,288	18,244	10,741	5,981	9,368
Motor-vehicles and parts	25,207	17,368	7,716	9,760	11,866
Other items	124,868	128,198	64,257	56,372	51,602
	727,388	608,076	327,646	269,737	198,639
Total trade	2,495,787	1,127,803	746,662	778,697	936,815

TABLE 18—*continued.*

STATEMENT SHOWING NEW ZEALAND'S TRADE WITH CERTAIN COUNTRIES FOR THE CALENDAR YEARS 1929 TO 1933—*continued.*

—	1929.	1930.	1931.	1932.	1933.
Germany.					
Exports to—	£	£	£	£	£
Casein	27,475	18,919	5,110	7,903	8,501
Sausage-casings	40,074	11,417	2,003	2,197	9,590
Fresh apples	23,504	39,950	..	19,658	17,930
Fresh pears	4,943	4,953	..	..	..
Hides, pelts, and skins	101,256	70,403	29,000	32,179	37,811
Wool	992,933	228,674	254,651	216,007	284,211
Grass and clover seeds	5,327	7,543	3,460	199	889
Phormium fibre	3,125	2,020	..	144	236
Tallow	10,622	9,679	3,793	6,535	9,817
Kauri-gum	3,270	1,823	7,027	503	4,042
Other items	8,023	5,703	4,803	4,592	3,859
	1,220,552	401,084	309,847	289,917	376,886
Imports from—					
Yarns	6,344	9,912	5,856	6,058	2,657
Apparel (including boots and shoes)	178,512	161,949	75,312	77,205	70,496
Drapery (miscellaneous)	36,221	21,107	14,882	12,172	9,089
Cotton, linen, and canvas	10,742	12,018	5,703	2,341	2,731
Woollen piece-goods	24,648	26,743	18,598	10,573	2,879
Silk piece-goods	33,850	40,305	24,223	19,449	16,215
Miscellaneous hardware	48,997	47,822	24,467	19,445	15,955
Dairying machinery	18,495	20,350	3,456	2,934	2,192
Electrical machinery and apparatus	39,503	33,733	20,740	16,181	10,466
Artificers' tools	20,063	20,820	7,824	7,289	7,408
Glass and glassware	20,826	20,529	9,263	3,961	4,522
China and earthenware	11,965	6,999	2,857	781	630
Leather and manufactures thereof	36,097	24,350	10,271	4,834	2,764
Stationery	17,902	19,142	11,828	8,369	6,642
Fancy-goods and toys	81,637	80,249	34,515	15,251	13,961
Timepieces	27,196	30,326	13,824	5,300	9,313
Surgical and dental instruments	11,044	13,902	10,353	7,638	6,230
Manures	47,571	74,956	39,399	17,876	13,706
Musical instruments	14,055	8,976	4,151	2,740	3,549
Photographic material	20,468	10,262	7,043	10,126	8,154
Knitting-machines and parts	514	1,377	444	1,374	15,694
Other items	234,213	289,633	229,491	208,074	153,500
	940,863	975,460	574,500	459,971	378,753
Total trade	2,161,415	1,376,544	884,347	749,888	755,639
Italy.					
Exports to—					
Frozen meat	20,779	35,362	19,877	..	..
Hides, pelts, and skins	7,057	16,729	19,448	10,109	18,502
Wool	120,719	38,650	22,295	74,684	77,271
Tallow	..	6,544	3,238	..	181
Other items	103	102	51	560	1,376
	148,658	97,387	64,909	85,353	97,330
Imports from—					
Nuts, edible	35,405	22,083	7,969	12,358	13,120
Oranges and lemons	1,326	1,981	1,233	1,329	2,240
Apparel—					
Hats and caps and millinery	43,450	41,149	15,574	9,640	7,019
Hatworkers' materials	8,710	12,264	7,656	8,760	10,629
Ready-made clothing	52,087	53,120	29,110	24,499	22,153
Silk, satin, and velvet	41,507	35,674	21,325	22,848	20,119
Marble	7,855	6,670	3,790	1,619	445
Motor-vehicles	3,414	15,230	3,763	283	927
Other items	74,348	76,787	39,925	38,187	39,236
	268,106	264,958	130,345	119,521	115,888
Total trade	416,764	362,345	195,254	204,874	213,218

TABLE 18—*continued.*

STATEMENT SHOWING NEW ZEALAND'S TRADE WITH CERTAIN COUNTRIES FOR THE CALENDAR YEARS 1929 TO 1933—*continued.*

——	1929.	1930.	1931.	1932.	1933.
Canada.					
Exports to—	£	£	£	£	£
Butter	2,707,669	1,978,281	20,797	29,441	31,320
Cheese	13,606	8,416	213	9	2,133
Frozen meat	36,197	32,616	2,719	3,884	4,143
Meats, tinned	3,087	4,219	134	1,281	977
Sausage-casings	265,521	331,208	117,761	40,523	129,129
Apples	6,000	6,525	447	7,583	13,358
Onions	6,046	803	..	3,854	3,558
Hides, pelts, and skins	63,904	50,876	25,152	45,749	196,562
Wool	199,117	86,274	57,540	81,295	149,085
Seeds	11,962	15,376	11,153	4,757	3,363
Kauri-gum	7,796	4,726	4,074	3,096	2,146
Phormium fibre	9,254	4,453	1,291	2,614	604
Other items	23,816	15,439	15,609	20,074	24,497
	3,353,975	2,539,212	256,890	244,160	560,875
Imports from—					
Foodstuffs—viz., fish, confectionery, fruit, wheat, wheaten flour, maizena and corn-flour, and vegetables	325,097	303,153	151,265	193,878	172,189
Boots and shoes, and parts thereof	257,674	219,762	92,581	95,587	63,364
Hosiery	110,402	138,234	88,600	74,592	56,977
Electrical machinery and apparatus	161,397	160,659	66,868	42,707	41,150
Paper—printing, wrapping, and writing	402,823	369,664	265,980	221,407	224,669
Motor-vehicles for road traffic	1,574,246	1,114,525	63,853	54,457	75,113
Rubber tires for motor-vehicles (including bicycles and motor-cycles)	756,837	414,997	120,458	66,179	112,898
Other items	1,204,344	1,081,931	374,964	258,289	265,853
	4,792,820	3,802,925	1,224,569	1,007,096	1,012,213
Total trade	8,146,795	6,342,137	1,481,459	1,251,256	1,573,088
United States of America.					
Exports to—					
Butter	75,955	108	937	11	2,904
Cheese	14,829	13	9	2	..
Frozen meat	338,385	16,020	1,261	316	1,179
Sausage-casings	262,559	331,627	151,592	99,674	170,019
Peas	6,846	3,413	1,190	3,683	2,253
Hides, pelts, and skins (undressed)—					
Calf	131,868	85,006	56,725	31,227	82,537
Cattle	88,862	22,899	7,404	3,172	30,869
Rabbit	127,764	64,299	66,559	41,497	155,852
Sheep, with wool	182,356	135,592	31,270	9,441	64,035
Sheep, without wool	1,118,689	747,856	276,904	197,159	380,197
Opossum	..	5	986	..	11,663
Wool—					
Greasy	533,779	135,503	26,166	5,279	19,825
Other	122,877	132,217	15,112	26,765	69,098
Phormium fibre	138,776	83,255	4,115	1,768	756
Seeds	76,615	66,905	58,202	28,953	22,285
Tallow	23,086	9,505	2,445	2,049	1,327
Kauri-gum	129,432	69,496	36,520	14,498	28,591
Specie (gold)	100,000	..	..	250,000	..
Gold	44,192	43,353	41,949	135,070	55,152
Manures	11,846	14,490	13,055	23,828	26,913
Other items	224,711	155,190	128,530	65,623	63,517
	3,653,427	2,116,752	920,931	940,015	1,188,972

TABLE 18—*continued.*

STATEMENT SHOWING NEW ZEALAND'S TRADE WITH CERTAIN COUNTRIES FOR THE CALENDAR YEARS 1929 TO 1933—*continued.*

——	1929.	1930.	1931.	1932.	1933.
***United States of America*—continued.**					
Imports from—	£	£	£	£	£
Tobacco	242,703	329,646	204,684	195,567	171,904
Mineral oils..	2,353,332	2,446,030	1,610,317	1,480,545	919,472
Machinery and machines	1,161,904	1,057,552	449,769	310,266	268,794
Cinematograph films, &c.	181,071	187,407	135,366	131,740	116,709
Sulphur	137,627	77,721	60,751	199,608	124,833
Motors for road traffic, and parts thereof (excluding tires)	1,985,093	788,446	141,798	55,225	60,966
Other items	3,258,196	2,686,251	1,282,388	894,447	720,773
	9,319,926	7,573,053	3,885,073	3,267,398	2,383,451
Total trade	12,973,353	9,689,805	4,806,004	4,207,413	3,572,423

TABLE 19.—Analysis of 550 Dairy-farms showing Production, Costs, and Capital Position:—

Descriptive Details, by Districts (applies to Tables 20 A to F).

