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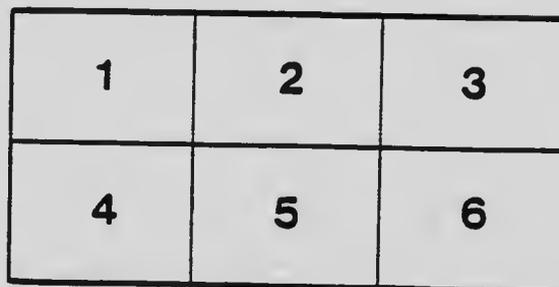
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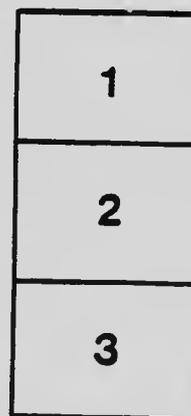
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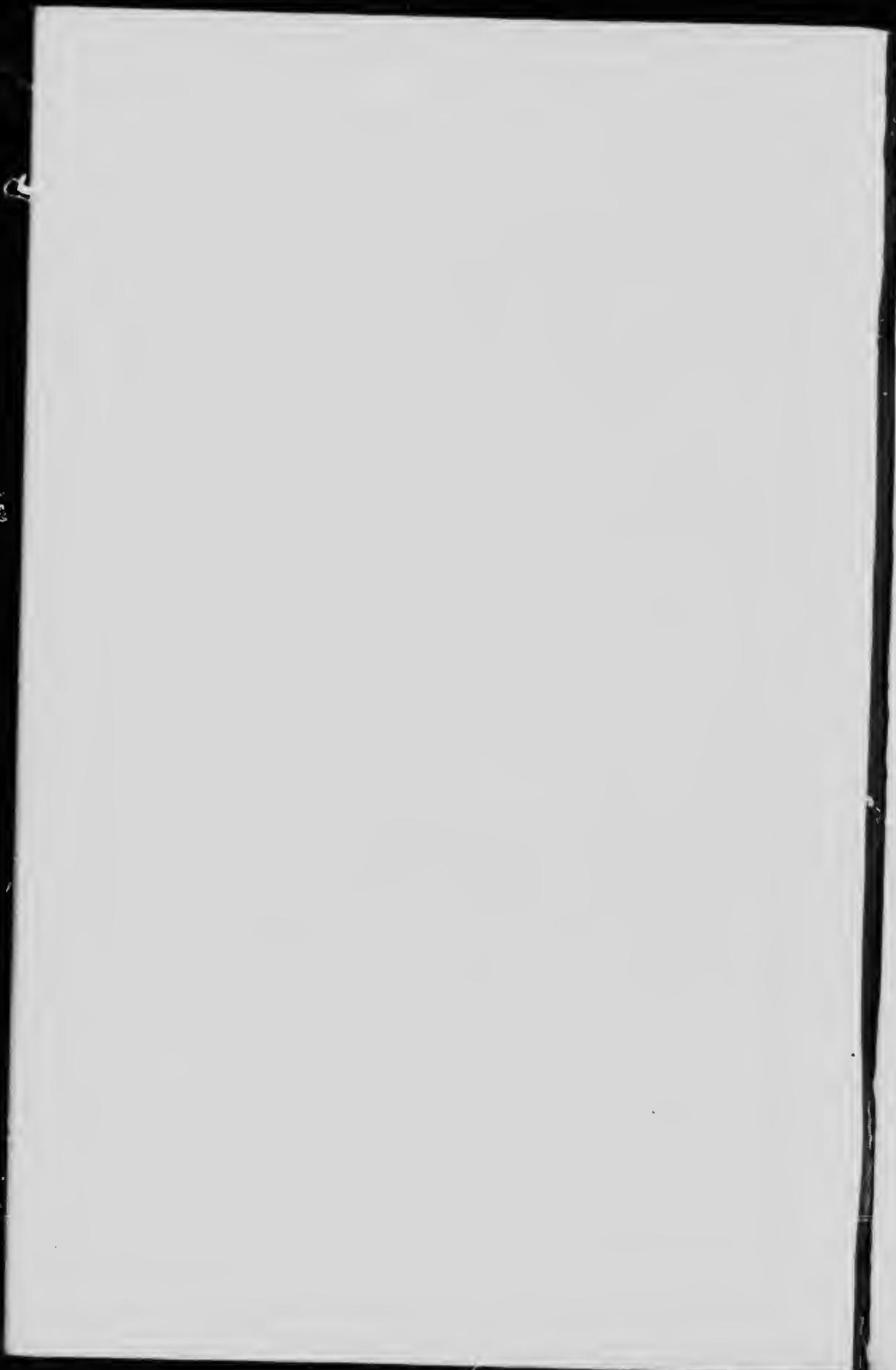
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DOMINION OF CANADA
DEPARTMENT OF AGRICULTURE
BRANCH OF THE LIVE STOCK COMMISSIONER.

