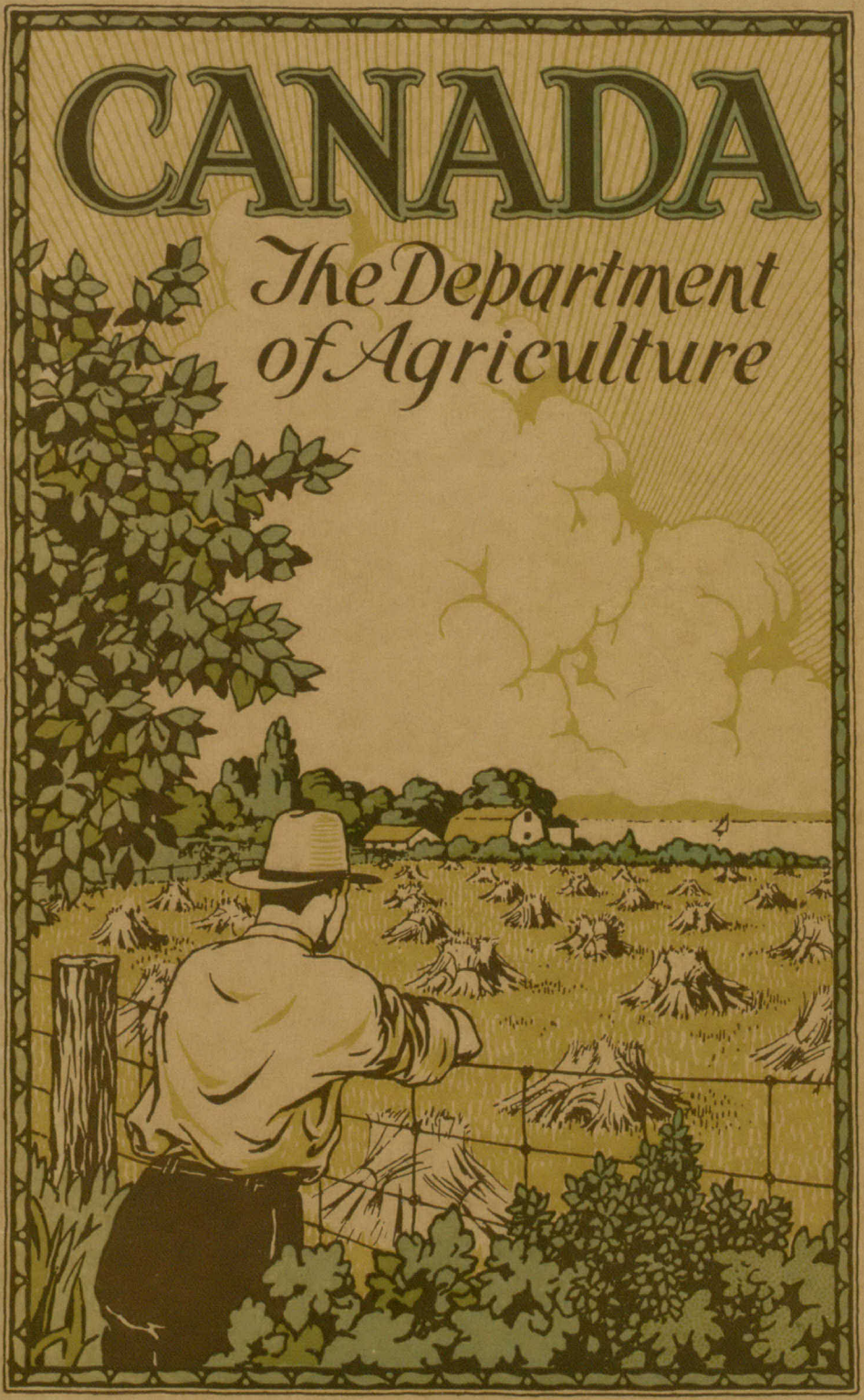
CANADA

The Department of Agriculture



CANADA

The Department of Agriculture

ITS HISTORY, ORGANIZATION AND WORK

Compiled and edited by the Publications Branch,
Department of Agriculture

Published by direction of the Hon. Robert Weir, Minister of Agriculture,
1933

Foreword

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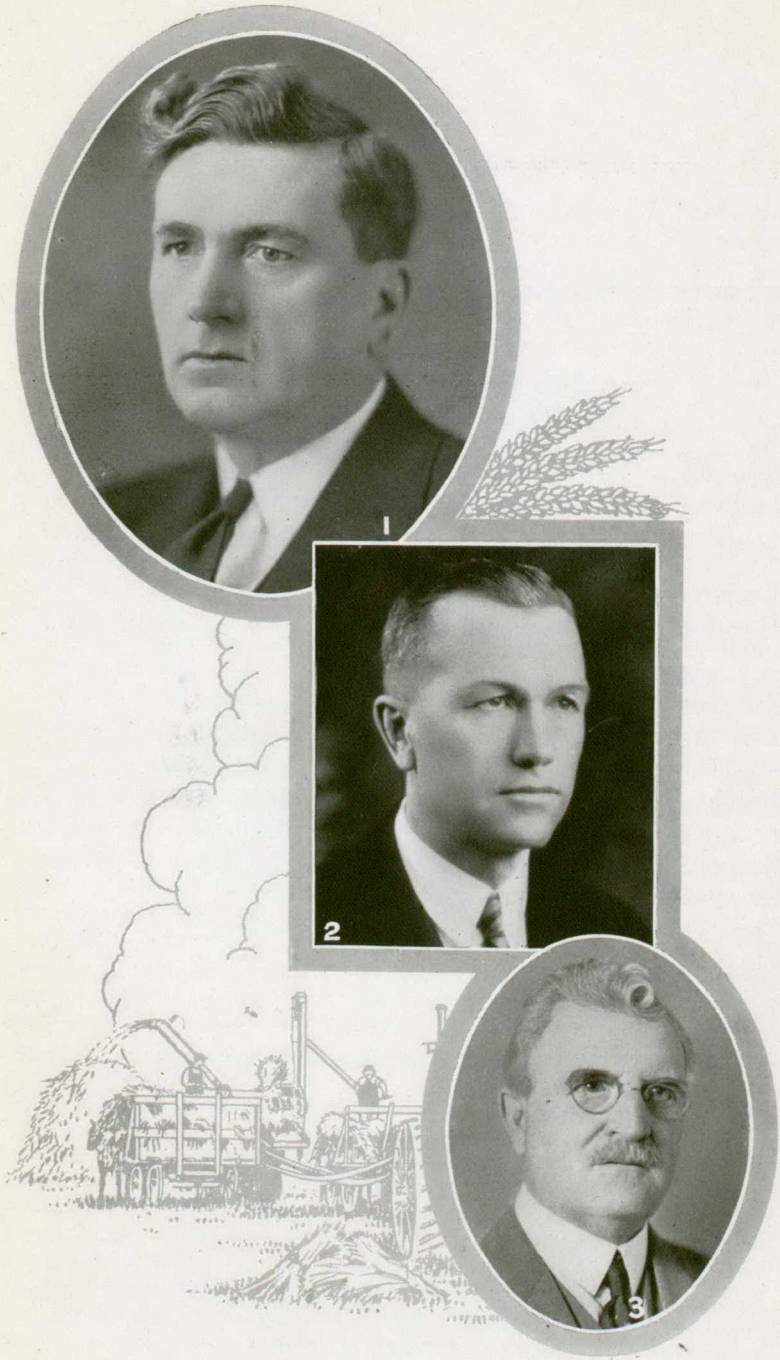
THE agriculture of the twentieth century is distinguished from that of medieval and ancient times by the improvement in methods, implements and materials brought about by the application of science.

In Canada in 1884, a Select Committee of the Canadian House of Commons made the momentous pronouncement that the cause of the then prevailing agricultural and national depression in Canada was deplorable ignorance of good farming methods, the result of this lack of knowledge leading inevitably to the impoverishment of the soil, poor and unprofitable returns, wide-spread discontent and eventual abandonment of the land.

The story of how Canada rallied her untrained forces around the standard raised by her scientists, to become a leader and exemplar in all the branches of agriculture among the nations of the world, includes in its narration the organization and work of the several services set forth in the following pages of this book.

THE DIRECTOR OF PUBLICITY



1. The Hon. Robert Weir, Minister of Agriculture
2. Dr. G. S. H. Barton, Deputy Minister of Agriculture
3. Dr. A. T. Charron, Assistant Deputy Minister of Agriculture

ORGANIZATION OF THE DOMINION DEPARTMENT OF AGRICULTURE

Minister of Agriculture	Honourable Robert Weir.
Deputy Minister	G. S. H. Barton, B.S.A., D.Sc.
Assistant Deputy Minister	A. T. Charron, B.A., B.Ph., D.Sc.A.
Veterinary Director General	Geo. Hilton, H.A.R.C.V.S.
Director, Experimental Farms	Edgar S. Archibald, B.A., B.S.A., D.Sc.
Dairy and Cold Storage Commissioner	J. F. Singleton.
Live Stock Commissioner	Geo. Rothwell, B.S.A.
Seed Commissioner	Geo. H. Clark, B.S.A.
Dominion Entomologist	Arthur Gibson, F.R.S.
Fruit Commissioner	Geo. E. McIntosh.
Economics Commissioner	J. F. Booth, Ph.D.
Director of Publicity	J. B. Spencer, B.S.A.
Chief Translator	C. E. Mortureux, B.S.A.
Librarian	Miss A. L. Shaw, B.A.

The Dominion Department of Agriculture

THE Department of Agriculture is older than the Confederation of Canada. It had its origin in 1852 in the Bureau of Agriculture of the Province of Canada, and in 1867 its scope and jurisdiction in the Dominion were laid down by the British North America Act. Throughout the gradual growth and expansion of the Department, three epochs stand out clearly. In 1876 the health of Canadian live stock was first protected by the establishment of quarantine stations; in 1886 the Experimental Farms System was originated; and in the first decade of 1900, schemes of reorganization were set in motion, resulting in the efficient, clear-cut duties of the various Branches of the Department as they function at the present time.

Under the old regime in the seventies, when the building of colonization roads was the chief activity in Government policies, agriculture received scant attention, but the danger to Canada's live stock through the ravages of rinderpest and pleuro-pneumonia amongst the cattle herds of Europe roused the Government to action. In 1876 a quarantine station was set up at Levis, and an Order in Council was passed prohibiting the importation of live stock coming from Europe except through the ports of Halifax, Saint John, and Quebec which were established as quarantine stations for cattle, sheep and swine. This was the beginning of the Health of Animals Branch, the oldest of the present-day divisions of the Department.