	Northern North Auckland.	Eastern North Auckland.	Western North Auckland.	Southern North Auckland.	North Auckland.	Northern Waikato.	Mid-Waikato.	Eastern Waikato.	Tauranga.	Bay of Plenty.	South Auckland.	Taranaki.	Wanganui.	Manawatu.	Pumice Area.	Gisborne.	Wairarapa.	North Island.
Number of farms	25	26	30	34	115	30	42	31	11	30	144	86	38	73	29	31	34	550
Number of cows	1,315	1,489	1,746	1,792	6,342	1,439	2,670	2,533	918	2,374	9,934	5,138	1,687	3,754	1,765	1,353	1,663	31,636
Average butterfat per acre lb.	74·93	90·43	107·30	98·42	92·98	131·49	140·54	165·91	118·49	145·10	143·69	121·05	109·06	133·94	85·35	110·61	104·78	117·73
Average butterfat per cow lb.	211·3	223·0	225·5	239·8	226·0	272·0	266·1	296·6	231·5	259·9	263·2	278·3	256·6	271·2	221·5	227·6	245·2	254·0
Average cows per 100 acres	35·45	40·54	47·58	41·04	41·14	48·34	52·81	61·54	51·19	55·82	54·60	43·50	42·50	49·39	38·52	48·60	42·74	46·35
Average butterfat per labour unit lb.	4,791	4,813	4,500	4,775	4,708	5,513	5,872	6,566	5,902	6,707	6,024	5,697	5,092	5,330	4,769	4,529	4,633	5,380
Average cows per labour unit	22·67	21·58	19·95	19·91	20·83	20·27	22·07	24·36	25·50	25·80	23·43	20·47	19·85	19·65	21·52	19·90	18·90	21·18
Average acres per male hand acre	75·69	69·29	55·18	61·49	64·37	50·46	56·17	54·88	57·85	61·63	56·16	62·50	61·06	55·48	72·72	48·84	64·85	60·16
Average area per farm acre	148·36	141·25	122·32	128·41	134·06	99·23	120·37	132·77	163·02	141·76	126·35	137·36	104·45	104·12	157·98	89·81	114·44	124·09
Average cows per farm	52·60	57·27	58·20	52·71	55·15	47·97	63·57	81·71	83·45	79·13	68·99	59·74	44·39	51·42	60·86	43·65	48·91	57·52
Average butterfat per farm lb.	11,116	12,773	13,124	12,637	12,465	13,048	16,916	22,028	19,316	20,569	18,155	16,628	11,391	13,947	13,484	9,934	11,991	14,610
Average breeding-sows per farm	2·36	3·46	3·27	3·94	3·31	4·27	4·55	5·19	7·00	5·50	5·01	3·15	3·50	4·63	3·90	4·94	3·38	4·05
Average laying birds per farm	14·48	11·35	18·80	12·32	14·26	18·97	15·31	10·65	39·36	17·97	17·46	12·12	15·47	15·97	14·72	22·81	10·29	15·33
Average working-horses per farm	2·76	2·35	2·47	2·03	2·37	2·57	3·14	3·03	3·27	3·53	3·09	2·70	1·97	2·19	3·31	2·61	2·18	2·61
Average male workers per farm	1·96	2·04	2·22	2·09	2·08	1·97	2·14	2·42	2·82	2·30	2·25	2·20	1·71	1·88	2·17	1·84	1·77	2·06
Average female workers per farm	0·36	0·61	0·70	0·56	0·57	0·40	0·74	0·93	0·45	0·77	0·69	0·72	0·53	0·74	0·66	0·35	0·82	0·65
Average total labour per farm	2·32	2·65	2·92	2·65	2·65	2·37	2·88	3·35	3·27	3·07	2·94	2·92	2·24	2·62	2·83	2·19	2·59	2·71
Average breeding-sows per 100 cows	4·49	6·04	5·61	7·48	6·01	8·90	7·15	6·36	8·39	6·95	7·27	5·27	7·88	9·00	6·40	11·31	6·92	7·04
Average laying-birds per 100 cows	27·53	19·81	32·30	23·38	25·86	39·54	24·08	13·03	47·17	22·70	25·31	20·28	34·85	31·06	24·19	52·25	21·05	26·66
Average working-horses per 100 cows	5·25	4·10	4·24	3·85	4·30	5·35	4·94	3·71	3·92	4·47	4·48	4·52	4·45	4·26	5·44	5·99	4·45	4·54
Average male workers per 100 cows	3·73	3·56	3·81	3·96	3·78	4·10	3·37	2·96	3·38	2·91	3·26	3·68	3·85	3·65	3·57	4·21	3·61	3·59
Average female workers per 100 cows	0·68	1·07	1·20	1·06	1·02	0·83	1·16	1·15	0·54	0·97	1·01	1·21	1·19	1·44	1·08	0·81	1·68	1·13
Average total labour per 100 cows	4·41	4·63	5·01	5·02	4·80	4·93	4·53	4·11	3·92	3·88	4·27	4·89	5·04	5·09	4·65	5·02	5·29	4·72
Average capital value of implements per farm £	95	157	136	118	127	139	163	169	238	165	166	211	150	152	166	100	156	157
Average capital value of farm buildings per farm £	207	247	213	172	207	202	216	250	323	267	239	214	162	209	170	186	241	213
Average capital value of milking-plant per farm £	225	205	192	226	212	188	195	190	198	215	197	180	189	178	215	188	204	195
Average capital value of implements per cow £	1·807	2·744	2·342	2·247	2·299	2·891	2·573	2·065	2·852	2·089	2·399	3·523	3·369	2·966	2·724	2·285	3·181	2·735
Average capital value of farm buildings per cow £	3·938	4·317	3·648	3·262	3·756	4·214	3·397	3·063	3·866	3·374	3·468	3·577	3·660	4·060	2·797	4·263	4·921	3·697
Average capital value of milking-plant per cow £	4·266	3·571	3·304	4·282	3·842	3·921	3·066	2·329	2·380	2·711	2·854	3·018	4·252	3·456	3·527	4·304	4·181	3·394
Average Government capital value of land and improvements per farm £	2,385	3,072	3,092	2,647	2,802	2,912	3,459	3,674	2,913	4,553	3,578	3,821	3,404	3,749	1,797	2,967	3,062	3,304
Average Government capital value of land and improvements per cow £	45·35	53·65	53·13	50·22	50·81	60·70	54·41	44·97	34·91	57·54	51·86	63·95	76·68	72·91	29·53	67·99	62·61	57·44
Average Government capital value of land and improvements per acre £	16·08	21·75	25·28	20·61	20·90	29·34	28·74	27·67	17·87	32·12	28·31	27·82	32·59	36·01	11·38	33·04	26·76	26·63
Average per cent. milking-plant repairs* %	3·05	2·89	3·09	3·38	3·13	3·66	4·59	6·33	6·35	4·79	4·95	4·44	3·20	4·01	3·13	3·50	2·85	3·91
Average per cent. implement repairs* %	5·15	3·44	3·31	3·49	3·70	3·09	3·81	4·54	5·76	5·34	4·37	3·85	3·18	4·78	4·89	4·28	4·13	4·13

* Per cent. repairs to capital value.

TABLE 20A.

Costs per Cow, by Districts.

—		Northern North Auckland.	Eastern North Auckland.	Western North Auckland.	Southern North Auckland.	North Auckland.	Northern Waikato.	Mid-Waikato.	Eastern Waikato.	Tauranga.	Bay of Plenty.	South Auckland.	Taranaki.	Wanganui.	Manawatu.	Pumice Area.	Gisborne.	Wairarapa.	North Island.
Cultivation, &c.	£	0·174	0·076	0·124	0·299	0·173	0·124	0·134	0·135	0·159	0·178	0·146	0·163	0·148	0·198	0·193	0·419	0·273	0·181
Grass and other seeds	£	0·192	0·087	0·121	0·100	0·122	0·113	0·139	0·170	0·105	0·204	0·156	0·223	0·241	0·259	0·202	0·171	0·257	0·185
Fertilizers	£	0·774	1·077	0·789	1·320	1·004	1·447	1·209	0·956	1·055	1·045	1·125	1·118	0·567	0·602	1·328	0·283	0·715	0·962
Fencing repairs	£	0·192	0·190	0·176	0·237	0·200	0·227	0·195	0·180	0·140	0·199	0·192	0·195	0·216	0·221	0·155	0·268	0·174	0·199
Water repairs	£	0·035	0·036	0·118	0·070	0·068	0·076	0·061	0·075	0·110	0·056	0·070	0·085	0·060	0·086	0·058	0·121	0·023	0·072
Noxious weeds	£	0·029	0·007	0·000	0·000	0·008	0·005	0·017	0·005	0·105	0·017	0·020	0·055	0·012	0·001	0·044	0·004	0·010	0·021
Rabbits	£	..	..	..	0·001	0·000	0·011	0·007	..	..	0·004	0·004	..	0·004	0·007	0·016	0·006	..	0·004
Casual labour	£	0·052	0·070	0·079	0·079	0·071	0·071	0·093	0·080	0·069	0·050	0·074	0·057	0·063	0·103	0·043	0·068	0·124	0·074
Cow-covers used	£	0·041	0·030	0·033	0·045	0·037	0·064	0·054	0·050	0·028	0·023	0·045	0·045	0·056	0·069	0·045	0·079	0·037	0·048
Veterinary	£	0·047	0·059	0·064	0·053	0·056	0·072	0·063	0·110	0·078	0·102	0·087	0·059	0·079	0·102	0·055	0·094	0·078	0·076
Shoeing	£	0·031	0·007	0·023	0·016	0·019	0·061	0·037	0·036	0·017	0·058	0·043	0·055	0·023	0·033	0·021	0·012	0·068	0·037
Implement repairs	£	0·093	0·094	0·077	0·079	0·085	0·089	0·098	0·094	0·164	0·112	0·105	0·136	0·107	0·142	0·133	0·098	0·131	0·113
Milking-plant repairs	£	0·130	0·103	0·102	0·145	0·120	0·143	0·140	0·147	0·151	0·130	0·141	0·134	0·136	0·139	0·110	0·151	0·119	0·133
Milking-plant power	£	0·474	0·418	0·410	0·501	0·451	0·406	0·449	0·400	0·379	0·423	0·418	0·424	0·406	0·419	0·442	0·499	0·456	0·431
Milking-plant materials	£	0·088	0·073	0·083	0·092	0·084	0·086	0·076	0·080	0·067	0·082	0·079	0·069	0·079	0·094	0·071	0·078	0·103	0·081
Main working-costs	£	2·352	2·327	2·199	3·037	2·498	2·995	2·772	2·518	2·627	2·683	2·705	2·818	2·197	2·475	2·916	2·351	2·568	2·617
Depreciation on implements	£	0·181	0·274	0·234	0·225	0·230	0·289	0·257	0·206	0·285	0·209	0·240	0·352	0·337	0·297	0·272	0·229	0·318	0·273
Depreciation on farm buildings	£	0·157	0·173	0·146	0·130	0·150	0·169	0·136	0·122	0·155	0·135	0·138	0·143	0·146	0·162	0·112	0·170	0·197	0·148
Depreciation on milking-plant	£	0·320	0·268	0·248	0·321	0·288	0·294	0·230	0·175	0·178	0·203	0·214	0·227	0·319	0·259	0·265	0·323	0·313	0·255
Total depreciation	£	0·658	0·715	0·628	0·676	0·668	0·752	0·623	0·503	0·618	0·547	0·592	0·722	0·802	0·718	0·649	0·722	0·828	0·676
Sundry items	£	0·269	0·293	0·277	0·329	0·294	0·385	0·298	0·304	0·368	0·284	0·315	0·308	0·338	0·322	0·204	0·408	0·379	0·313
Rates	£	0·620	0·314	0·520	0·367	0·449	0·456	0·319	0·583	0·258	0·560	0·458	0·453	0·263	0·544	0·192	0·726	0·307	0·444
Land-tax	£	0·017	0·008	0·012	0·019	0·014	0·033	0·024	0·033	0·004	0·040	0·030	0·018	0·022	0·030	0·009	0·021	0·007	0·021
Overhead	£	0·906	0·615	0·809	0·715	0·757	0·874	0·641	0·920	0·630	0·884	0·803	0·779	0·623	0·896	0·405	1·155	0·693	0·778
Total working-expenses (excluding*)	£	3·916	3·657	3·636	4·428	3·923	4·621	4·036	3·941	3·875	4·114	4·100	4·319	3·622	4·089	3·970	4·228	4·089	4·071
Stock and poultry feed purchases*	£	0·175	0·161	0·326	0·274	0·241	0·368	0·205	0·207	0·198	0·224	0·233	0·173	0·278	0·310	0·202	0·241	0·712	0·260
Total working-expenses (including*)	£	4·091	3·818	3·962	4·702	4·164	4·989	4·241	4·148	4·073	4·338	4·333	4·492	3·900	4·399	4·172	4·469	4·801	4·331
Number of farms		25	60	30	34	115	30	42	31	11	30	144	86	38	73	29	31	34	550
Number of cows		1,315	1,489	1,746	1,792	6,342	1,439	2,670	2,533	918	2,374	9,934	5,138	1,687	3,754	1,765	1,353	1,663	31,636

TABLE 20B.

Costs in Pence per Pound of Butterfat, by Districts.

—		Northern North Auckland.	Eastern North Auckland.	Western North Auckland.	Southern North Auckland.	North Auckland.	Northern Waikato.	Mid-Waikato.	Eastern Waikato.	Tauranga.	Bay of Plenty.	South Auckland.	Taranaki.	Wanganui.	Manawatu.	Pumice Area.	Gisborne.	Wairarapa.	North Island.
Cultivation, &c.	d.	0·197	0·082	0·132	0·299	0·183	0·109	0·121	0·121	0·165	0·164	0·133	0·140	0·138	0·175	0·209	0·442	0·268	0·171
Grass and other seeds ..	d.	0·219	0·093	0·128	0·101	0·129	0·100	0·126	0·152	0·109	0·189	0·142	0·193	0·226	0·229	0·218	0·180	0·251	0·175
Fertilizers	d.	0·879	1·159	0·840	1·321	1·066	1·276	1·090	0·851	1·094	0·965	1·026	0·965	0·530	0·533	1·439	0·299	0·700	0·909
Fencing repairs	d.	0·218	0·204	0·187	0·238	0·212	0·201	0·176	0·160	0·145	0·184	0·175	0·168	0·202	0·196	0·168	0·283	0·170	0·188
Water repairs	d.	0·039	0·039	0·126	0·070	0·072	0·067	0·055	0·067	0·114	0·051	0·064	0·073	0·056	0·077	0·063	0·127	0·023	0·068
Noxious weeds	d.	0·033	0·008	0·000	0·000	0·009	0·004	0·015	0·004	0·108	0·016	0·018	0·048	0·011	0·001	0·047	0·004	0·009	0·020
Rabbits	d.	..	..	..	0·001	0·000	0·010	0·006	..	..	0·004	0·004	..	0·004	0·006	0·018	0·007	..	0·003
Casual labour	d.	0·060	0·075	0·084	0·079	0·076	0·063	0·084	0·071	0·072	0·046	0·068	0·049	0·059	0·091	0·046	0·072	0·121	0·070
Cow-covers used	d.	0·046	0·032	0·035	0·045	0·039	0·056	0·049	0·044	0·029	0·021	0·041	0·038	0·052	0·061	0·049	0·084	0·036	0·045
Veterinary	d.	0·053	0·064	0·068	0·053	0·060	0·063	0·057	0·098	0·081	0·094	0·079	0·051	0·074	0·090	0·060	0·099	0·076	0·072
Shoeing	d.	0·035	0·007	0·025	0·016	0·020	0·054	0·033	0·032	0·018	0·054	0·040	0·047	0·022	0·030	0·023	0·012	0·067	0·035
Implement repairs ..	d.	0·106	0·102	0·082	0·079	0·090	0·079	0·088	0·084	0·170	0·103	0·096	0·117	0·100	0·125	0·144	0·103	0·129	0·107
Milking-plant repairs ..	d.	0·148	0·111	0·108	0·145	0·128	0·127	0·127	0·131	0·157	0·120	0·129	0·116	0·127	0·122	0·120	0·159	0·117	0·125
Milking-plant power ..	d.	0·538	0·449	0·436	0·502	0·478	0·358	0·405	0·356	0·393	0·390	0·380	0·366	0·380	0·371	0·478	0·527	0·446	0·408
Milking-plant materials ..	d.	0·100	0·079	0·089	0·091	0·090	0·076	0·068	0·071	0·069	0·076	0·072	0·059	0·074	0·083	0·077	0·082	0·101	0·077
Main working-costs	d.	2·671	2·504	2·340	3·040	2·652	2·643	2·500	2·242	2·724	2·477	2·467	2·430	2·055	2·190	3·159	2·480	2·514	2·473
Depreciation on implements	d.	0·205	0·295	0·249	0·225	0·244	0·255	0·232	0·184	0·296	0·193	0·219	0·304	0·315	0·263	0·295	0·241	0·311	0·258
Depreciation on farm buildings	d.	0·179	0·186	0·155	0·131	0·160	0·149	0·123	0·109	0·160	0·124	0·126	0·123	0·137	0·144	0·121	0·180	0·193	0·140
Depreciation on milking-plant	d.	0·364	0·288	0·264	0·321	0·306	0·259	0·207	0·155	0·185	0·188	0·195	0·195	0·298	0·229	0·287	0·340	0·307	0·241
Total depreciation	d.	0·748	0·769	0·668	0·677	0·710	0·663	0·562	0·448	0·641	0·505	0·540	0·622	0·750	0·636	0·703	0·761	0·811	0·639
Sundry items	d.	0·306	0·315	0·295	0·329	0·312	0·339	0·269	0·271	0·381	0·262	0·287	0·266	0·317	0·284	0·221	0·430	0·372	0·296
Rates	d.	0·704	0·338	0·553	0·367	0·477	0·403	0·287	0·519	0·268	0·517	0·418	0·391	0·246	0·481	0·208	0·766	0·300	0·419
Land-tax	d.	0·019	0·009	0·013	0·019	0·015	0·029	0·022	0·029	0·004	0·037	0·027	0·015	0·020	0·027	0·010	0·021	0·007	0·020
Overhead ..	d.	1·029	0·662	0·861	0·715	0·804	0·771	0·578	0·819	0·653	0·816	0·732	0·672	0·583	0·792	0·439	1·217	0·679	0·735
Total working-expenses (excluding)*	d.	4·448	3·935	3·869	4·432	4·166	4·077	3·640	3·509	4·018	3·798	3·739	3·724	3·388	3·618	4·301	4·458	4·004	3·847
Stock and poultry feed purchases*	d.	0·198	0·173	0·348	0·274	0·256	0·325	0·185	0·184	0·205	0·207	0·213	0·150	0·260	0·275	0·219	0·254	0·697	0·246
Total working-expenses (including*)	d.	4·646	4·108	4·217	4·706	4·422	4·402	3·825	3·693	4·223	4·005	3·952	3·874	3·648	3·893	4·520	4·712	4·701	4·093
Number of farms		25	26	30	34	115	30	42	31	11	30	144	86	38	73	29	31	34	550
Number of cows		1,315	1,489	1,746	1,792	6,342	1,439	2,670	2,533	918	2,374	9,934	5,138	1,687	3,754	1,765	1,353	1,663	31,636

TABLE 20c.

Percentage Costs by Districts and by Main Sections (applies to Tables 20 A and B).