From this time more attention was paid to agriculture, but in a few years the lesson was forgotten. The vital importance of farming to Canada, and incidentally of the Department of Agriculture to this industry, had not yet been assimilated either by the government or by the people, but in 1884 Canada had to face the plain fact that her possible future as a great nation lay in the prosperity and contentment of her people. It was obvious that farming was the most important industry of the country; not only that, farming was the mode of life upon which the economic and the social structure of the Dominion was based. Therefore, unless agriculture were put upon a firm and profitable basis, it was an evident truth that the contentment and prosperity of the Canadian people were impossible. At that time there was urgent need for studying agricultural conditions and adjusting them to remedy the manifest defects. In the older settled provinces the effects of primitive agricultural methods were becoming only too apparent, while the possibilities of the West were but dimly recognized, together with the fact that agriculture on the prairies introduced conditions and problems all its own.

Organization Began

Thus, in 1884 the House of Commons of the Parliament of Canada appointed a select committee to look into the agricultural conditions of Canada. This committee found the cause of the then prevailing agricultural depression to be, mainly, ignorance of good farming methods, leading inevitably to soil impoverishment, poor crop returns, consequent discontent and frequently abandonment of the land and emigration to other countries. On the report of the committee in 1886, a Bill was introduced giving effect to their recommendations. In this way, in that year the Experimental Farms System was inaugurated.

At first this Branch of the Department of Agriculture consisted of the Central Farm at Ottawa, with farms at Nappan, N.S.; Brandon, Man.; Indian Head, Sask.; and Agassiz, B.C. From time to time the need of other experimental stations became imperative, until at the present time the system is the most comprehensive of its kind in the world, comprising as it does, the Central Experimental Farm at Ottawa, as headquarters, Branch Farms and Stations, Sub-experimental Stations, and Illustration Stations in every province, stretching across the Dominion from coast to coast. At the headquarters at the Central Farm are located the Director and fourteen Divisions, each under a divisional chief.

Meanwhile the reorganization of the other Branches of the Department of Agriculture kept pace with the necessities of the country in regard to agriculture and its dependent industries, the need of regulated merchandizing eventually leading to the organization of the Live Stock, Dairy and Cold Storage, Seed, Fruit, Entomological, Publications and Economic Branches as they appear today.

A Comprehensive Service

Four years after the founding of the Experimental Farms Branch, and ten years before the opening of the present century, the Department of Agriculture included three purely agricultural Branches—Animal Quarantine, the Experimental Farms, and a general Branch administered by the Commissioner of Agriculture and Dairying. As the genesis of many of the modern Departments of the Government of Canada, the Department of Agriculture also embraced Immigration and Emigration, Public Health and Quarantine, the Marine and Emigrant Hospital at Quebec, Arts and Manufactures, the Census and Statistics, and the Registration of Statistics, Patents of Inventions, Copyright, Industrial Designs and Trademarks.

Through the increasing importance of agriculture the extension of marketing, and the urgent call for further service to the industry, the general Branch of Agriculture and Dairying formed the nucleus from which evolved the strictly agricultural Branches

of the present time, but it was not until 1919 that the last of the extraneous interests mentioned above was transferred to other Departments of the Government.

In 1890 the Division of Agriculture and Dairying initiated a definite campaign for the encouragement and improvement of the Dairy industry, and in 1895 the work of organizing the cold storage services was begun. These services comprised the assisting of railways to run refrigerator cars to carry dairy produce over certain routes during warm weather; the bonusing of creamery cold storages; and the assisting of steamship companies to provide cold storage facilities for perishable products.

Reorganization Effected

In 1901 the Branch of Dairying and Agriculture was split up into the Divisions of Dairying, Live Stock, Extension of Markets, Cold Storage and Poultry. In the same year the Fruit Marks Act was passed and cargo inspectors were first employed to watch the loading and discharge of food products at Montreal, Halifax, Saint John; and in Great Britain at London, Liverpool, Glasgow, Manchester and Bristol. Further developments took place in 1902 when a biological laboratory was established at Ottawa in connection with the health of live stock, and four central cold storage warehouses were constructed and operated to demonstrate the value of cool curing cheese.

In the same year, 1902, the Seed Division was added to the Dairy Commissioner's Branch. This Division had commenced in 1900 with the offering of prizes for hand-selected grain. From then to the present time, much has been done to encourage the use of seed of uniform quality throughout Canada, in co-operation with the Seed Growers' Association which receives an annual grant from the Department of Agriculture. In 1905 an event of importance to the Department and to the agricultural industry generally was the passing of the Seed Control Act which gave a certain measure of control over the seed trade.

To administer this Act among its other increasing duties, the Seed Division was made into a separate Branch, while, at the same time, the Live Stock and Poultry Divisions were established as a distinct Branch, leaving the Dairying, Extension of Markets, Fruit and Cold Storage under the Dairy Commissioner. In this year (1905) also the nationalization of the Live Stock Records in Canada was accomplished, based on the Live Stock Pedigree Act of 1900.

The year 1906 marked the union of the Live Stock and Health of Animals Branches and the passing of the Meat and Canned Foods Act, the administration of which was taken over by this Branch. In 1907 the Cow Testing Service was instituted. In 1912 the Branches again separated, the Live Stock Branch continuing services for the promotion of the live stock and poultry industries, the regulating of the marketing of their products and the supervision of pedigree registration.

Centralization and Reclassification

In 1910 the Publications Branch was brought into existence to centralize the work of the distribution of publications and publicity; and in 1914 further reorganization of the Branches of the Department of Agriculture was made. In that year the Fruit Division was separated from the Dairy and Fruit Branch and established as an individual Branch with Divisions of its own, while the Dairy Branch became known as the Dairy and Cold Storage Branch. In 1914 also, the Entomological Division was taken from the Experimental Farms and made a distinct unit. Meanwhile, throughout all this reorganization, the Department of Agriculture gradually shed its external Branches.

The further penetration of Canadian agriculture into the markets of the world called for still more specialization, so in 1929 the Agricultural Economics Branch was established. Thus, the reorganization and reclassification throughout the years have resulted in fully equipped services to cope with the ever-increasing importance of the farming industry and the distribution of its commodities.

The Library

With the exception of the Experimental Farms, the several Branches of the Department of Agriculture are housed in the Confederation Building, Ottawa, where they have at their disposal a well-organized library. This collection of some 67,000 volumes, documents and periodicals represents official publications from practically all countries having systematized agricultural services. It also includes books of reference on agriculture and allied subjects, and proceedings of scientific societies, congresses, and exhibitions.

Specifically, the library contains information on science, meteorology, biology, botany, zoology, nutrition, public health, veterinary medicine, engineering, soils, farm management, plant diseases and pests, field crops, fruit culture, horticulture, live stock, dairying, bees, fur farming, home economics, transportation, technology, manufactures, building, landscape gardening, architecture, economic geography, biography, history of agriculture, economics, statistics, and encyclopedias.

The library aids the officials of the Federal and Provincial Departments of Agriculture, agricultural colleges, research workers on experimental farms and in field laboratories, and others. The Library has grown to its present size from its genesis twenty-three years ago in a collection of documents and books accumulated in the Canadian office of the International Agricultural Institute.

THE DOMINION EXPERIMENTAL FARMS

DR. E. S. ARCHIBALD,
Director,
Dominion Experimental Farms

THE Experimental Farms System of the Dominion Department of Agriculture, through which the farmers of Canada receive practical assistance, advice, and material aid as a result of the solutions of basic agricultural problems by its investigators, stretches across the Dominion from the Atlantic to the Pacific. It is the most comprehensive system of its kind in the world, and comprises the Central Experimental Farm at Ottawa, twenty-four Branch Farms and Stations, eight sub-stations and several Stations which carry on special work.

The Branch Experimental Farms and Stations are located in Prince Edward Island, at Charlottetown; in Nova Scotia, at Nappan and Kentville; in New Brunswick, at Fredericton; in Quebec, at Cap Rouge, Lennoxville, Ste. Anne de la Pocatiere, La Ferme, Farnham and L'Assomption; in Ontario, at Harrow and Kapuskasing; in Manitoba, at Brandon and Morden; in Saskatchewan, at Scott, Swift Current, Rosthern and Indian Head; in Alberta, at Lethbridge and Lacombe; in British Columbia at Agassiz, Summerland, Sidney and Windermere.

The Sub-stations are at Beaverlodge and Fort Vermilion in Alberta; Fort Providence, Fort Smith, Fort Good Hope and Fort Resolution in the Northwest Territories; Carmacks in the Yukon Territory; and at Harrington Harbour in Quebec. The special Stations include an Experimental Fox Ranch at Summerside, P.E.I.; a Horse Breeding Station at St. Joachim, P.Q.; a Range Experiment Station at Manyberries, Alberta; a Special Sub-station at Regina, Sask.; a Forage Crop Laboratory at Saskatoon, Sask., and Forest Nursery Stations at Indian Head and Sutherland, Sask. Under the Division of Botany there are Laboratories of Plant Pathology at Ottawa, Ont.; Charlottetown, P.E.I.; Kentville, N.S.; Fredericton, N.B.; Ste. Anne de la Pocatiere, P.Q.; St. Catharines, Ont.; Winnipeg, Man.; Saskatoon, Sask.; Edmonton, Alta.; and at Summerland and Saanichton, B.C.

As a connecting link between the Experimental Farms and the farmers of Canada, there has been established a system of

Illustration Stations, numbering 210 at the present time, where outstanding results of experimental work are demonstrated on farms owned and operated by individual farmers.

At the Central Farm, Ottawa, the headquarters of the system, are located the office of the Director, as general administrative officer, and fourteen Divisions, each under the control and supervision of a divisional chief. The Divisions comprise Animal Husbandry, Field Husbandry, Horticulture, Cereals, Forage Plants, Poultry, Bees, Tobacco, Economic Fibre Production, Chemistry, Botany, Agricultural Bacteriology, Illustration Stations, and Extension and Publicity.

In these Divisions originates the preliminary work of research and experiment, which is afterwards extended in its more practical aspects to the Branch Farms and Stations. The results of the work throughout the system in any particular line are then collated and made public.

Animal Husbandry Division

To the farmer and prospective settler, the Animal Husbandry Division is enabled to offer the results of experience acquired through practice and experiment, accruing from the maintenance of over ten thousand head of live stock on the Dominion Experimental Farms in different parts of every province in the Dominion of Canada.

In the studs, herds and flocks on the Dominion Experimental Farms there is represented practically every breed suitable to general and special conditions of climate and soil. This selection of breeds has been arrived at, in many cases, only after years of trial. Unsuitable breeds have been eliminated. Desirable breeds have survived and been subject to improvement through the best calculated methods of breeding and management.

The next logical step has been the best possible co-ordination of live stock with the various methods of farming in Canada in accord with the older central parts; the great Prairie Provinces; the specialized conditions of British Columbia; and, lastly, the newly settled frontiers, ever pushing into great areas still to be brought under cultivation.

In addition to reliable information concerning such matters, there is available an even more direct service to the farmer and settler in the way of the distribution of high-class pure-bred sires, and no effort is spared in maintaining the excellence of these breeding centres. Frequent importations are made. Only sires with highly qualified ancestry in breeding and production are purchased, and the stock that is offered the farmer to head his flocks and herds is in turn subject to rigid selection.

The major functions of this Division, however, are its demonstrational, experimental and research activities. Every animal, building, or device is made to serve two distinct purposes,

insofar as this is possible. They are maintained, first, for their own peculiar purpose, and second, for the experimental evidence or data that may be collected through them. Such projects as breeding, feeding, selection, housing and health of farm live stock receive particular attention. A notable instance of this work is the operation of a digestion experiment room for steers where advanced nutrition studies with new or special Canadian feeds or grains are carried on.

Field Husbandry Division

Experiments are conducted by this Division in order to learn the most efficient methods of preparing the land, seeding and harvesting farm crops. Conditions vary widely throughout Canada, both in regard to soils and climate, necessitating the adoption of different methods in different localities if best results are to be obtained. The function of the various Dominion Experimental Farms is to obtain reliable information for the use of the farms in Canada.

Investigations are conducted in order to discover the most suitable crop rotations, the most profitable uses of manures and fertilizers, the improvement of pasture land and the eradication of weeds. In parts of Canada where there is an excessive amount of precipitation, drainage experiments are undertaken while in other parts, where the supply of soil moisture is deficient, information is being secured on irrigation and on methods of conserving soil moisture.

In the development of agriculture, as with other industries, new machinery is constantly being introduced. Some new machines prove superior to existing types while others fail to do the work as satisfactorily. Experiments are conducted in order to learn the merits of newly introduced machinery in order that the most reliable information may be available. The Dominion Experimental Farms were the first to introduce the combine or reaper-thresher into Western Canada and to compare it with other methods of harvesting grain.

One of the most important factors in successful farming is the ability to produce crops at the lowest possible cost. The cost of production is dependent upon the yield, the acreage, the type of equipment and the amount of the investment. Considerable information has been secured upon this very important subject.

Division of Horticulture

The Division of Horticulture may be divided into three main parts or subdivisions, namely, fruit growing, vegetable gardening, and ornamental gardening. The breeding of new and better varieties is an important part of the work of each of these. The settler or prospective settler of today can get the results of the forty-five years' experiments with fruits, vegetables

and ornamental plants at the Experimental Farms, free for the asking, in the reports and bulletins which have been published, and as there are one or more Experimental Stations in each Province all one has to do is to communicate with his nearest Station.

The results obtained in the origination of new and better varieties have been very gratifying and are valuable to the fruit grower. No less than eight silver Wilder medals have been received for new and promising varieties of apples, among which may be mentioned the Melba, Joyce, Hume, Lobo, Linda and Sandow. These are now being planted by fruit growers in Canada. Still hardier useful varieties of apples and crab apples have been originated, especially suited to those parts of the Prairie Provinces where only the hardiest fruits succeed. Other good new fruits produced in the Division are Brighton and Count raspberries and the Cassandra and Portia strawberries. Among the best and most useful new varieties of vegetables originated in the Division are the Banting and Pickaninny corn; Blackie egg plant; Ruby rhubarb; Abel, Alacrity, Bestal and Herald tomato. The corn, rhubarb and tomatoes have proved particularly valuable in the Prairie Provinces.

Some fine new ornamental plants have been produced in roses, lilies, iris, columbine, lilacs and crab apples.

Other important work in progress besides plant breeding are investigations in plant nutrition; cider making; root stocks; blueberries and cranberries; production of foundation and elite stock vegetable seed; purity tests in vegetables; and comparison of varieties to eliminate synonyms and experiments with greenhouse crops.

The Cereal Division

The primary function of the Cereal Division is to secure for use on Canadian farms better and still better varieties of the various classes of grain commonly grown throughout the Dominion. To this end, not only are promising varieties imported from other countries but a comprehensive system of breeding is followed in order to create new varieties of the different classes of grain.

During the past ten years, probably the most important line of work in which the Division has been engaged is that having to do with the development of a variety of wheat capable of withstanding the disease known as wheat stem rust. In this regard the efforts of the Division have been rewarded. A number of varieties, which are not only capable of withstanding rust but are otherwise desirable, have been developed and are now being tested at a number of points throughout the Prairie Provinces in order that the most useful may be chosen.

The Cereal Division, in co-operation with the Seed Branch which administers the Seeds Act in the licensing of all seeds

offered for sale in Canada, renders valuable service to the farming interests by checking the introduction of undesirable or mediocre varieties of field crops. The Cereal Division carries out the growing field tests to ensure that the varieties submitted for examination are really new and eminently suited under soil, climatic, and all other conditions to Canadian requirements. The work entailed by the Cereal Division in obtaining the necessary data involves exacting field tests and quality determinations.

Forage Plants Division

The Division of Forage Plants is concerned chiefly with the introduction of new species, plant breeding, variety testing, seed production, pasture studies, range investigations and turf grass experiments. The introduction and testing of new kinds of forage plants is a phase of the work which offers great possibilities for Canadian agriculture. Among the most interesting of these during the past year or two are strains of extra early lespedeza, lupins, soybeans, and several new grasses.

In plant breeding, the crops which are receiving special attention are alfalfa (Medicago), red clover (Trifolium), sweet clover (Melilotus), timothy (Phleum), brome grass (Bromus inermis), western rye grass (Agropyron tenerum), crested wheat grass (Agropyron cristatum), perennial rye grass (Lolium perenne), soybeans, field roots and corn. Improved varieties of red clover, western rye grass, crested wheat grass, soybeans and field roots have been developed, and promising strains of the other crops are being studied.

Pasture studies have been greatly extended recently. These include comparisons of various mixtures and pure species in plots and grazed under field conditions. Methods of seeding, palatability, nutritive value, and adaptation of species to different soil types receive special attention. During the past few years the principal native forage plants of the range areas of southern Alberta and Saskatchewan have been identified; their palatability, nutritive value, and response to different methods of grazing have been determined.

Poultry Division

The work of the Poultry Division embraces experimental work in the various branches of poultry husbandry including breeding, housing, incubation, brooding, rearing, nutrition, disease, preparation of products for market, and in co-operation with the Live Stock Branch investigations in marketing conditions. Among many things of practical value to farmers experiments in nutrition have shown that Canadian grown feeds may successfully be substituted for higher priced imported feeds in the growing of stock and in the production of eggs.

Outside of correspondence, meetings, circulars and bulletins, contact is made with farmers through the poultry exhibits at fairs, and a more definite contact is maintained through a system of monthly reports made by farmers to the office of the Division at Ottawa. In return each of these correspondents receives from the Division a monthly letter suggesting improvements in practice and offering seasonal hints as to the succeeding month's operations on his poultry plant.

The Canadian Government breeding policy of Registration of fowl through the medium of the Canadian National Egg Laying Contests is controlled and administered from this Division. This phase of the work is unique in that Canada is the only country in the world that has a national system of registration. As a result Canadian registered breeding stock is finding a market in many countries outside of Canada.

In co-operation with the Health of Animals Branch, a pathological laboratory maintained by the Division at Ottawa is responsible for the carrying on of experiments in the control and eradication of poultry diseases. Among other important experiments this laboratory has demonstrated that by pullorum control methods, the chick mortality can be reduced from a disastrous death rate to almost nothing. This laboratory also has illustrated how internal parasites may be eliminated by a rotation of rearing yards, and that fowl pox can be definitely controlled.

The Division operating through the 24 Branch Farms has given valuable leadership, especially through recent years, when the poultry crop has meant so much to Canadian farmers.

Division of Chemistry

The intimate and fundamental relationship between chemistry and modern agriculture has been no more clearly demonstrated than in the continuous application by Canadian farmers of the data of the Division of Chemistry, both of the laboratory and the field, to the solution of the problems cropping up in their everyday work. From the outset, the Division has afforded a chemical service to the man on the land, and thousands of farmers have been given helpful information and practical advice.

Investigational and research work has been wide and varied, space limiting description of the various projects to a mere recitation of the title-names of the most important subjects, viz., protein pasture; dyke and upland hays; alfalfa, timothy, and mixed hays for western Ontario; investigational work in cereal chemistry, composition of the grain and straw in wheat, oats and barley as influenced by date of cutting; high protein grain mixtures; soybeans; investigational work in animal nutrition; influence of light, cod liver and pilchard oils, etc., on the development of bone in chicks; feeding stuffs; silage;

insecticides and fungicides; fertilizers; artificial manure; well waters from homesteads, and other matters of importance to agriculture.

A study of pasturing has shown conclusively that close grazing produces a herbage very rich in protein and of high digestibility; and field trials with stock furnish satisfactory evidence of a greatly increased carrying power per unit area.

Through a service of analysing waters for drinking purposes, the menace of polluted farm wells has been greatly diminished. The Division has written a valuable leaflet on the "Farm Well". The publications of the Division show that the data obtained from the work of the Division, a very large part of which is carried out in co-operation with other Branches of the Department of Agriculture, result in much valuable information being conveyed to the farmers of Canada.

Division of Botany

The Botanical Service of the Experimental Farms comprises a Central Laboratory at Ottawa, with an arboretum attached, for the study of general problems in economic botany and plant diseases. There are in addition, ten branch laboratories in the various provinces for the detailed investigation of problems peculiar to the locality. Not only is it the aim of the plant pathological service to aid in the control of plant diseases already within the country but the botanical service—jointly with the Entomological Branch of the Department of Agriculture—is also devoting considerable time and attention to the more international aspects of plant pathology, viz., through the prevention, by legislation and supervision under the Destructive Insect and Pest Act, of the importation of diseased vegetation from any country abroad, or the spreading of destructive diseases within the Dominion.

Among the major lines of work carried on by this Division may be mentioned the study of cereal diseases, fruit diseases and the inspection and certification of potatoes intended for seed purposes.