—	Northern North Auckland.	Eastern North Auckland.	Western North Auckland.	Southern North Auckland.	North Auckland.	Northern Waikato.	Mid-Waikato.	Eastern Waikato.	Tauranga.	Bay of Plenty.	South Auckland.	Taranaki.	Wanganui.	Manawatu.	Pumice Area.	Gisborne.	Wairarapa.	North Island.
	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%
Cultivation, &c.	7·38	3·27	5·63	9·85	6·91	4·13	4·83	5·38	6·04	6·62	5·38	5·78	6·72	8·00	6·61	17·81	10·64	6·92
Grass and other seeds	8·18	3·71	5·49	3·31	4·88	3·79	5·02	6·76	4·02	7·62	5·76	7·93	10·98	10·47	6·91	7·26	10·01	7·08
Fertilizers	32·92	46·27	35·90	43·45	40·18	48·29	43·60	37·98	40·15	38·97	41·61	39·69	25·81	24·32	45·54	12·05	27·84	36·75
Fencing repairs	8·15	8·14	7·99	7·82	7·99	7·59	7·04	7·14	5·32	7·42	7·09	6·91	9·82	8·94	5·32	11·42	6·77	7·60
Water repairs	1·48	1·56	5·38	2·31	2·73	2·52	2·20	2·99	4·18	2·07	2·59	3·01	2·74	3·50	1·99	5·13	0·90	2·77
Noxious weeds	1·23	0·32	0·02	0·01	0·32	0·17	0·61	0·19	3·98	0·65	0·75	1·96	0·53	0·03	1·49	0·16	0·37	0·79
Rabbits	..	..	..	0·04	0·01	0·36	0·24	..	..	0·15	0·16	..	0·19	0·27	0·56	0·27	..	0·14
Casual labour	2·23	3·02	3·60	2·59	2·86	2·37	3·38	3·18	2·64	1·87	2·74	2·03	2·84	4·15	1·46	2·91	4·82	2·84
Cow-covers used	1·73	1·27	1·48	1·48	1·48	2·14	1·96	1·98	1·08	0·84	1·65	1·58	2·54	2·80	1·55	3·38	1·44	1·82
Veterinary	1·99	2·55	2·89	1·75	2·25	2·40	2·27	4·36	2·97	3·80	3·21	2·11	3·62	4·12	1·90	4·00	3·03	2·90
Shoeing	1·32	0·29	1·06	0·52	0·76	2·04	1·32	1·43	0·66	2·18	1·61	1·94	1·06	1·36	0·74	0·50	2·66	1·41
Implement repairs	3·95	4·06	3·52	2·58	3·40	2·98	3·53	3·72	6·25	4·16	3·88	4·81	4·88	5·72	4·56	4·16	5·12	4·32
Milking-plant repairs	5·54	4·43	4·64	4·76	4·81	4·79	5·07	5·86	5·75	4·84	5·22	4·76	6·18	5·60	3·79	6·40	4·64	5·07
Milking-plant power	20·14	17·95	18·62	16·51	18·04	13·56	16·19	15·87	14·42	15·75	15·43	15·06	18·50	16·93	15·15	21·23	17·74	16·50
Milking-plant materials	3·76	3·16	3·78	3·02	3·38	2·87	2·74	3·16	2·54	3·06	2·92	2·43	3·59	3·79	2·43	3·32	4·02	3·09
Main working-costs	100·00	100·00	100·00	100·00	100·00	100·00	100·00	100·00	100·00	100·00	100·00	100·00	100·00	100·00	100·00	100·00	100·00	100·00
	57·49	*60·96*	*55·50*	*64·59*	*59·98*	*60·04*	*65·36*	*60·70*	*64·49*	*61·84*	*62·42*	*62·73*	*56·33*	*56·26*	*69·90*	*52·62*	*53·49*	*60·41*
Depreciation on implements	27·46	38·38	37·30	33·22	34·40	38·46	41·29	41·00	46·12	38·17	40·49	48·81	42·00	41·29	41·98	31·66	38·39	40·46
Depreciation on farm buildings	23·93	24·16	23·24	19·29	22·48	22·42	21·81	24·32	25·01	24·66	23·40	19·82	18·25	22·61	17·24	23·62	23·76	21·88
Depreciation on milking-plant	48·61	27·46	39·46	47·49	43·12	39·12	36·90	34·68	28·87	37·17	36·11	31·37	39·75	36·10	40·78	44·72	37·85	37·66
Total depreciation	100·00	100·00	100·00	100·00	100·00	100·00	100·00	100·00	100·00	100·00	100·00	100·00	100·00	100·00	100·00	100·00	100·00	100·00
	16·09	*18·73*	*15·85*	*14·38*	*16·05*	*15·07*	*14·69*	*12·14*	*15·18*	*12·62*	*13·68*	*16·07*	*20·57*	*16·33*	*15·55*	*16·15*	*17·26*	*15·61*
Sundry items	29·70	47·58	34·30	45·97	38·80	44·01	46·53	33·03	58·40	32·12	39·26	39·57	54·33	35·92	50·32	35·35	54·78	40·21
Rates	68·42	51·10	64·25	51·39	59·35	52·21	49·68	63·41	41·03	63·34	57·05	58·16	42·19	60·71	47·35	62·90	44·25	57·03
Land-tax	1·88	1·32	1·45	2·64	1·85	3·78	3·79	3·56	0·57	4·54	3·69	2·27	3·48	3·37	2·33	1·75	0·97	2·76
Overhead	100·00	100·00	100·00	100·00	100·00	100·00	100·00	100·00	100·00	100·00	100·00	100·00	100·00	100·00	100·00	100·00	100·00	100·00
	22·15	*16·12*	*20·41*	*15·19*	*18·18*	*17·51*	*15·12*	*22·17*	*15·46*	*20·37*	*18·52*	*17·34*	*15·96*	*20·35*	*9·71*	*25·84*	*14·43*	*17·97*
Stock and poultry feed*	*4·27*	*4·19*	*8·24*	*5·84*	*5·79*	*7·38*	*4·83*	*4·99*	*4·87*	*5·17*	*5·38*	*3·86*	*7·14*	*7·06*	*4·84*	*5·39*	*14·82*	*6·01*
Total working-expenses (including *)	*100·00*	*100·00*	*100·00*	*100·00*	*100·00*	*100·00*	*100·00*	*100·00*	*100·00*	*100·00*	*100·00*	*100·00*	*100·00*	*100·00*	*100·00*	*100·00*	*100·00*	*100·00*

NOTE.—Figures in italics are the percentages of total costs represented by main subsections.

TABLE 20D.

Returns and Costs per Acre (in £), by Districts.

—	Northern North Auckland.	Eastern North Auckland.	Western North Auckland.	Southern North Auckland.	North Auckland.	Northern Waikato.	Mid-Waikato.	Eastern Waikato.	Tauranga.	Bay of Plenty.	South Auckland.	Taranaki.	Wanganui.	Manawatu.	Pumice Area.	Gisborne.	Wairarapa.	North Island.
Butterfat per acre .. lb.	74·927	90·429	107·299	98·422	92·979	131·491	140·536	165·905	118·488	145·101	143·689	121·055	109·059	133·944	85·350	110·614	104·778	117·734
	£	£	£	£	£	£	£	£	£	£	£	£	£	£	£	£	£	£
Value of butterfat per acre at 9·25d. per pound	2·888	3·485	4·136	3·793	3·584	5·068	5·416	6·394	4·567	5·592	5·538	4·666	4·203	5·163	3·289	4·263	4·038	4·538
Pig returns at 1d. per pound of butterfat	0·312	0·377	0·447	0·410	0·387	0·548	0·586	0·692	0·493	0·605	0·599	0·504	0·455	0·558	0·356	0·461	0·437	0·490
Total income per acre ..	3·200	3·862	4·583	4·203	3·971	5·616	6·002	7·086	5·060	6·197	6·137	5·170	4·658	5·721	3·645	4·724	4·475	5·028
Less total working-costs per acre	1·451	1·548	1·885	1·930	1·713	2·412	2·240	2·553	2·085	2·421	2·366	1·954	1·658	2·173	1·607	2·172	2·052	2·008
Interest and labour balance per acre	1·749	2·314	2·698	2·273	2·258	3·204	3·762	4·533	2·975	3·776	3·771	3·216	3·000	3·548	2·038	2·552	2·423	3·020
Less male labour reward per acre	1·321	1·443	1·812	1·626	1·553	1·982	1·780	1·822	1·729	1·622	1·781	1·600	1·638	1·802	1·375	2·047	1·542	1·662
Interest balance per acre	0·428	0·871	0·886	0·647	0·705	1·222	1·982	2·711	1·246	2·154	1·990	1·616	1·362	1·746	0·663	0·505	0·881	1·358
Interest balance per acre, capitalized at 5 per cent.	8·560	17·420	17·720	12·940	14·100	24·400	39·640	54·220	24·920	43·080	39·800	32·320	27·240	34·960	13·260	10·100	17·620	27·160
Government capital value of land and improvements per acre	16·078	21·751	25·279	20·611	20·903	29·342	28·737	27·673	17·869	32·119	28·315	27·817	32·594	36·008	11·375	33·040	26·759	26·627
Value of dairy stock per acre ..	3·013	3·446	4·044	3·489	3·497	4·109	4·489	5·231	4·351	4·745	4·641	3·697	3·613	4·198	3·275	4·131	3·633	3·940
Value of horses per acre	0·558	0·498	0·605	0·474	0·531	0·776	0·783	0·685	0·602	0·748	0·734	0·589	0·567	0·631	0·629	0·873	0·570	0·631
Value of pigs per acre	0·048	0·074	0·080	0·092	0·074	0·129	0·113	0·117	0·129	0·116	0·119	0·069	0·101	0·133	0·074	0·165	0·089	0·098
Value of implements per acre ..	0·641	1·113	1·115	0·922	0·945	1·398	1·359	1·271	1·460	1·166	1·310	1·532	1·432	1·465	1·049	1·111	1·359	1·268
Value of milking-plant per acre ..	1·513	1·448	1·572	1·758	1·581	1·895	1·619	1·433	1·219	1·514	1·558	1·313	1·807	1·707	1·359	2·091	1·787	1·573
Total capital per acre ..	21·851	28·330	32·695	27·346	27·531	37·649	37·100	36·410	25·630	40·408	36·677	35·017	40·114	44·142	17·761	41·411	34·197	34·137
Main working-costs per acre .. *	0·834	0·944	1·046	1·246	1·028	1·448	1·464	1·550	1·345	1·497	1·477	1·226	0·934	1·223	1·123	1·143	1·098	1·213
Total depreciation per acre .. *	0·234	0·290	0·299	0·278	0·275	0·364	0·329	0·310	0·317	0·306	0·324	0·314	0·341	0·355	0·250	0·351	0·354	0·313
Overhead per acre .. .. *	0·321	0·249	0·385	0·293	0·311	0·422	0·339	0·566	0·322	0·493	0·438	0·339	0·265	0·442	0·156	0·561	0·296	0·361
Stock-feed, &c., per acre .. *	0·062	0·065	0·155	0·113	0·099	0·178	0·108	0·127	0·101	0·125	0·127	0·075	0·118	0·153	0·078	0·117	0·304	0·121
Total working-costs per acre	1·451	1·548	1·885	1·930	1·713	2·412	2·240	2·553	2·085	2·421	2·366	1·954	1·658	2·173	1·607	2·172	2·052	2·008

* Break-up of total working-costs per acre.