Of the cereal diseases stem rust has been most thoroughly studied. The Dominion Rust Research Laboratory, Winnipeg, was established to investigate this disease so destructive to wheat and other cereals in Manitoba and Saskatchewan. The investigations dealt with specialization of the rust fungus to varieties of wheat, the effect of the barberry on specialization, the epidemiology of the rust and means of control. As a result it has been possible to adequately test for rust resistance the new varieties produced by hybridization by the plant breeders. At the present time, several new varieties highly resistant to rust require only the completion of the tests of their agronomic, milling and baking qualities, and before long one or two of the best of these varieties may be made available to the farmers.

Besides the rust studies, research work on the smuts and the root rots of cereals have revealed much on the nature and the control of these diseases. Promising fungicides, especially in dust form, are under test for control of the smuts.

Intensive fruit disease research is progressing in the Okanagan Valley, B.C., Niagara peninsula, Ont., and Annapolis Valley, N.S. Improved methods of control of diseases are made available to growers as the work progresses.

The seed potato certification work has made available to the trade a sufficient supply of the finest seed potatoes obtainable, to meet all demands, and at most reasonable prices. An average of approximately thirty thousand acres of potatoes are carefully inspected for diseases twice during the growing season. The graded crop is afterwards inspected and official tags issued for seed passing all inspections. The domestic and export demand for Canadian certified seed potatoes now averages approximately two million bushels per annum.

Fibre Division

The aim of the Fibre Division, since its inception in the year 1915, has been to promote the growing of fibre flax plants throughout Canada. However, the larger portion of the work has been confined to extension programs and experiments in connection with flax and hemp.

At the present time the marketing of Canadian pedigree fibre flax seed in Ireland is receiving a great deal of attention because of the excellent prices that have been received by the Canadian growers. Recently a test shipment of flax and hemp fibre was forwarded to the Old Country in order to try out the fibre market. As a result, the marketing service rendered by the Fibre Division has developed into major proportions and is receiving the enthusiastic support of the Canadian flax growers.

In addition to importing the best linen yarns from Ireland for distribution to the various home-makers' clubs in Quebec, demonstrations on hand spinning and weaving relating to flax fibre have been undertaken by the Fibre Division. These endeavours have greatly assisted in reviving the handicraft industry in the province of Quebec.

Some 29 experimental projects dealing with the more important phases of flax and hemp culture are conducted at Ottawa and a limited number of major projects are being carried on at the various Branch Farms throughout the Experimental Farm System.

Division of Bacteriology

On every side of agricultural practice, problems arise which have a distinct bearing upon bacteria and their activities. Thus, in a soil supporting a crop of wheat or clover, in a heap of manure, in a silo of corn, in a can of milk, in a tank of retting flax or a

heap of fermenting tobacco, in a colony of bees or a pail of honey, and in the water of a farm well, the quality of the products concerned is affected by, and in some cases almost wholly dependent upon, the activities of bacteria. To assist in solving problems of this type is the aim of the Division of Bacteriology. The work is essentially of a co-operative nature, touching closely the work of the other productive Divisions, with which close contact is maintained in order that well co-ordinated research may result.

Problems of milk sanitation, soil fertility and food spoilage have received chief attention. Thus to aid the milk producer to minimize costs, factors influencing contamination have been studied, cheap and effective methods for utensil sterilization have been developed, while practically efficient and economical means for producing clean milk by machine have been devised. Through research and co-operation with farmers the Division has been an effective agent in encouraging the practice of legume inoculation and placing it on a sounder basis. Research on such problems as bee diseases, spoilage of honey, fruit juice utilization, etc., have contributed to better methods of control and reduction of losses. In addition to its research activities the Division extends direct help to farmers through such services as the analysis of samples and the furnishing of cultures for legume inoculation.

Tobacco Division

The work of the Tobacco Division deals with the investigation of problems in connection with the development of the Canadian tobacco industry in all its branches: Breeding, variety tests, soils, cultural methods, harvesting and curing, control of diseases, warehouse and educational work. These investigations are being conducted at Ottawa and Harrow, Ont., Farnham, and l'Assomption, P.Q., Summerland, B.C., in addition to other points in Manitoba, Alberta and New Brunswick.

Tobacco is being grown in Canada on a commercial scale in Quebec in two districts near Montreal, in Southwestern Ontario, and in the vicinity of Kelowna which is situated on the east shore of Lake Okanagan, B.C. Several years ago a new section was established at Sumas, B.C.

Two of the most outstanding achievements during recent years have been the development of trade overseas and improved fertilizer practice. There has been a substantial reduction in the fertilizer brands manufactured for tobacco as well as a standardization of formulæ. The tobacco grower can now call for a tobacco fertilizer and feel confident that its analysis corresponds with the recommendations based on experimental results. This has resulted in a vast improvement of leaf quality and is largely responsible for the development of an export trade. Persistent efforts by the Tobacco Division have expanded this export trade from less than 200,000 pounds in 1921 to about 11,000,000 pounds in 1932.

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Bee Division

Although bees have been kept on the Experimental Farms since 1889 it was not until 1915 that a separate Division was formed to take care of this particular branch of agricultural endeavour. The first apiaries consisted of only a few colonies situated at Ottawa and a few of the Branch Farms, but now there are seventeen apiaries on Farms, ranging anywhere from ten to more than one hundred colonies.

The Division through this chain of apiaries conducts experimental and investigational work in breeding, swarm control, wintering, colony manipulation, honey plants and many other phases of practical beekeeping. It is also making extensive studies relating to the keeping qualities of honey, fermentation, granulation and honey storage, classifying and grading samples of honey from every part of the Dominion. It has also undertaken the inspection of honey intended for export markets. It diagnoses bee diseases and in many other ways endeavours to aid beekeepers and to improve the beekeeping industry throughout Canada.

A series of experiments conducted over a number of years revealed the fact that preparations for "swarming" could be quickly and easily discovered by the use of a double brood chamber and in about one-tenth of the time required by methods then in use. Other experiments were required to discover a method that would effectively destroy the impulse to swarm once it was started. These experiments have shown that the de-queening and re-queening at the proper time of colonies preparing to swarm is the most efficient and lasting method now known.

Bee diseases are diagnosed free of charge. Samples of infected brood sent to the Division at Ottawa are microscopically examined, the nature of the infection determined and the beekeeper is then advised as to the best means of eradicating the infection. Beekeepers in difficulties who submit their problems are aided by personal advice, and prospective beekeepers are put in touch with those able to supply their requirements.

Illustration Stations Division

The Illustration Stations, of which there are 210 located throughout the Dominion, serve as a connecting link between the Experimental Farms and the farmers of the various districts in which a Station is established. They form the basis of comparative studies and demonstrations appertaining to cropping practices, varieties of crops, methods of fertilizing, cereal and forage seed production, weed control measures, crop introduction, livestock improvement, cost of growing crops, etc.

While Illustration Stations are primarily concerned with problems relating to crop and live stock production, the possibility of developing and maintaining home surroundings and

adequate buildings is given due consideration. On many Stations, windbreaks, hedges, shrubbery, lawns, perennial and annual flower borders are being steadily developed for the purpose of illustrating what varieties are best suited to a locality and how they can be planted most effectively. Building plans for new barns, homes, and out-buildings, also, are discussed with the operators as required. Other improvements such as the laying of cement floors, putting in more and larger windows in farm buildings, installation of sheep dipping tanks and the painting and whitewashing of barns and homes are effected year by year.

In establishing an Illustration Station, the method of procedure is to rent from a representative farmer a portion of his land, on which, under the direction of the Division in charge, he undertakes to follow the best cultural practices as determined by the work of years on the Experimental Farms. These Stations are visited regularly by a trained agriculturist who advises the farmer operating the Station, and gives assistance to other farmers in the district.

Extension and Publicity Division

The Division of Extension and Publicity makes public the results of the work of the Experimental Farms through the preparation and staging of exhibits, the issuing of reports and other publications, the supplying of sets of lantern slides, the distribution of press articles, and in numerous other ways.

Educational exhibits are designed by the Division and staged at most of the large exhibitions in Canada and at many of the smaller agricultural fairs throughout the Dominion. By this means large numbers of farmers and others are made acquainted with the work carried on by the Experimental Farms.

All the publications issued by the Experimental Farms are edited and prepared for printing by this Division. These publications touch on all phases of agriculture. Some deal with the technical side of agriculture giving such details as may be necessary for the student or research worker. Others are prepared primarily for the man on the land and give in simple style the details of improved methods of farming.

A popular feature of the work of the Division is the supplying of sets of lantern slides with explanatory manuscripts to agricultural and horticultural organizations and other societies and clubs. These have proved of great convenience also to Experimental Farm officials and others who desire to give illustrated lectures on agricultural subjects.

The Division secures and sends out a continuous supply of press articles. These articles are in language easily understood by the practical farmer. They contain much timely information and through them the results of experimental work are being constantly kept before the public.

THE DAIRY AND COLD STORAGE BRANCH

J. F. SINGLETON
Dairy and Cold Storage
Commissioner

THE Dairy and Cold Storage Branch grades creamery butter and factory cheese exported from the Dominion; supervises and inspects iced car services on the various railways for the proper transportation of cheese, butter and eggs; maintains cargo inspectors at Canadian seaports and also in the United Kingdom; supervises and inspects under the provisions of the Meat and Canned Foods Act all plants manufacturing condensed, evaporated, or dried milk both for conditions of manufacture and for the weight and quality of the manufacture itself; maintains a laboratory for research concerning the quality of dairy products; administers cold storage warehouse subsidies under the terms of the Cold Storage Act, 1907; enforces the provisions of the Dairy Industry Act under which persons selling adulterated dairy produce may be prosecuted, and adulterated products, materials and equipment may be confiscated; prepares and furnishes on request specifications and blue prints for cheese factories, creameries, and creamery refrigerators; disseminates market intelligence and information by telegraph and through its weekly market report; issues monthly a News Letter containing general and statistical information concerning world production and trade in dairy products; publishes a Cold Storage News Letter; and arranges public demonstrations and lectures on the utilization of milk and milk products in the diet, by a staff of trained dietitians who also issue publications on the value of milk and its products as foods.

All the work of the Branch is designed to assist the farmer, although its activities are such that its officers are brought into contact more with dairy produce manufacturers and dealers. The Branch is divided into four Divisions—Administration, Dairy Markets and Cold Storage, Dairy Produce, and Dairy Research—together with two services, namely, Administration of Dairy Laws and Milk Utilization; the supervision of the activities of the Branch naturally falling on the Administrative Division which, in turn, keeps in touch with the development of the dairying industry throughout all parts of the world. For the administration of the various Dairy Acts a staff of inspectors is maintained throughout Canada to enforce the laws and prevent fraud.

Dairy Markets and Cold Storage Division

The Dairy Markets and Cold Storage Division deals with the iced car services on railways, cargo inspection, supervision of condensed milk factories, cold storage warehouse subsidies, and market intelligence. Since the institution of cargo inspection by the Branch in 1900, many reforms in the handling of perishable goods have been effected. Three years previously the Branch promoted the installation of refrigerating machinery in trans-Atlantic steamers, making the export of perishable produce under modern conditions possible. The Division also administers the regulations under the Meat and Canned Foods Act pertaining to the manufacture, importation, and sale of condensed, evaporated and dried milks. This duty was assigned to the Dairy and Cold Storage Branch in 1929 and the marking of all containers and packages must receive the approval of the Dairy and Cold Storage Branch before being used.

Markets Intelligence Service

In 1910 the Branch began the collection and dissemination of international statistics and today the Division of Dairy Markets and Cold Storage issues through its Dairy Market Intelligence Service much information that is useful to the farmer, to the manufacturer, producer, and consumer. Telegraphic reports concerning butter and cheese markets are issued twice weekly and a weekly Market Report is issued by mail each Monday from April to the close of the year. General information respecting dairying throughout the world is also issued on the 15th of each month through the Dairy News Letter.

Dairy Produce Division

The Dairy Produce Division is charged with the important duty of grading all creamery butter and factory cheese for export. No Canadian butter or cheese must be exported unless graded by officers of the Division of the Branch, and it is mainly through this work of grading that both the marked improvement in quality and the premier position of Canadian cheese in the markets of the world is due. During 1923 when compulsory grading of Canadian cheese for export was introduced, only 78 per cent of all cheese graded was classified as First grade, but before nine years had passed First grade Canadian cheese amounted to 93·75 per cent. In addition to the grading, the stamping of the grade mark on packages resulted in an increased price differential as between grades. Grading officers of the Division are stationed at Charlottetown, P.E.I.; Halifax, N.S.; Quebec, P.Q.; Montreal, P.Q.; Toronto, Ont.; Belleville, Ont.; Stratford, Ont.; Winnipeg, Man.; Regina, Sask.; Saskatoon, Sask.; Edmonton, Alta.; Calgary, Alta.; and Vancouver, B.C.

Dairy Research Division

The main functions of the Dairy Research Division are to carry out research for the advancement of the quality of Canadian dairy produce by studying defects in the quality of dairy products in order to suggest how these defects may be remedied. Through this work the Division has effected many improvements by the successful determination of the causes of imperfection and deterioration, and at the same time has evolved efficient remedies. For example, discolouration in Cheddar cheese, surface taint and mould in butter, and many other lesser faults in dairy produce have been almost entirely eliminated.

Milk Utilization Service

The work of increasing the consumption of milk and milk products is actively prosecuted by the Milk Utilization Service through many channels by arousing public interest in the nutritional value of these commodities. A staff of trained dietitians is employed to give demonstrations and lectures, and issue publications on the subject. Exhibits are arranged at the larger exhibitions and fairs, and exhibition material is loaned for use at smaller fairs. Press articles prepared by the Service appear in newspapers and magazines from time to time and numerous requests from health workers, homemakers and schools result in wide distribution of publications issued by this Service. In a great measure to the activities of this service, the large increases in the consumption of dairy products in the Dominion have been attributed. During recent years, the consumption of milk in Canada has doubled; 50 per cent more ice cream is eaten; 40 per cent more cheese and 20 per cent more butter.

Even though the earth lie waste and barren, it may still declare its nature; since a soil productive of beautiful wild fruits can by careful tending be made to yield fruits of the cultivated kind as beautiful.—*Xenophon*, B.C. 434-355.

* * * * *

What is good tillage? First, to plough thoroughly; second, to plough; third, to manure. The other part of tillage is to have good seed, to sow plentifully, and to take up all the weeds that may grow during the season.—*Cato*, B.C. 95-46.

HEALTH OF ANIMALS BRANCH

DR. GEO. HILTON,
Veterinary Director Genera

THIS national veterinary organization is maintained for the purpose of protecting the agricultural interests of Canada against the introduction of serious contagious diseases of live stock, to combat those within its confines, and to protect its foreign market for live stock and their products.

How well this work is carried out is evidenced by concrete facts. Dourine and glanders, at one time a menace to the horse industry throughout the Dominion, have been eradicated; so has scab of sheep. There have been no cases in Canada in years. Mange in cattle and horses, once prevalent, is now readily controlled. Hog cholera, another disease which at one time involved large sums for compensation and serious losses to the hog industry, now occurs only sporadically at long intervals, and is quickly eradicated under the Branch's slaughter policy. Rabies has not at any time been allowed to become prevalent in Canada, and during the past year was limited to only a few cases in Eastern Ontario. Anthrax is rarely seen and is promptly controlled by quarantine and vaccination, and, thus, the efforts of the Branch in the eradication of scheduled diseases and preventing them from becoming established in Canada not only permit the unrestricted movement of live stock in the Dominion but also make possible and facilitate export trade.

The importance of providing a port inspection service was realized many years ago, at a time when three of the most destructive animal plagues, foot and mouth disease, rinderpest and contagious pleuro-pneumonia, were causing enormous losses in the countries of Europe and Asia. A system of port inspection and the supervision of shipping by federal officers was first inaugurated in 1876, and a quarantine station was established in that year at Levis, Que., for the detention of import animals. Other quarantine stations and inspection ports were later established on the seaboard and along the international boundary. Import animals have since been prohibited from entering Canada at any other point.

In order to provide adequate authority to meet any emergency the Animal Contagious Diseases Act was revised and amended in 1878. During the early period of development of this country the activities of the veterinary inspectors were chiefly directed to the inspection of incoming stock constantly being imported for the establishment and improvement of herds, studs and flocks. Canada has fortunately not at any time experienced the disastrous epizootics which have for centuries swept over many countries.

The development of the live stock industry with more intensive agricultural pursuits soon necessitated directing attention to the eradication of certain contagious diseases which, if uncontrolled, would eventually constitute a menace to this industry. Regulations were passed under the provisions of the Animal Contagious Diseases Act and compulsory control measures were introduced. A reorganization of the Branch followed with three co-operating divisions—the contagious diseases section, the pathological section, and that of meat inspection.

Contagious Diseases Division

The work of the Branch was, and is still being administered at Ottawa through branch offices established in each province with the exception of the Maritimes, the work in these three provinces being directed through the branch office at Montreal. With the progress in live stock development came new problems in disease control, and, as the maintenance of animal health is of great economic importance and is essential for free access of live stock and their products to foreign markets, increases in the staff have been made and improved facilities provided to meet the changing conditions.

Approximately one hundred and sixty permanent salaried veterinary inspectors and sixty lay officers are now employed in the field division. Some of these inspectors are stationed at the seaboard and boundary ports, where they conduct inspections and tests of import live stock, and examine shipments of commodities covered by restrictive orders. Other inspectors are engaged in bovine tuberculosis control work, which has now reached large proportions, approximately two million cattle having been tested with tuberculin under the Department's control policies.

In addition to the herds in areas established for the eradication of tuberculosis, 7,241 herds have been accepted for accreditation, and 14,946 herds for the control of this disease under the supervised herd plan. Prompt action is taken to control outbreaks of scheduled diseases and to eradicate the infection; and, as a result of this work, no such disease has been established in Canada. The lay officers supervise disinfection of cars, yards and other premises and perform many duties of a non-professional character.

Pathological Division

The work of the Pathological Division is closely related to that of the other Divisions and is essential to the rendering of satisfactory service by the Branch. It manufactures mallein and tuberculin required by the Field Division for diagnostic purposes, examines samples of meat and meat food products, and provides general laboratory services. This Division undertakes the examination of carcasses to determine cause of death, of pathological specimens, blood smears, and conducts serological tests for the diagnosis of disease, also examinations for the presence and identification of parasites. Various products are prepared and stocked for use in connection with routine laboratory tests, and also for research and experimental purposes.

As policies for the prevention and control of disease must be based upon the facts determined and the knowledge gained by research, continuous research has been in progress in the laboratories of this Branch for many years. The principal researches in progress at these laboratories relate to mammalian and avian tuberculosis, Bang's disease, pullorum, chicken-pox, and other virus diseases, particularly of horses and fur-bearing animals.

The Chief Animal Pathologist is in charge of this Division, with headquarters at the Animal Diseases Research Institute at Hull, P.Q., a few miles from Ottawa, and three branch laboratories, one located at the Central Experimental Farm, Ottawa, one at Lethbridge, Alta., and the other at Saanichton, B.C.

Meat Inspection Division

The main function of the Meat Inspection Division is the protection of our foreign markets for meat and meat food products and our domestic market, by preventing the export and import of other than sound wholesome products. Under the provisions of the Meat and Canned Foods Act regulations are applied to all interprovincial and export shipments, and to importations of meat and meat food products. It is the purpose of this Division to eliminate unwholesome meats and meat food products from the general food supply and to enforce correct and honest labelling.

The slaughter of animals, the preparation and handling of meats and meat food products in all abattoirs engaged in interprovincial and export trade in the Dominion are under the constant supervision of full time salaried veterinary inspectors located in the plants, and a system of ante and post-mortem inspection is maintained. Nothing is permitted to leave or enter these plants without the knowledge, consent and supervision of an inspector. Carcasses passing inspection are stamped with the Canadian government inspection legend "Canada Approved," and when shipped for export are certified wholesome and fit for food.

THE LIVE STOCK BRANCH

G. B. ROTHWELL,
Live Stock Commissioner

PRODUCTION and marketing are the two main phases of the activities of the Live Stock Branch which is comprised of the six Divisions of Cattle, Sheep and Swine, Egg and Poultry, Horse, Stock Yards Service, and Markets Intelligence Service, under the administrative authority of the Live Stock Commissioner. The production policies are justified to the consumer on the basis of their intrinsic value manifest in the market demand, while the marketing policies of the Branch seek to secure to the producer, in dollars and cents, the preference of the market for the high quality commodities of the type the production policies aim to procure on the farms of Canada. The success of these policies is due to the practical co-operation received from the Provincial Departments of Agriculture.