TABLE 20E.

Returns and Costs per Pound of Butterfat (in Pence), by Districts.

—		Northern North Auckland.	Eastern North Auckland.	Western North Auckland.	Southern North Auckland.	North Auckland.	Northern Waikato.	Mid-Waikato.	Eastern Waikato.	Tauranga.	Bay of Plenty.	South Auckland.	Taranaki.	Wanganui.	Manawatu.	Pumice Area.	Gisborne.	Wairarapa.	North Island.
Value of butterfat at 9·25d. per pound	d.	9·25	9·25	9·25	9·25	9·25	9·25	9·25	9·25	9·25	9·25	9·25	9·25	9·25	9·25	9·25	9·25	9·25	9·25
Value of pig returns at 1d. per pound of butterfat	d.	1·00	1·00	1·00	1·00	1·00	1·00	1·00	1·00	1·00	1·00	1·00	1·00	1·00	1·00	1·00	1·00	1·00	1·00
Total income per pound of butterfat	d.	10·25	10·25	10·25	10·25	10·25	10·25	10·25	10·25	10·25	10·25	10·25	10·25	10·25	10·25	10·25	10·25	10·25	10·25
Less total working-costs per pound of butterfat	d.	4·646	4·108	4·217	4·706	4·422	4·402	3·825	3·693	4·223	4·005	3·952	3·874	3·648	3·893	4·520	4·712	4·701	4·093
Interest and labour balance per pound of butterfat	d.	5·604	6·142	6·033	5·544	5·828	5·848	6·425	6·557	6·027	6·245	6·298	6·376	6·602	6·357	5·730	5·538	5·549	6·157
Less male labour reward per pound of butterfat	d.	4·232	3·830	4·053	3·965	4·010	3·617	3·040	2·636	3·502	2·684	2·974	3·172	3·604	3·230	3·867	4·442	3·532	3·388
Interest balance per pound of butterfat	d.	1·372	2·312	1·980	1·579	1·818	2·231	3·385	3·921	2·525	3·561	3·324	3·204	2·998	3·127	1·863	1·096	2·017	2·769
Interest at 5 per cent. on total capital	d.	3·500	3·759	3·656	3·334	3·553	3·436	3·168	2·634	2·596	3·342	3·063	3·471	4·414	3·955	2·497	4·493	3·917	3·479
* Main working-costs per pound of butterfat	d.	2·671	2·504	2·340	3·040	2·652	2·643	2·500	2·242	2·724	2·477	2·467	2·430	2·055	2·190	3·159	2·480	2·514	2·473
* Total depreciation per pound of butterfat	d.	0·748	0·769	0·668	0·677	0·710	0·663	0·562	0·448	0·641	0·505	0·540	0·622	0·750	0·636	0·703	0·761	0·811	0·639
* Overhead per pound of butterfat	d.	1·029	0·662	0·861	0·715	0·804	0·771	0·578	0·819	0·653	0·816	0·732	0·672	0·583	0·792	0·439	1·217	0·679	0·735
* Stock-feed, &c., per pound of butterfat	d.	0·198	0·173	0·348	0·274	0·256	0·325	0·185	0·184	0·205	0·207	0·213	0·150	0·260	0·275	0·219	0·254	0·697	0·246
* Total working-costs per pound of butterfat	d.	4·646	4·108	4·217	4·706	4·422	4·402	3·825	3·693	4·223	4·005	3·952	3·874	3·648	3·893	4·520	4·712	4·701	4·093
† Number of farms	..	25	26	30	34	115	30	42	31	11	30	144	86	38	73	29	31	34	550
† Average area of farms	acres	148·4	141·2	122·3	128·4	134·1	99·2	120·4	132·8	163·0	141·8	126·4	137·4	104·4	104·1	158·0	89·8	114·4	124·1
† Average size of herd ..	..	52·6	57·3	58·2	52·7	55·1	48·0	63·6	81·7	83·5	79·1	69·0	59·7	44·4	51·4	60·9	43·6	48·9	57·5
† Average butterfat per acre	lb.	74·9	90·4	107·3	98·4	93·0	131·5	140·5	165·9	118·5	145·1	143·7	121·0	109·1	133·9	85·4	110·6	104·8	117·7
† Average butterfat per cow	lb.	211	223	226	240	226	272	266	270	231	260	263	278	257	271	222	228	245	254
† Average cows per 100 acres	..	35·5	40·5	47·6	41·0	41·1	48·3	52·8	61·5	51·2	55·8	54·6	43·5	42·5	49·4	38·5	48·6	42·7	46·4

* Break-up of total working-costs per lb. of butterfat. † Brief descriptive details.

TABLE 20F.

Percentage Position of Costs and Returns, by Districts (applies to Tables 20 D and E).

—	Northern North Auckland.	Eastern North Auckland.	Western North Auckland.	Southern North Auckland.	North Auckland.	Northern Waikato.	Mid-Waikato.	Eastern Waikato.	Tauranga.	Bay of Plenty.	South Auckland.	Taranaki.	Wanganui.	Manawatu.	Pumice Area.	Gisborne.	Wairarapa.	North Island.
Butterfat per acre .. lb.	74·927	90·429	107·299	98·422	92·979	131·491	140·536	165·905	118·488	145·101	143·689	121·055	109·059	133·944	85·350	110·614	104·778	117·734
Value of butterfat per acre at 9·25d. per pound	% 90·24	% 90·24	% 90·24	% 90·24	% 90·24	% 90·24	% 90·24	% 90·24	% 90·24	% 90·24	% 90·24	% 90·24	% 90·24	% 90·24	% 90·24	% 90·24	% 90·24	% 90·24
Pig returns at 1d. per pound of butterfat	9·76	9·76	9·76	9·76	9·76	9·76	9·76	9·76	9·76	9·76	9·76	9·76	9·76	9·76	9·76	9·76	9·76	9·76
Total income	100·00	100·00	100·00	100·00	100·00	100·00	100·00	100·00	100·00	100·00	100·00	100·00	100·00	100·00	100·00	100·00	100·00	100·00
Less total working-costs	45·34	40·08	41·13	45·92	43·14	42·95	37·32	36·03	41·21	39·07	38·55	37·79	35·59	37·95	44·09	45·98	45·85	39·94
Interest and labour balance ..	54·66	59·92	58·87	54·08	56·86	57·05	62·68	63·97	58·79	60·93	61·45	62·21	64·41	62·05	55·91	54·02	54·15	60·06
Less male labour reward ..	41·28	37·37	39·54	38·69	39·11	35·29	29·66	25·71	34·17	26·17	29·02	30·95	35·17	31·50	37·72	43·33	34·46	33·05
Interest balance	13·38	22·55	19·33	15·39	17·75	21·76	33·02	38·26	24·62	34·76	32·43	31·26	29·24	30·55	18·19	10·69	19·69	27·01
Government capital value of land and improvements	73·58	76·78	77·32	75·37	75·92	77·94	77·46	76·00	69·72	79·49	77·20	79·44	81·25	81·57	64·05	79·79	78·25	78·00
Value of dairy stock	13·79	12·16	12·37	12·76	12·70	10·91	12·10	14·37	16·98	11·74	12·65	10·56	9·01	9·51	18·44	9·97	10·62	11·54
Value of working-horses	2·56	1·76	1·85	1·73	1·93	2·06	2·11	1·88	2·35	1·85	2·00	1·68	1·41	1·43	3·54	2·11	1·67	1·85
Value of pigs	0·22	0·26	0·24	0·34	0·27	0·34	0·31	0·32	0·50	0·29	0·33	0·20	0·25	0·30	0·41	0·40	0·26	0·29
Value of farm implements ..	2·93	3·93	3·41	3·37	3·44	3·71	3·66	3·49	5·70	2·88	3·57	4·37	3·57	3·32	5·91	2·68	3·98	3·71
Value of milking-plant	6·92	5·11	4·81	6·43	5·74	5·04	4·36	3·94	4·75	3·75	4·25	3·75	4·51	3·87	7·65	5·05	5·22	4·61
Total capital	100·00	100·00	100·00	100·00	100·00	100·00	100·00	100·00	100·00	100·00	100·00	100·00	100·00	100·00	100·00	100·00	100·00	100·00
Main working-costs .. *	57·49	60·96	55·50	64·59	59·98	60·04	65·36	60·70	64·49	61·84	62·42	62·73	56·33	56·26	69·90	52·62	53·49	60·41
Total depreciation .. *	16·09	18·73	15·85	14·38	16·05	15·07	14·69	12·14	15·18	12·62	13·68	16·07	20·57	16·33	15·55	16·15	17·26	15·61
Overhead .. .. *	22·15	16·11	20·41	15·19	18·18	17·51	15·12	22·17	15·46	20·37	18·52	17·34	15·96	20·35	9·71	25·84	14·43	17·97
Stock-feed, &c., purchased *	4·27	4·20	8·24	5·84	5·79	7·38	4·83	4·99	4·87	5·17	5·38	3·86	7·14	7·06	4·84	5·39	14·82	6·01
Total working-costs	100·00	100·00	100·00	100·00	100·00	100·00	100·00	100·00	100·00	100·00	100·00	100·00	100·00	100·00	100·00	100·00	100·00	100·00

* Break-up of total working-costs.

TABLE 21.

Returns and Costs per Acre according to Level of Butterfat Production per Acre (£).