The Cattle Division

The Cattle Division is charged with the promotion of the quality and correct commercial type of cattle, through the loaning of pure bred bulls, the Feeder Purchase, the Free Freight and Transportation policies, and through the educational work of Boys' and Girls' Cattle and Calf Clubs. Interwoven into these services is the Beef Grading service, through which a premium is developed for that quality of cattle which makes the preferred grade of beef the known choice of the domestic consumer in Canada. The stimulation of economical production of milk and cream is obtained through the Cow Testing service for grade cows, the Record of Performance for Pure Bred Dairy Cattle, and the Advanced Registration for dairy sires. The Bull Loaning policy and the Bull Premium policy are both applicable to the dairy cattle industry as well as to the beef cattle industry.

The Sheep and Swine Division

The Sheep and Swine Division, which covers every activity in the production of high quality sheep and swine, does for these industries what the Cattle Division accomplishes for the cattle industry. The Boar policy and the Bull policy are

similar, and as an example of the practical utility of the Division's many policies, the Hog Grading policy which promotes the production of the select bacon hog through the payment of a premium may be cited; also the Boys' and Girls' Swine Clubs—all of which promote the class of swine producing the premium hog. The latter services include the distribution of pure-bred stock, and the farmer can be induced to invest in such stock when it is demonstrated to him that his investment will be profitable. Premium grading policies are carried out also with reference to boars, rams and wool, while sheep fairs and lamb sales, bacon hog fairs, bacon litter competitions and various swine, hog, sheep and lamb clubs are included in the Division's practical undertakings.

Poultry Division

Similar grading activities in relation to eggs and poultry are sustained by the Poultry Division, which is also responsible for egg inspection, applicable to all Canada under the Live Stock and Live Stock Products Act. It is important to recognize that the marketing and the grading services are an integral part of the Live Stock Branch, the great value to both consumer and to producer lying in the very close contact existing between the producer and the Branch. This close contact, which is common to all Divisions of the Branch, is readily seen in the Poultry Division's Hatchery Approval, Cockerel Distribution, Poultry Promotion schemes and other services, and is vital to the successful prosecution of that part of the work which is remotest from the producer, namely, the market activities and the grading.

The Horse Division

The Horse Division performs the important function in assisting to maintain and improve the horse stock of the Dominion. This practical help is executed in various ways, as, for instance, by the administration of federal assistance to horse breeding, to breeding stations and clubs; by special grants, and federal-provincial grants to stallion owners. All these plans have brought about a considerable improvement in the horses in every province of the Dominion. The policy of paying grants to clubs in order to encourage the use of sound individually excellent stallions has been, since its inception, very popular in the Prairie Provinces, and, further, the holding of hiring shows in connection with the winter fairs makes it possible for club delegates to look over the best horses in the province, at a minimum cost of time and money. Breeding stations are established throughout Canada, and thus, in addition to stock improvement, the work of the Division has been the means of bringing about sales at remunerative prices to breeders, which after all is the primary requisite in successful horse breeding.

Stock Yard Services

Under the Stocks Yard Service is administered the Live Stock and Live Stock Products Act, covering the construction and operation of central stock yards in Canada, and the operation of the buying and selling services at such yards. This service, therefore, regulates the charges for the stock yard services, the commission charges for the sale of live stock, and the methods of operation by all those concerned. Supplying to the producer the most efficient and economical mediums for the competitive sale of his live stock is the objective of this service, whether for the domestic trade or export market. There are nine public stock yards in Canada, all of which come under the direct authority of the chief of the Stock Yards Service.

Markets Intelligence Service

The Markets Intelligence Service represents in a very special way the connecting link between the producer and his market. It has been designed to supply the producer of live stock with an authoritative and reliable source of information on supply and demand of a nature that will give him accurate knowledge as to the value of his stock and the price which it is worth on the current market. The Service also functions as a guide to finishing and marketing practices, so as to avoid violent price fluctuations, etc. It is closely allied to the Stockyards Service, as the stockyards agents are the source of direct first-hand information. This Service, issued daily, weekly and monthly, now controls in a thoroughgoing manner the live stock market news services in Canada.

Registration Service

Through the Registration Service measures are taken to safeguard and advance the Canadian pure-bred live stock industry and the pure-bred live stock export trade. The necessary measures are secured under the Live Stock Pedigree Act, which provides for the examination of pedigrees, the supervision of investigations respecting alleged irregularities or fraudulent practices, and prosecutions associated with the registration of live stock. Also, the constitution and amendments thereto of the various breed associations are reported upon by this Service before approval is granted by the Department.

In addition to the services outlined, there are the Fair policies through which the Department makes annual grants to fairs, according to classification and other qualifying requirements, based on the amount of prize money expended.

Also the Branch has a Transportation Officer who investigates complaints, etc., with respect to the transportation of live stock.

THE SEED BRANCH

GEO. H. CLARK,
Seed Commissioner

THE Seed Branch, organized in 1900 primarily to encourage the use of good and clean seed of the various farm crops, has been so extended and developed as to administer legislation for the regulations of commerce in seeds, fertilizers, feeding stuffs, pest control commodities, and binder twine. The Branch supplies markets information and develops the marketing of these products, and of hay and straw, which are graded on request; administers the Seeds Act, the Feeding Stuffs Act, the Fertilizers Act, the Agricultural Pests' Control Act and the Inspection and Sale Act. The Branch organization includes four main Divisions; and for the enforcement of the Acts, the Dominion is divided into seven inspection districts, each supported by a service laboratory.

The Laboratory Division

The work of the Laboratory Division is to test the various commodities controlled by the Acts administered by the Seed Branch, and embraces the testing of seeds for purity and germination; the chemical and microscopical analyses of feeding stuffs, fertilizers, insecticides and fungicides, and the testing of binder-twine. The seed laboratories serving the seven inspection districts are situated at Sackville, Montreal, Ottawa, Toronto, Winnipeg, Saskatoon and Calgary. All chemical analyses of feeds are made at Ottawa, and microscopical analyses at Ottawa and Toronto. During the year ended March 31, 1932, the number of tests made in seed samples alone for purity and germination was 102,844.

The Seed Division

The work of the Seed Division includes the study of foreign and domestic seed legislation and of import and export regulations in effect in all countries exporting and importing seeds. The Division deals primarily with the operation of the Seeds Act and regulations thereunder. Attention is given to seed production, to seed supply as between districts and provinces, to international trade in seeds of all kinds, and to the preparation of exhibition material for publicity and educational purposes.

To encourage the production of good seed in plentiful supply for commerce, the Seed Division co-operates with the Provincial Departments of Agriculture which are paid subvention money by the Seed Branch in amounts equal to those expended by the province in accordance with the total amount prescribed for each project. This work of encouragement has been achieved mainly through crop and cleaned seed competitions, seed fairs, and central seed cleaning plants. Much assistance is also given the Canadian Seed Growers' Association, which, in addition to the help given by the Seed Branch in the inspection of both standing crop and cleaned seed, receives financial assistance.

The Feed Division

The primary functions of the Feed Division are to administer the Feeding Stuffs Act, which requires commercial live stock and poultry feeds to be registered and sold subject to chemical and physical guarantees or to meet prescribed quality and purity standards; to define and standardize feed materials; and to maintain uniformity in official hay inspection practices.

Markets and Fertilizer Division

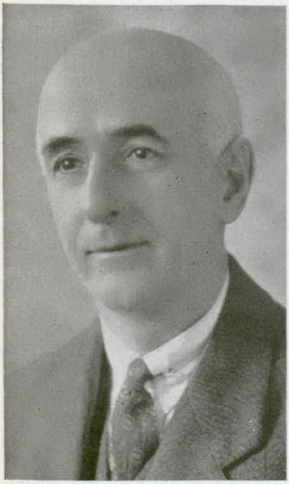
The Markets and Fertilizer Division undertakes the development of markets primarily in the interest of the farmer for seed, feed, grain, hay and straw. The markets for feeding stuffs, fertilizer, ground limestone and agricultural poisons are closely studied with a view to facilitating trade in these commodities. In addition, the Division administers the Fertilizers Act, which requires commercial fertilizers to be sold subject to a guaranteed analysis and prescribed standards of plant food content.

In each of the seven inspection districts is an inspection staff consisting of a district inspector, senior inspector, inspectors and clerical assistants, and a laboratory staff consisting of a supervising analyst, senior analyst and analysts. Inspectors not required at district headquarters are stationed at suitable centres in sub-districts.

Division Inspectors

The inspectors' duties common to all districts are the inspection of seed, feed, fertilizers, agricultural poisons, hay and straw, and binder-twine, for the enforcement of the Acts governing the sale of those commodities; the field inspection of seed crops, particularly those for registration or certification; the judging of combined field crop and cleaned seed competitions; the inspection, grading and sealing of registered and certified seed; the reporting of market conditions for the commodities inspected; judging at fairs, seed fairs, and exhibitions; lecturing at agricultural short courses and, as required, at agricultural schools; co-operating with provincial officials in promotional and educational work relating to the production of seed and the use of seed, feed, and commercial fertilizer.

THE ENTOMOLOGICAL BRANCH



ARTHUR GIBSON,
Dominion Entomologist

THE Dominion of Canada first recognized officially the value of economic entomology to agriculture in the year 1884. In 1886, on the creation of the Dominion Experimental Farms System, the officer appointed in 1884 was transferred to the Central Experimental Farm as Entomologist and Botanist. In 1908, Entomology was separated from Botany and a new Division of Entomology of the Experimental Farms Branch was organized. In view of the consequent expansion of entomological work throughout Canada, the Division of Entomology was removed from the Experimental Farms Branch and an independent Branch known as the Entomological Branch was created in 1914.

The Branch now has its headquarters in the Confederation Building, Ottawa. It conducts investigations on insects in relation to agriculture and forestry, encourages the use of methods of prevention and control, and administers the insects and pests section of the Destructive Insect and Pest Act. In addition to the Administrative Division, under the immediate direction of the Dominion Entomologist, the following other Divisions have been established:—

Field Crops and Garden Insects

The Division of Field Crop and Garden Insects is concerned with investigations relating to the control of insects affecting field and vegetable crops. Studies are conducted at laboratories maintained at Fredericton, N.B.; Hemmingford, P.Q.; Ottawa, Strathroy and Chatham, Ont.; Treesbank, Man.; Saskatoon and Indian Head, Sask.; Lethbridge, Alta., and Vernon, B.C., with temporary summer stations at Apple Hill, Ont.; Assiniboia and Swift Current, Sask., and Morrin, Alta.

The investigations are concerned with pressing and difficult entomological problems, emphasis being laid upon research in connection with problems of interest to several provinces. In the work of the Division, co-operation is maintained with local agricultural services, and reports on the progress of the work and information of interest or value to the various provincial departments are made available to them.

Investigations in course of study include the forecasting of insect outbreaks; surveys to determine extent and urgency of control operations required under outbreak conditions; estimates of insect losses; and studies of the life-histories and controls for grasshoppers, wireworms, pale western and other cutworms, European corn borer, white grubs, clover and alfalfa insects, root maggots, potato stem borer, flea beetles, pea aphid, Mexican bean beetle, hessian fly, wheat stem sawfly, strawberry root weevil, gladiolus thrips, and mushroom insects.

Forest Insects Division

The Division of Forest Insects conducts investigations on insects affecting forest, shade and ornamental trees throughout Canada. Its officers work in close association with the Forest Services of the Dominion and Provinces. The Division has permanent laboratories at Ottawa, Ont.; Fredericton, N.B.; Berthierville and Laniel, P.Q.; Indian Head, Sask.; Vernon and Vancouver, B.C. In addition, sample plot and other temporary study stations are established when and where required.

The investigations are concerned with insects affecting coniferous trees, such, for example, as spruce budworm, larch sawfly, larch case bearer, hemlock looper, sawyer beetle, white pine weevil, bark-beetles, ambrosia beetles in western hemlock, western cedar borer, European balsam woolly aphis, European spruce sawfly, black-headed tip moth, jack pine sawflies, and European pine shoot moth. Important investigations of insects affecting deciduous trees include the European beech scale, maple leaf-cutter, birch leaf skeletonizer, birch sawfly and the grey birch sawfly.

Investigations of shade tree insect problems are conducted at Ottawa, Ont.; Berthierville, P.Q.; and Indian Head, Sask. The last-named laboratory devotes its attention mainly to the control of insects on plantations of shade trees and shelter belts in the Prairie Provinces.

Systematic Entomology

The work of the Division of Systematic Entomology may be placed under the following headings:—

(1) Maintenance and upkeep of the Canadian National Collection of Insects, one of the outstanding North American collections and housed at present in 45 steel cabinets containing 2,250 drawers.

(2) Insect Faunal Surveys, to determine the insect population of a given section of the Dominion and to secure data on distribution and habits.

(3) Taxonomic studies based on the material in the National Collection, including descriptions of new species and revisions of groups with a view to obtaining a more correct system of nomenclature and classification.

(4) Identification of specimens of insects for other branch officers in connection with their economic and ecological studies; also for other museums, universities and private individuals interested in entomology.

(5) Upkeep of the taxonomic section of the Branch library which is one of the most complete and valuable libraries of this class in the country.

Foreign Pests Suppression

The Division of Foreign Pests Suppression is primarily concerned with the inspection of import and export shipments of plants and plant products for insect pests and plant diseases. Inspection stations, through one of which all importations of plants must pass, are maintained at Halifax, N.S.; Saint John, N.B.; Montreal, P.Q.; Niagara Falls, Ont.; Windsor, Ont.; Winnipeg, Man.; Estevan, Sask.; and Vancouver, B.C. Inspectors are also stationed at Quebec, Toronto, London and Victoria. Experience has proven that the majority of our most serious insect pests are of foreign origin and every precaution is taken to prevent further invasions. In one year, forty-three and a half million plants passed through the inspection service; the examination of these required nearly twelve thousand separate inspections, and in over seventeen hundred shipments insect pests or plant diseases were intercepted.

Surveys are also made in connection with the eradication or control and spread of introduced species, among these may be mentioned the gipsy moth, brown tail moth, European apple sucker, European pine shoot moth, Mexican bean beetle, satin moth, lecanium scale, European corn borer, etc. In addition, extra precautions are taken with pests likely to be introduced, as is the case with the Japanese beetle, an insect accidentally introduced into the United States in 1916 and gradually migrating towards the Canadian border.

Investigations on the life-history and control of insects affecting grains are being carried on. Many new chemicals and fumigants are being tested and their value determined. Surveys are made for pests likely to affect export shipments of plants and plant products. Practically all countries now require certificates of health to accompany shipments of plants and in many cases plant products, such as fruits, vegetables and grains.

Pest Act Advisory Board

The Destructive Insect and Pest Act Advisory Board, consisting of the Deputy Minister of Agriculture, Director of Experimental Farms, the Dominion Entomologist, the Dominion Botanist and the Chief, Division of Foreign Pests Suppression, Entomological Branch, was constituted in 1922 for the purpose of recommending to the Minister of Agriculture

such changes in the Regulations under the Destructive Insect and Pest Act as are deemed necessary in the public interest. The Secretary of the Board issues permits to cover the importation of plants, and from ten to twelve thousand permits are issued each year. The Board holds meetings to consider matters in connection with insect pests or plant diseases, and also public meetings or "Hearings" at which representatives of the trade or producers are present, when matters of importance to a particular industry are up for consideration.

Various Investigations

The Annapolis Royal, N.S., laboratory was established for undertaking insecticide investigations. Valuable results have been obtained in the development of new and cheaper poisons for insect control. The adoption of special localized spray schedules prepared by our entomologists, in co-operation with provincial officials, have resulted in greatly improved crops and decidedly better market prices.

The Entomological Branch maintains a specially equipped Parasite Laboratory at Belleville, Ont., where millions of specimens of imported parasites have been reared for liberation in areas where destructive insect pests have been abundant. Species of parasites known to attack the European corn borer, wheat stem sawfly and the oriental fruit moth have been and are being specially investigated.

The laboratory at Kamloops, B.C., is engaged primarily in investigating insects affecting cattle and other live stock. Projects under study relate to warble fly, blackflies, mosquitoes, ticks, etc. In addition to the above, other officers are engaged on exhibition work, and in investigations relating to greenhouse insects, flower garden insects, household insects, etc.

Other work by the Entomological Branch includes fruit insect, insecticide, parasite, and live stock investigations. Officers at laboratories maintained at Annapolis Royal, N.S.; Hemmingford, P.Q.; Vineland Station, Ont.; Agassiz, Vernon and Victoria, B.C., are engaged in studying insects affecting orchard and small fruits, some of the pests investigated being the codling moth, strawberry root weevil, oriental fruit moth, leaf-rollers, round-headed apple tree borer, plum curculio, apple curculio, apple maggot, scale insects, etc. Important progress has been made in developing control measures for these insects.

The elements of agriculture are the same as those of the world; water, earth, air, the sun. These things have to be understood before you sow your seed.—*Marcus Terentius Varro* (called the most learned of the Romans) B.C. 116-27.

THE FRUIT BRANCH

G. E. McINTOSH,
Fruit Commissioner

THE Fruit Branch, whose activities have relation to every line of endeavour of the fruit and vegetable industries of the Dominion in packing, marketing and transporting fresh, canned and preserved fruits and vegetables, is responsible for the administration of the Fruit Act with all its regulations and wide ramifications, the Root Vegetables Act, the Meat and Canned Foods Act so far as it refers to fruit and vegetables, and the Maple Sugar Industry Act.

Prior to 1914 the Branch, then known as the Fruit Division of the Dairy and Cold Storage Branch, had charge of the administration of Part IX, Inspection and Sales Act, commonly called the Fruit Marks Act, which dealt with the grading and packing of apples. However, since that time the scope of the Fruit Act has been so broadened and extended, through amendments at the instance of the industry, that it applies not only to the various fruits cultivated in Canada, but to similar fruits and their containers imported into the Dominion. The Fruit Act also provides for the compulsory inspection of all shipments of apples, plums and pears destined for export markets.

Compulsory Fruit and Root Inspections

As a result of the benefits accruing to growers and shippers through the operation of the Fruit Act, vegetable growers requested the Department to enact similar legislation in respect to vegetables. In 1922 the Root Vegetables Act came into effect and applied to the grading and marking of all root vegetables. Under this Act, regulations have been formulated, on request of the shippers themselves, making compulsory the shipping point inspection of all carlots of potatoes moving out of the provinces of New Brunswick and Prince Edward Island. In 1929 the Meat and Canned Foods Act, as it refers to canned fruits and vegetables, was placed under the jurisdiction of the Fruit Branch, as was the Maple Sugar Industry Act which became effective in February, 1931. In addition to the administration of the above-named Acts, the Fruit Branch maintains a voluntary shipping point and requested inspection service

covering fruits and vegetables. The development of inspection services under the Fruit Branch has been rapid and continuous and has necessitated the appointment of a large and increasing body of inspectors to efficiently take care of the needs of the industry. However, a relatively small proportion are employed permanently, the remainder being engaged on a temporary or seasonal basis during the active shipping season.

Inspection Districts

For the purposes of administration of the various Acts, the Dominion is divided into six inspection districts, as follows: No. 1, Nova Scotia; No. 2, New Brunswick and Prince Edward Island; No. 3, Quebec and Eastern Ontario; No. 4, Western Ontario; No. 5, Prairie Provinces; and No. 6, British Columbia.

Each inspection district is under the immediate jurisdiction of a District Inspector who has charge of all administrative effort in that district. Under him Senior Inspectors operate in a supervisory capacity having under their immediate care Junior Fruit and Vegetable Inspectors who may be working under permanent, seasonal or temporary certificate.

There are, in addition to the inspection services under the Fruit Act, the Root Vegetables Act and the Maple Sugar Industry Act, many features of service to the fruit and vegetable industries, which services are under the jurisdiction of the Markets Extension Division, the Canning Division and the Fruit Transportation Specialist, and Assistant Demonstrator in Home Canning.

Markets Extension Division

The Markets Extension Division is concerned with the development of markets, both domestic and foreign, for Canadian fruits and vegetables. Crop and market information of interest to growers and dealers is disseminated through the medium of crop reports and market bulletins. Crop reports deal with estimated production and condition of leading commercial fruits and vegetables and are issued monthly, May to October inclusive, with a special potato and apple crop review issued at the end of the shipping season. Market bulletins issued weekly throughout the year report prices on the twelve principal markets in the Dominion, together with details of cars arrivals in those centres. These bulletins also report volumes of export and prices of fruits on European markets. The Markets Extension Division seeks to develop the export market for Canadian fruits and vegetables by making trial shipments to countries presently unacquainted with our produce, by staging exhibits and by the distribution of literature advertising Canadian fruits. Similar efforts are made in Canada by exhibitions, radio talks, publication of pamphlets, etc., to develop a wider distribution of Canadian horticultural products. A lecturer and demonstrator further continues this publicity work among Canadian

and Empire women by demonstrations and lectures to student classes, Women's Institutes and other women's organizations on home canning and the uses of commercially canned products, fresh fruits and vegetables, and maple products by magazine and newspaper articles, by bulletins and leaflets and by operating a bureau of information on nutrition and cooking.