		Range of Butterfat Production per Acre (lb.).								
		Under 75.	75·00 to 99·99.	100·00 to 124·99.	125·00 to 149·99.	150·00 to 174·99.	175·00 to 199·99.	200·00 to 224·99.	225·00 to 249·99.	250 and Over.
Butterfat per acre	lb.	56·826	85·686	112·469	137·841	160·788	186·774	210·406	238·363	281·535
Value of butterfat per acre at 9·25d. per pound ..	£	2·190	3·303	4·335	5·313	6·197	7·199	8·109	9·187	10·851
Pig returns at 1d. per pound of butterfat	£	0·237	0·357	0·468	0·574	0·670	0·778	0·877	0·993	1·173
Total income per acre	£	2·427	3·660	4·803	5·887	6·867	7·977	8·986	10·180	12·024
Less total working-costs per acre ..	£	1·187	1·555	1·954	2·319	2·550	2·967	3·191	3·415	4·104
Interest and labour balance per acre	£	1·240	2·105	2·849	3·568	4·317	5·010	5·795	6·765	7·920
Less male labour reward per acre	£	1·051	1·386	1·648	1·790	2·120	2·367	2·529	2·653	2·921
Interest balance per acre	£	0·189	0·719	1·201	1·778	2·197	2·643	3·266	4·112	4·999
Interest balance per acre capitalized at 5 per cent. ..	£	3·78	14·38	24·02	35·56	43·94	52·86	65·32	82·24	99·98
Government capital value of land and improvements per acre	£	14·490	21·731	25·561	29·573	35·114	41·169	45·711	45·641	46·763
Value of dairy stock per acre	£	2·481	3·073	3·905	4·411	5·029	5·623	6·034	6·719	7·383
Value of horses per acre	£	0·449	0·522	0·620	0·675	0·775	0·869	0·958	0·995	0·993
Value of pigs per acre	£	0·062	0·071	0·096	0·113	0·120	0·147	0·129	0·135	0·397
Value of implements per acre	£	0·736	0·993	1·192	1·538	1·560	2·004	2·005	1·981	1·819
Value of milking-plant per acre	£	0·307	1·262	1·543	1·685	2·055	2·257	2·202	2·555	2·622
Total capital per acre	£	18·525	27·652	32·917	37·995	44·653	52·069	57·089	58·026	59·977
Main working-costs per acre .. .. *	£	0·765	0·948	1·164	1·425	1·494	1·729	1·918	1·899	2·529
Total depreciation per acre .. .. *	£	0·196	0·245	0·301	0·357	0·401	0·476	0·475	0·516	0·520
Overhead per acre .. .. .. *	£	0·185	0·274	0·367	0·398	0·500	0·512	0·608	0·712	0·765
Stock-feed, &c., per acre .. .. .. *	£	0·041	0·088	0·122	0·139	0·155	0·250	0·190	0·288	0·290
Total working-expenses per acre ..	£	1·187	1·555	1·954	2·319	2·550	2·967	3·191	3·415	4·104
Number of farms .. .. †	..	68	87	108	105	84	53	29	10	6
Average area of farms .. .. .. †	acres	191·7	143·5	137·1	116·5	91·3	82·1	83·2	75·4	85·6
Average size of herd .. .. .. †	..	55·9	51·9	63·0	60·4	54·0	54·3	59·0	59·6	74·3
Average butterfat per acre .. .. .. †	lb.	56·8	85·7	112·5	137·8	160·8	186·8	210·4	238·4	281·5
Average butterfat per cow .. .. .. †	lb.	195	238	245	264	272	282	296	302	324
Average cows per 100 acres .. .. .. †	..	29·2	36·2	45·9	51·9	59·2	66·2	71·0	79·0	86·9

* Break-up of total working-costs per acre. † Brief descriptive details.

TABLE 22.

Returns and Costs per Pound of Butterfat (in pence) according to level of Butterfat Production per Acre.

		Range of Butterfat Production per Acre (lb.).								
		Under 75·00.	75·00 to 99·99.	100·00 to 124·99.	125·00 to 149·99.	150·00 to 174·99.	175·00 to 199·99.	200·00 to 224·99.	225·00 to 249·99.	250·00 and Over.
Value of butterfat at 9·25d. per pound	d.	9·250	9·250	9·250	9·250	9·250	9·250	9·250	9·250	9·250
Value of pig returns at 1d. per pound of butterfat	d.	1·000	1·000	1·000	1·000	1·000	1·000	1·000	1·000	1·000
Total income per pound of butterfat ..	d.	10·250	10·250	10·250	10·250	10·250	10·250	10·250	10·250	10·250
Less total working-costs per pound of butterfat	d.	5·014	4·335	4·171	4·058	3·806	3·813	3·640	3·438	3·498
Interest and labour balance per pound of butterfat	d.	5·236	5·915	6·079	6·192	6·444	6·437	6·610	6·812	6·752
Less male labour reward per pound of butterfat	d.	4·439	3·841	3·516	3·147	3·164	3·041	2·885	2·671	2·490
Interest balance per pound of butterfat ..	d.	0·797	2·074	2·563	3·045	3·280	3·396	3·725	4·141	4·262
Total interest at 5 per cent. on total capital	d.	4·074	3·854	3·512	3·324	3·333	3·345	3·256	2·921	2·556
Main working-costs per pound of butterfat .. *	d.	3·232	2·641	2·483	2·493	2·229	2·222	2·188	1·911	2·156
Total depreciation per pound of butterfat .. *	d.	0·827	0·683	0·642	0·625	0·599	0·611	0·542	0·519	0·443
Overhead per pound of butterfat .. .. *	d.	0·783	0·765	0·784	0·697	0·747	0·659	0·694	0·717	0·652
Stock-feed, &c., per pound of butterfat .. .. *	d.	0·172	0·246	0·262	0·243	0·231	0·321	0·216	0·291	0·247
Total working-costs per pound of butterfat	d.	5·014	4·335	4·171	4·058	3·806	3·813	3·640	3·438	3·498

* Break-up of total working-costs per lb. of butterfat.

TABLE 23.

Percentage Position according to Butterfat Production per Acre (applies to Tables 21 and 22).

—		Range of Butterfat Production per Acre (lb.).								
		Under 75.	75·00 to 99·99.	100·00 to 124·99.	125·99 to 149·99.	150·00 to 174·99.	175·00 to 199·99.	200·00 to 224·99.	225·00 to 249·99.	250 and Over.
Butterfat per acre	lb.	56·826	85·686	112·469	137·841	160·788	186·774	210·406	238·363	281·535
Value of butterfat at 9·25d. per pound	%	90·24	90·24	90·24	90·24	90·24	90·24	90·24	90·24	90·24
Pig returns at 1d. per pound of butterfat	%	9·76	9·76	9·76	9·76	9·76	9·76	9·76	9·76	9·76
Total income per acre	%	100·00	100·00	100·00	100·00	100·00	100·00	100·00	100·00	100·00
Less total working-costs per acre ..	%	48·91	42·48	40·68	39·39	37·13	37·19	35·52	33·55	34·13
Interest and labour balance per acre	%	51·09	57·52	59·32	60·61	62·87	62·81	64·48	66·45	65·87
Less male labour reward per acre	%	43·30	37·87	34·31	30·41	30·87	29·67	28·14	26·06	24·29
Interest balance per acre	%	7·79	19·65	25·01	30·20	32·00	33·14	36·34	40·39	41·58
Government capital value of land and improvements per acre	%	75·10	78·59	77·65	77·83	78·64	79·07	80·07	78·66	77·97
Value of dairy stock per acre	%	12·86	11·11	11·86	11·61	11·26	10·80	10·57	11·58	12·31
Value of horses per acre	%	2·33	1·89	1·89	1·78	1·74	1·67	1·68	1·72	1·66
Value of pigs per acre	%	0·32	0·26	0·29	0·30	0·27	0·28	0·22	0·23	0·66
Value of implements per acre	%	3·82	3·59	3·62	4·05	3·49	3·85	3·60	3·41	3·03
Value of milking-plant per acre	%	5·57	4·56	4·69	4·43	4·60	4·33	3·86	4·40	4·37
Total capital per acre	%	100·00	100·00	100·00	100·00	100·00	100·00	100·00	100·00	100·00
Main working-costs per acre .. .. *	%	64·45	60·92	59·54	61·43	58·58	58·27	60·10	55·59	61·63
Total depreciation per acre .. .. *	%	16·50	15·76	15·39	15·41	15·73	16·04	14·88	15·10	12·66
Overhead per acre .. .. .. *	%	15·62	17·65	18·80	17·18	19·62	17·27	19·07	20·86	18·64
Stock-feed, &c., per acre .. .. .. *	%	3·43	5·67	6·27	5·98	6·07	8·42	5·95	8·45	7·07
Total working-expenses per acre .. *	%	100·00	100·00	100·00	100·00	100·00	100·00	100·00	100·00	100·00
Number of farms	%	68	87	108	105	84	53	29	10	6

* Break-up of total working-costs per acre.

TABLE 24.

Costs and Returns per Acre according to Size of Herd (£). — *Percentage Position (by Main Sections), (applies to Table on left).*

—	Number of Cows milked per Farm.								Number of Cows milked per Farm.							
	Under 31.	31 to 40.	41 to 50.	51 to 60.	61 to 70.	71 to 80.	81 to 100.	Over 100.	Under 31.	31 to 40.	41 to 50.	51 to 60.	61 to 70.	71 to 80.	81 to 100.	Over 100.
Butterfat per acre .. .. lb.	120·015	110·786	123·626	101·410	113·287	130·804	126·061	124·729	120·015	110·786	123·626	101·410	113·287	130·804	126·061	124·729
									%	%	%	%	%	%	%	%
Value of butterfat at 9·25d. per pound.. .. £	4·626	4·270	4·765	3·908	4·366	5·041	4·859	4·807	90·24	90·24	90·24	90·24	90·24	90·24	90·24	90·24
Pig returns at 1d. per pound of butterfat .. £	0·500	0·461	0·515	0·423	0·472	0·545	0·525	0·520	9·76	9·76	9·76	9·76	9·76	9·76	9·76	9·76
Total income per acre .. .. £	5·126	4·731	5·280	4·331	4·838	5·586	5·384	5·327	100·00	100·00	100·00	100·00	100·00	100·00	100·00	100·00
Less total working-costs per acre .. £	2·467	2·172	2·124	1·853	1·942	2·027	1·909	1·883	48·13	45·91	40·23	42·78	40·14	36·29	35·46	35·35
Interest and labour balance per acre .. .. £	2·659	2·559	3·156	2·478	2·896	3·559	3·475	3·444	51·87	54·09	59·77	57·22	59·86	63·71	64·54	64·65
Less male labour reward per acre .. .. £	2·415	1·829	1·837	1·523	1·580	1·705	1·528	1·381	47·11	38·66	34·79	35·17	32·66	30·52	28·38	25·92
Interest balance per acre .. .. £	0·244	0·730	1·319	0·955	1·316	1·854	1·947	2·063	4·76	15·43	24·98	22·05	27·20	33·19	36·16	38·73
Interest balance per acre capitalized at 5 per cent. £	4·88	14·60	26·38	19·10	26·32	37·08	38·94	41·26	..	..	..	..	..	..	..	..
Government capital value of land and improvements per acre £	33·575	27·935	28·360	23·828	26·220	28·813	25·593	24·162	78·50	77·60	77·76	77·62	78·33	79·17	78·34	77·33
Value of dairy stock per acre .. .. .. £	4·079	3·682	4·012	3·541	3·855	4·247	4·076	4·272	9·54	10·23	11·00	11·54	11·52	11·67	12·48	13·67
Value of horses per acre .. .. .. £	0·945	0·745	0·681	0·569	0·559	0·677	0·562	0·536	2·21	2·07	1·87	1·85	1·67	1·86	1·72	1·72
Value of pigs per acre .. .. .. £	0·117	0·109	0·105	0·081	0·094	0·096	0·110	0·085	0·27	0·30	0·29	0·26	0·28	0·26	0·34	0·27
Value of implements per acre .. .. .. £	1·553	1·469	1·336	1·145	1·320	1·177	1·174	1·129	3·63	4·08	3·66	3·73	3·94	3·24	3·59	3·61
Value of milking-plant per acre .. .. £	2·503	2·060	1·976	1·533	1·426	1·382	1·152	1·061	5·85	5·72	5·42	5·00	4·26	3·80	3·53	3·40
Total capital per acre .. .. £	42·772	36·000	36·470	30·697	33·474	36·392	32·667	31·245	100·00	100·00	100·00	100·00	100·00	100·00	100·00	100·00
Main working-costs per acre .. .. * £	1·382	1·291	1·277	1·140	1·188	1·236	1·170	1·145	56·02	59·44	60·12	61·52	61·18	60·98	61·29	60·81
Total depreciation per acre .. .. * £	0·440	0·379	0·358	0·289	0·303	0·284	0·270	0·254	17·84	17·45	16·86	15·60	15·60	14·01	14·14	13·49
Overhead per acre .. .. .. * £	0·439	0·337	0·363	0·310	0·348	0·392	0·341	0·418	17·79	15·51	17·09	16·73	17·92	19·34	17·86	22·20
Stock-feed, &c., per acre .. .. * £	0·206	0·165	0·126	0·114	0·103	0·115	0·128	0·066	8·35	7·60	5·93	6·15	5·30	5·67	6·71	3·50
Total working-expenses per acre £	2·467	2·172	2·124	1·853	1·942	2·027	1·909	1·883	100·00	100·00	100·00	100·00	100·00	100·00	100·00	100·00
Number of farms	69	106	101	81	70	39	45	39	..	..	..	..	..	..	..	..
Average area of farms .. .. acres	55·2	83·6	97·3	135·4	146·5	153·4	193·4	252·6	..	..	..	..	..	..	..	..
Average size of herd .. .. .. † ..	26·5	36·2	45·9	56·4	66·4	76·6	92·8	126·9	..	..	..	..	..	..	..	..
Average butterfat per acre .. .. † lb.	120·0	110·8	123·6	101·4	113·3	130·8	126·1	124·7	..	..	..	..	..	..	..	..
Average butterfat per cow .. .. lb.	250	256	262	243	250	262	263	248	..	..	..	..	..	..	..	..
Average cows per 100 acres	48·0	43·3	47·2	41·7	45·4	50·0	48·0	50·3	..	..	..	..	..	..	..	..
Average area in acres per male hand .. acres	41·4	54·7	54·4	65·7	63·3	58·7	65·4	72·4	..	..	..	..	..	..	..	..

* Break-up of total working-costs per acre. † Brief descriptive details.

TABLE 25.

Costs and Returns in Pence per Pound of Butterfat according to Size of Herd. — *Percentage Position (by Main Sections), (applies to Table on left).*

	Number of Cows milked per Farm.								Number of Cows milked per Farm.							
	Under 31.	31 to 40.	41 to 50.	51 to 60.	61 to 70.	71 to 80.	81 to 100.	Over 100.	Under 31.	31 to 40.	41 to 50.	51 to 60.	61 to 70.	71 to 80.	81 to 100.	Over 100.
									%	%	%	%	%	%	%	%
Value of butterfat at 9·25d. per pound .. d.	9·25	9·25	9·25	9·25	9·25	9·25	9·25	9·25	90·24	90·24	90·24	90·24	90·24	90·24	90·24	90·24
Value of pig returns at 1d. per pound of butterfat d.	1·00	1·00	1·00	1·00	1·00	1·00	1·00	1·00	9·76	9·76	9·76	9·76	9·76	9·76	9·76	9·76
Total income per pound of butterfat d.	10·25	10·25	10·25	10·25	10·25	10·25	10·25	10·25	100·00	100·00	100·00	100·00	100·00	100·00	100·00	100·00
Less total working-costs per pound of butterfat d.	4·933	4·705	4·124	4·386	4·113	3·719	3·634	3·623	48·13	45·91	40·23	42·78	40·14	36·29	35 46	35·35
Interest and labour balance per pound of butterfat d.	5·317	5·545	6·126	5·864	6·137	6·531	6·616	6·627	51·87	54·09	59·77	57·22	59·86	63·71	64·54	64·65
Less male labour reward per pound of butterfat d.	4·830	3·962	3·566	3·604	3·347	3·128	2·909	2·656	47·11	38·66	34·79	35·17	32·66	30·52	28·38	25·92
Interest balance per pound of butterfat d.	0·487	1·583	2·560	2·260	2·790	3·403	3·707	3·971	4·76	15·43	24·98	22·05	27·20	33·19	36·16	38·73
Total interest at 5 per cent. on total capital d.	4·277	3·899	3·540	3·632	3·546	3·339	3·110	3·006	..	..	..	..	..	..	..	..
Main working-costs per pound of butterfat .. * d.	2·764	2·799	2·480	2·697	2·516	2·267	2·228	2·202	56·02	59·44	60·12	61·52	61·18	60·98	61·29	60·81
Total depreciation per pound of butterfat .. * d.	0·879	0·820	0·695	0·685	0·643	0·522	0·514	0·489	17·84	17·45	16·86	15·60	15·60	14·01	14·14	13·49
Overhead per pound of butterfat .. * d.	0·878	0·729	0·704	0·735	0·736	0·719	0·649	0·805	17·79	15·51	17·09	16·73	17·92	19·34	17·86	22·20
Stock-feed, &c., per pound of butterfat .. * d.	0·412	0·357	0·245	0·269	0·218	0·211	0·243	0·127	8·35	7·60	5·93	6·15	5·30	5·67	6·71	3·50
Total working-costs per pound of butterfat d.	4·933	4·705	4·124	4·386	4·113	3·719	3·634	3·623	100·00	100·00	100·00	100·00	100·00	100·00	100·00	100·00
Number of farms	69	106	101	81	70	39	45	39	..	..	..	..	..	..	..	..
Average area of farms .. .. .. acres	55·2	83·6	97·3	135·4	146·5	153·4	193·4	252·6	..	..	..	..	..	..	..	..
Average size of herd	26·5	36·2	45·9	56·4	66·4	76·6	92·8	126·9	..	..	..	..	..	..	..	..
Average butterfat per acre .. .. † lb.	120·0	110·8	123·6	101·4	113·3	130·8	126·1	124·7	..	..	..	..	..	..	..	..
Average butterfat per cow .. .. lb.	250	256	262	243	250	262	263	248	..	..	..	..	..	..	..	..
Average cows per 100 acres	48·0	43·3	47·2	41·7	45·4	50·0	48·0	50·3	..	..	..	..	..	..	..	..
Average area in acres per male hand .. acres	41·4	54·7	54·4	65·7	63·3	58·7	65·4	72·4	..	..	..	..	..	..	..	..

* Break-up of total working-costs per lb. of butterfat. † Brief descriptive details.

INDEX.