The Canning Division

The Canning Division, which became a part of the Fruit Branch in 1929, administers the Meat and Canned Foods Act in so far as it relates to canned, dried or otherwise preserved fruits and vegetables, and fruit and vegetable products, including pickles, jam, marmalade, catsup, sauces, juices, etc. This inspectional work is carried on by a staff of trained men who devote all their time to this work. Canning plants, from which products are shipped outside the provinces in which they are located, must operate under permit and such plants must observe all regulations in the above-named Act. Such plants must be sanitary in every respect and they are inspected frequently during the canning season to ascertain if all regulations are obeyed. Samples from factories under permit are frequently taken for analysis to determine whether the products comply with the grade requirements. All export shipments must be accompanied by an export certificate, certifying the quality of the lot. Imports are subject to the same regulations as domestic canned goods, and a continual check is made of imports to enforce these regulations.

The Transportation Division

The Transportation Division of the Fruit Branch engages actively in all questions of (a) traffic, or freight and express rates; (b) transportation, or physical conditions of carriage under refrigeration, ventilation and heater protection; (c) portable or improvised precooling facilities; and (d) warehousing, apart from cold storage.

This service, instituted in 1917 on request of the Provincial growers' associations, is designed to meet their necessity for assistance and guidance arising out of the decentralized state of the industry. Unlike the fresh meat industry, the other great volume users of perishable transportation facilities, fresh fruits and vegetables are shipped by numerous large and small groups and independents in each of the provinces, not even provincially centralized (in the Niagara District of Ontario, for example, twenty-one shipping concerns between Stoney Creek and St. Catharines). The Transportation Division therefore functions as the interprovincial traffic and transportation centre of the industry, and, through intimate contact with the shippers, the Provincial associations, the wholesale trade and the carriers, arranges experiments and demonstrations for improvement of

shipping practices or facilities; and in rates matters affords leadership in approaching the carriers, co-ordinates views as possible within or among the provinces, analyzes and discourages or supports complaints, and prepares literature for general information. The carriers look to this Division for co-operation in transportation experiments and for reconciled and reasonably impartial opinion and analyses in traffic matters.

The Transportation Division supervises the operation of common storage onion warehouses at Leamington and Jeannette's Creek, Ont., and Kelowna, B.C., which storages are operated with a view to illustrating to onion growers and shippers the reduction in shrinkage of onions held under proper storage conditions.

THE AGRICULTURAL ECONOMICS BRANCH

DR. J. F. BOOTH,
Commissioner, Agricultural Economics

DURING the past seventy-five years —a comparatively short period in the life of a nation—Canadian agriculture has emerged from a home building enterprise to a commercialized industry in which new wide-spread and complex business relationships have been established in domestic and foreign trade. When agriculture was a home-building enterprise, and when volume of production was the prime requisite, many of the problems affecting the farmers' welfare could be solved by laboratory or field experimentation. However the expansion of agricultural production and commerce in farm products gave rise to a new set of problems which had to be studied with a new technique.

Field of Agricultural Economics

These problems embrace prices, foreign competition, statistical information, credit, transportation, marketing, farm management, land utilization, taxation and rural social problems; all of which must be studied not only in their present setting but historically as well. This embraces much of the field of agricultural economics. Certain phases of this work have in the past been dealt with by technical Branches of the Department, but increased recognition of the importance of these matters resulted in the creation of a special agency within the Department to deal with them. Thus the Agricultural Eco-

nomics Branch was established in 1929. This Branch not only institutes research itself but also acts as a coordinating agency. Much of the work already under way is conducted on a co-operative basis, both Federal and Provincial agencies pooling forces so that there is little if any overlapping.

Since the Branch is comparatively new it is obvious that research projects in all phases of economics have not yet been undertaken. Substantial progress has, however, been made in farm and ranch organization and management and in marketing. The Branch has, moreover, established a means of disseminating results of its researches to the public, the medium being The Economic Annalist which is published monthly. An indication of the type of work carried on is furnished by a review of several projects.

Farm and Ranch Management

The farm and ranch management research programme of the Branch was instituted through a farm management study of apple production in the Annapolis Valley, Nova Scotia, the Abbotsford-St. Hilaire region in Quebec and in several counties in Ontario including Prince Edward, Northumberland and Durham east of Toronto and in Peel, Halton, Wentworth and Norfolk west of Toronto. This project has been carried forward for three years and is based upon business records obtained from farmers. It is designed to measure the effectiveness of various practices and combinations of factors on the success of orcharding. The agencies co-operating in the conduct of this study are the Department of Farm Economics and Extension, the Agricultural College, Truro, N.S.; the Rural Economics Service of the Quebec Department of Agriculture and the Department of Agricultural Economics, Ontario Agricultural College, Guelph.

A somewhat similar study has been carried on in the sheep ranching areas of Saskatchewan, Alberta and British Columbia. In this case the co-operating agency has been the Experimental Farms Branch. The effect of percentage of lamb crop, weight of lambs sold, the relation of deeded land to leased land, herding and grazing systems, and size of flock in relation to income have been analyzed and discussed in a preliminary report.

Utilization of Farm Power

A third farm management project of somewhat wider scope was conducted in 1931 in Manitoba, Saskatchewan and Alberta. This study was primarily intended to yield information on the utilization of farm power. Approximately one thousand farm business records were secured in the three provinces enabling not only an examination of the cost of farm power but also indebtedness, cropping systems, live stock policies, land settlement and community organization. The Branch was a co-

operating agency with the Canadian Pioneer Problems Committee and the Universities of Manitoba, Saskatchewan and Alberta. The Branch has also assisted the University of British Columbia in completing an analysis of dairy farm management data obtained in the dairy farming regions of the province.

Marketing problems are of vital importance to farmers and the Branch has begun research in this field. A study of milk marketing in the Sydney-Glace Bay area of Nova Scotia has been completed. Data regarding conditions of supply, methods of distribution, prices, storage facilities and consumption of milk and cream were obtained.

Cheese Factories Operating Costs

A much larger project undertaken in co-operation with the Dairy Branch of the Federal Department and the Rural Economics and Dairy Divisions at Quebec, the Dairy Branch of the Department of Agriculture in Ontario and the Department of Agricultural Economics, Ontario Agricultural College, Guelph, embraces an analysis of operating costs and management problems in two hundred and fifty cheese factories in both provinces. The capital structure, form of organization, cost of hauling milk and relation of output to cost of operation have been studied. A study of creamery efficiency has been started in New Brunswick and it is anticipated that this project will be extended to include other provinces.

Besides these commodity studies, progress has been made in the collection and analysis of data regarding farmers' business organizations. This is handled in co-operation with the provinces. In 1932 returns were received from 788 companies with 2,390 branches.

It is expected that this work will yield information respecting forms of organization, sales policies, membership problems and business administration that will be of value to those who desire such data. The foregoing are indications of the type of work carried on by the Economics Branch. Other activities of a varied nature, including the publication of The Economic Annalist, also engage the attention of the staff and as opportunity affords the field of activities will be enlarged.

> To obtain the knowledge the farmer needs, he must not only think about planting, but he must do it.—*Cato*, B.C. 95-46.

THE PUBLICATIONS BRANCH

J. B. SPENCER,
Director of Publicity

THE results of experimental and research work in agriculture gain in value directly in proportion to the extent to which they are made known to those who can use them.

The principal function of the Publications Branch is to make available to the farmers of Canada the vast fund of practical knowledge secured as a result of special investigations and studies conducted by the several Branches of the Department.

The bulletins, pamphlets, reports, and circulars prepared and issued by the Department, placed in the hands of Canadian farmers through the medium of this Branch, provide useful information in a practical and usable form.

This Branch is also active in supplying up-to-date material on the latest developments in connection with agricultural activities for press and radio use, and is charged with the responsibility for the distribution of market reports and related material.

Wide Range of Information

The range of material at the disposal of the farming industry through this Branch embraces the whole field of operative agriculture, and it includes approximately 360 individual publications including bulletins, pamphlets, circulars, and reports, each relating directly to some phase of the work of the Branch responsible for its preparation. While a small number of these publications are necessarily technical, the great majority of them have been prepared in such a way as to make readily accessible to the farmer the latest serviceable information with respect to the particular problem, or group of problems, with which the publication deals.

Some appreciation of the wide extent to which these publications have attained may be secured from the fact that during the fiscal year 1932-33 a total of 4,987,795 publications of all kinds were distributed. Of this total, 460,895 were publications sent directly to individuals in response to personal application. In addition to the printed matter distributed mimeographed market and crop reports were issued periodically to special mailing lists comprising the names of farmers, dealers

and otherwise interested individuals. These reports, which show the current value and market trend with respect to live stock, eggs and poultry, dairy produce, fruit and vegetables, seeds, feeds and fertilizers, may be obtained by any interested person who makes application to the Department at Ottawa to have his name placed on the particular list for the report desired. Also, there are prepared and sent out many press items, feature articles, and radio bulletins.

For the most part, the great bulk of the publication material of the Department is issued free of cost. However, in the case of a very few of the Department's special publications, which have been produced at considerable cost to serve a particular purpose, a small charge has been stipulated by the issuing authority to meet, in a measure, the cost of printing.

Available Publications

A list of the Department's publications may be secured on application to the Publications Branch at Ottawa at any time, and particular publications will be sent on individual request. In the interest of national economy persons interested in obtaining copies of the free publications of the Department are urged to ask for only those which are of immediate use to them. To encourage the habit of conserving the publications the Branch has inaugurated a system of numbering and filing, which is explained in The Publications Index Book. The system in use constitutes a valuable farm library.

Useful information with respect to the whole range of agricultural problems, whether of field or fold, flock or herd, home or market, more particularly as they relate to the activities of the federal Department, is available through this Branch. Typical topics as indicated by the titles of departmental publications are: Grasshopper Control; Crop Rotations and Soil Management; Fodder Crops in Manitoba; Manures and Fertilizers; Weeds and Weed Seeds; Breeding and Feeding the Market Hog; Common Animal Parasites Injurious to Sheep; Producing Clean Milk; Hedges and Their Uses; The Strawberry and Its Cultivation; The Prairie Farmer's Vegetable Garden; Household Insects; Smut Diseases; Poultry House Construction; Turkeys, Their Care and Management; Bees and How to Keep Them; and Poison Ivy. The material in these publications will be found to be complete and practical in its treatment of the subject matter to which it relates.

A Connecting Link

The Publications Branch, instituted in 1910, primarily to consolidate the mailing lists of the Branches of the Department and to carry on the distribution of its publications in an orderly manner, has been so extended and developed in its activities as to have become in a very real sense the connecting link between the Department and the farming industry of the Dominion.

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