Subject.	Paragraph.
Absolute Control by Dairy Board	54, 272
Accounts, Standardization of	244–47
Administration of Dairy Industry	268, 275.
Amortization	122, 170.
Animal-diseases	235–43
Associations, Conferences of	269
Associations, District	270
Balance-sheets, Standardization of	244–47
Bobby Veal: Restrictions on Export	296
Bonds, Amount of	163
Bonds, Issue of	160
Boneless Beef: Restrictions on Export	296
Bonus for Quality	224
Bovine Tuberculosis	179–81, 235–40
Bread, Milk in	317–18
Breeding-sows, Numbers of	23
Budgetary Control	162, 170
Buildings: Dairy Factories	222
Buildings: Dairy Farms	192
Butter—	
Body and Texture of	207
Boxes and Packing	209
Colour of	208
Consumption in United Kingdom	46–47
Continental Imports	29
Duties on Imports	30, 68
Exporting Countries	29
Exports from New Zealand	42
Flavour of	197–98
Food-taints in	204
Grading Methods	220
Grading Returns	188
Imports into United Kingdom	36, 48
Index of Prices of	45
Instruction in Manufacture	229–32
International Trade in	28–30
Manufacture of	187, 205
Production in United Kingdom	35–36
Production of	9–26, 29
Quantity made in New Zealand	25–26
Quality of	185–234
Stocks of, in United Kingdom	51
Butterfat—	
By Herds	19
Costs of producing	135, 146
Production per Cow	12, 18
Total Production	13
Utilization of	24
Variation in Costs	135, 146
Capital Indebtedness, Writing-off of	172
Casein, International Trade in	33
Cheese—	
Chief Exporting Countries	32
Continental Imports	32
Costs of Manufacture	267
Curing and Storage of	218
Exports from New Zealand	43
Grading Methods	220
Grading, Returns of	188
Index of Prices of	45
Instruction in Manufacture of	229–33
International Trade in	31–32
Manufacture of	216
Milk-test in relation to	187, 213
Pasteurized and Raw	187, 214
Quality of	210–14
Quantity made in New Zealand	25–26
Sources of Supply to United Kingdom	38
Texture of	210–11
United Kingdom: Imports of	49
United Kingdom: Production of	37
Waxing of	215

INDEX—*continued.*

Subject.	Paragraph.
C.I.F. Selling	55, 60–63
Condensed Milk: Imports into United Kingdom	39–40
Consignments	55–56, 61
Consumption of Butter and Margarine	46–47
Control by Dairy Board	54, 272–73
Costs on Farm—	
Factors affecting	135
Movement of	132
Per Acre	139–41
Per Cow	136
Per Pound of Butterfat	137
Relation of Herd Size to	144
Variation in	135
Council of Production and Trade—	
Constitution of	299–300
Delegation of Powers	299
Establishment of	295
Finance of	301
Functions and Powers of	298–99
Necessity for	296
Recommendations on	297
Cream—	
Competition for Supplies	199
Daily Collection of	200–2
Economics in Collection of	248–53
Grading of	203
Manufacture on Grade	205
Neutralization of	205
Receiving Depots	194
Transport of	193
Dairy Factories: Finance for Equipment	176–80
Dairy-farms: Finance for Improvement	177–80
Dairy Industry, Development of, in New Zealand	9–26
Dairy Industry, Present Administration of	268–74
Dairy Industry Act Amendment	285
Dairy Instruction on Farms	181–82
Dairy-produce—	
International Trade in	27–34
Insurance of	266
Quality of	185–234
Storage of	265
Transport of	219, 248–64
Dairy-produce Control Board—	
Absolute Control by	54, 272
Limited Control by	54, 273
Marketing by	66
Reorganization of	268–84
Dairy-produce Export Control Act	284
Dairy Research	178–81, 286–94
Debt Charges, Farmers' Ability to meet	133–34
Debt Charges, Liquidation of	163
Denmark: System of Marketing	65
Department of Agriculture, Special Survey by	136
Derating	183–84
Discrimination within Empire	70
Disparities between Costs and Incomes	6
Diversified Farming	22
Duties on Butter	30, 68
Eastern Markets	73–104
Economies in Manufacture	267
Equipment in Factories	222
Equipment on Farms	192
Exchange-rate	127
Expenditure on Fertilizers	16
Exports—	
Of Butter	42
Of Cheese	43
Of Ghee	79
To Eastern Countries	75–79
Factory Organization	254–57
Farmers' Financial Position	147
Farming—	
Dairy Instruction	190
Diversification of	108–17
Equipment	192
Licenses	191

INDEX—*continued.*

Subject.	Paragraph.
Fertilizer, Expenditure on	16
Financial Relief	148, 175
Finance—	
For Improvements	176–82
Legislation for Relief	125–31
Position of Farmers	132–47
Reorganization of	149–75
Review of Present Position	118–24
Flavour of Butter	187, 197, 198, 206
Flavour of Cheese	187, 210, 214
F.o.b. selling	55, 60–63
Food-taints in butter	204
Ghee	79
Government Guarantee of Bonds	168
Grading—	
Of Butter and Cheese	220
Of Cream	203
Of Milk	212
Returns of	188, 225
Guaranteed Price	151–52
Herd Size in New Zealand	143–45
Herd-testing	16, 321–34
Income of Farmers	132–44
Instruction—	
In Butter and Cheese Manufacture	229–32
In Farm Dairying	190
In Ice-cream Making	319
Insurance of Dairy-products	266
Interest—	
Adjustment Date of	160
Adjustment in Rates	126
Burden of	154
Disparity in Rates	121, 154
Effect of Lower Rates	147
Overseas	8
Surplus	142
Variable Rate needed	157, 170
International Trade in Dairy-products	27–34
Laboratories	226
Labour in Factories	233
Labour, Production in relation to	20
Land, Valuation of	163, 166
Lands and Survey Department	133
Leaseholds, Treatment of	167
Lenders, Position of Private	171
Levy by Council of Production and Trade	299
Licensing of Farmers	191
Limited Control by Dairy Board	54
Loans by Mortgage Corporation	161–62
London Committee	67
Manufacture—	
Economies in	267
Of Butter	187, 205
Of Cheese	216
Margarine: Consumption in United Kingdom	46–47
Marketing, External—	
Barter Agreements	100
Danish System of	65
Distribution of Produce by Board	66
Early Policies	55
Exports to East	75–79
Improvements in	57
In United Kingdom	53–67
Investigation of	59
New Regulations	58, 60, 62–63
Outside United Kingdom	73–104
Present System	56
Principles of	64
Surveys	95
Trial Shipments	96

INDEX—*continued.*

Subject.	Paragraph.
Marketing, Local	303–12
Milk—	
Consumption of	315–16
Grading of	212
In Bread	317–18
International Trade in	27
Nutritive Nature of	314
Pasteurized	187, 214, 319
Test of	213
Milking-plants, Number of	21
Mortgages—	
Due on Transfer	168
Efficacy of Mortgage Corporation	170
Functions of Mortgage Corporation	160
Instruments	169
Interest-rates on	157
Mortgage Finance	131
Table or Amortized	122, 156, 163, 170
Unfreezing of	131
Mortgagors and Tenants Relief Act—	
Amendments to	125, 130
Protection of	163
Termination of	163–64
National Expenditure Adjustment Act, 1932	126
New Markets, Opening of	296, 299
Overcapitalization	7
Overlapping in Cream-collection	248–53
Overseas Interest	8
Pay-out for Butterfat	132
Payment for Cheese Milk	213
Per-acre Production: Costs and Income	141–42
Personal Covenant	173
Plant and Equipment in Factories	222
Plant and Equipment on Farms	192
Poultry-farming	112
Preserved Milk, International Trade in	34
Prices—	
Butter and Cheese, Index of	45
Effect of Trade Policies on	44
Effect on Consumption	46–47
Effect on United Kingdom Policy	50
Effect of Marketing Regulations on	63
Movement of	132
Prospects for	71
Production—	
All-the-year-round	105–7
Co-ordination of	296
Costs of	135
Diversified and Supplementary	108–17, 296
Labour in relation to	20
Volume of	132
Property Transfers	134, 170
Publicity	299
Public Trust Office	133
Quality of Produce	185–234
Quantitative Restrictions	68–72
Railway Department: Report on Transport	259–60
Regulations—	
Governing Cream-grading	203
Governing Export Marketing	58
Governing Milk-grading	212
Re Factory-managers' Registration	228
Relief Legislation	128, 129, 154
Replacement Stock	14
Registration of Farms	191
Research, Co-ordination of	299
Research, Problems of	192–232
Rural Credit, Efficiency of	170
Rural Credit, Essentials of	158

INDEX—*continued.*

Subject.	Paragraph.
Rural Finance—	
Budget Reference to	174
Farmers' Financial Position	132–47
Justification for Reorganization	154
Legislation for Relief	125–31
Need for Variable Rates of Interest	157
Proposals for Financial Relief	148–75
Requirements of Effective System	155
Review of Present System	118–24
Rural Mortgage Corporation	153–160
"Saranac" Box	209
Seasonal Production	105–7
Security for Mortgages	162, 165
Separators, Numbers of	21
Shipping—	
Contracts	296, 299
Facilities	80, 88, 97, 296, 298
To United Kingdom	21
Trial Shipments	96
Small Herds, Incidence of	145
State Advances Department	133
Statistical Records in Factories	244–47
Stock Act Amendments	334
Storage—	
Of Cheese	218
Of Dairy-produce in United Kingdom	265
Inspection of	227
Subsidies on Production—	
In Europe	31
Objection to, as Gift	149
Objection to, as Loan	150
Summary of Conclusions	335
Summary of Recommendations	336
Supplementary Products	22
Suppliers—	
Average Butterfat per	132
Number of	132
Receipts by	132
Suspense Account	162
Trade—	
Agreements	100, 298
Delegations	102
International, in Dairy-products	27–34
Representatives	103, 298
With East and other Countries	75–99
Transport—	
Contracts	296, 299
Facilities	80, 88, 97, 296, 298
Of Cream Daily	200–2
Of Milk and Cream	193
Railway Department	259–60
To Stores	219
United Kingdom—	
Butter Market	35
Cheese Market	37
Condensed-milk Imports	39, 40
Consumption of Butter and Margarine	46–7
Imports of Butter	36, 48
Imports of Cheese	49
Trade in Dairy-products	35–52
Trade Relations with New Zealand	69
Valuations, Basis of	166
Veterinary Organization	242–43
Water on Farms	192
Waxing of Cheese	215
Winter Dairying	105–7

Approximate Cost of Paper.—Preparation, not given; printing (2,050 copies), £310.

By Authority: G. H. Loney, Government Printer, Wellington.—1934.

Price 3s. 6d.]