OBSERVATIONS

UPON

GOVERNMENT ASSISTANCE TO AGRICULTURE

IN CERTAIN

COUNTRIES OF EUROPE

BY

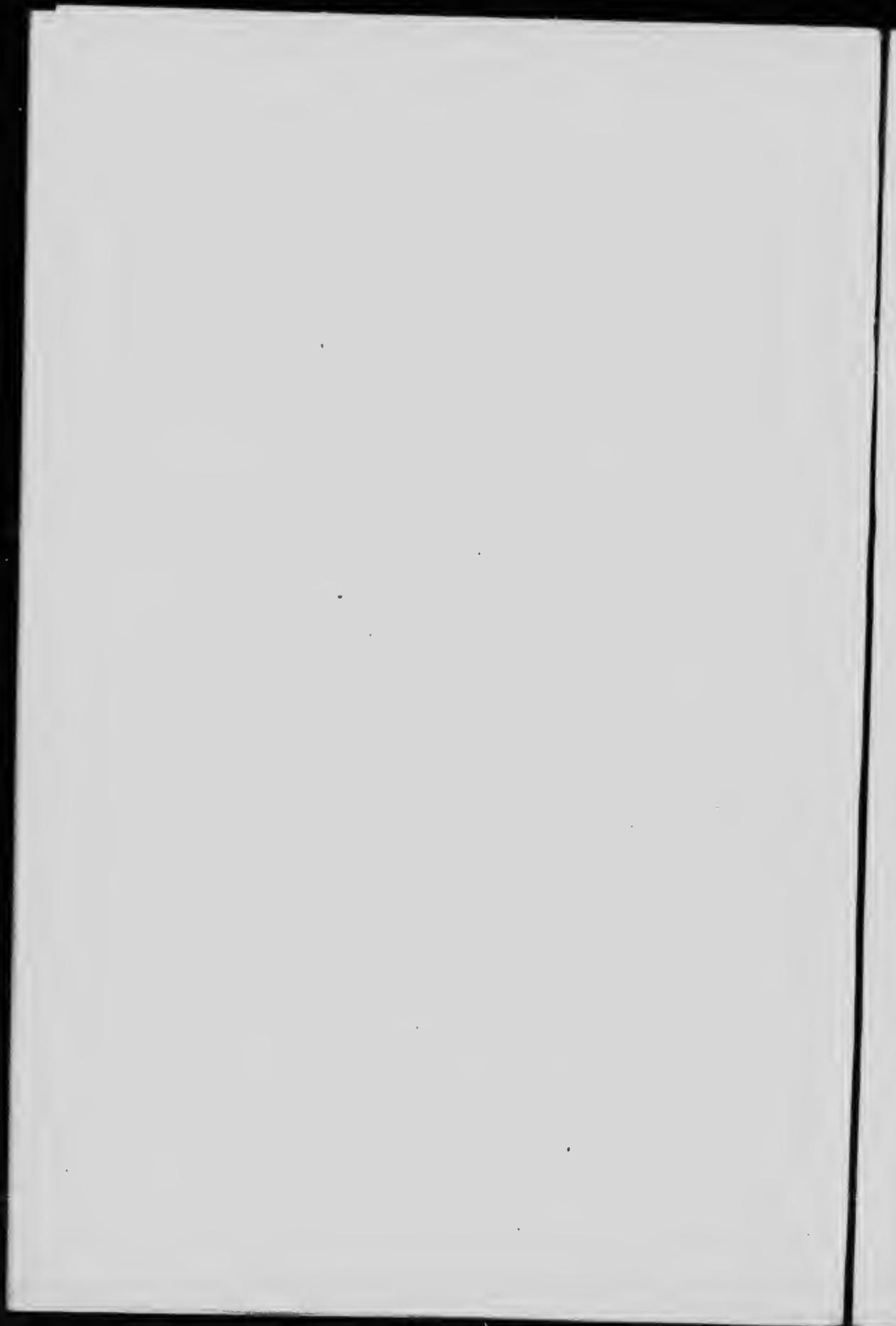
H. S. ARKELL, B.S.A.

Assistant Live Stock Commissioner.

BULLETIN No. 15

Published by direction of the Hon. SYDNEY A. FISHER, Minister of Agriculture, Ottawa, Ont.

JULY 1, 1911



OTTAWA, June 28, 1911.

The Honourable,
The Minister of Agriculture,
Ottawa, Ont.

SIR,—I have the honour to present herewith a paper by Mr. H. S. Arkell, B.S.A., Assistant Live Stock Commissioner, entitled 'Observations upon Government Assistance to Agriculture in Certain Countries of Europe.'

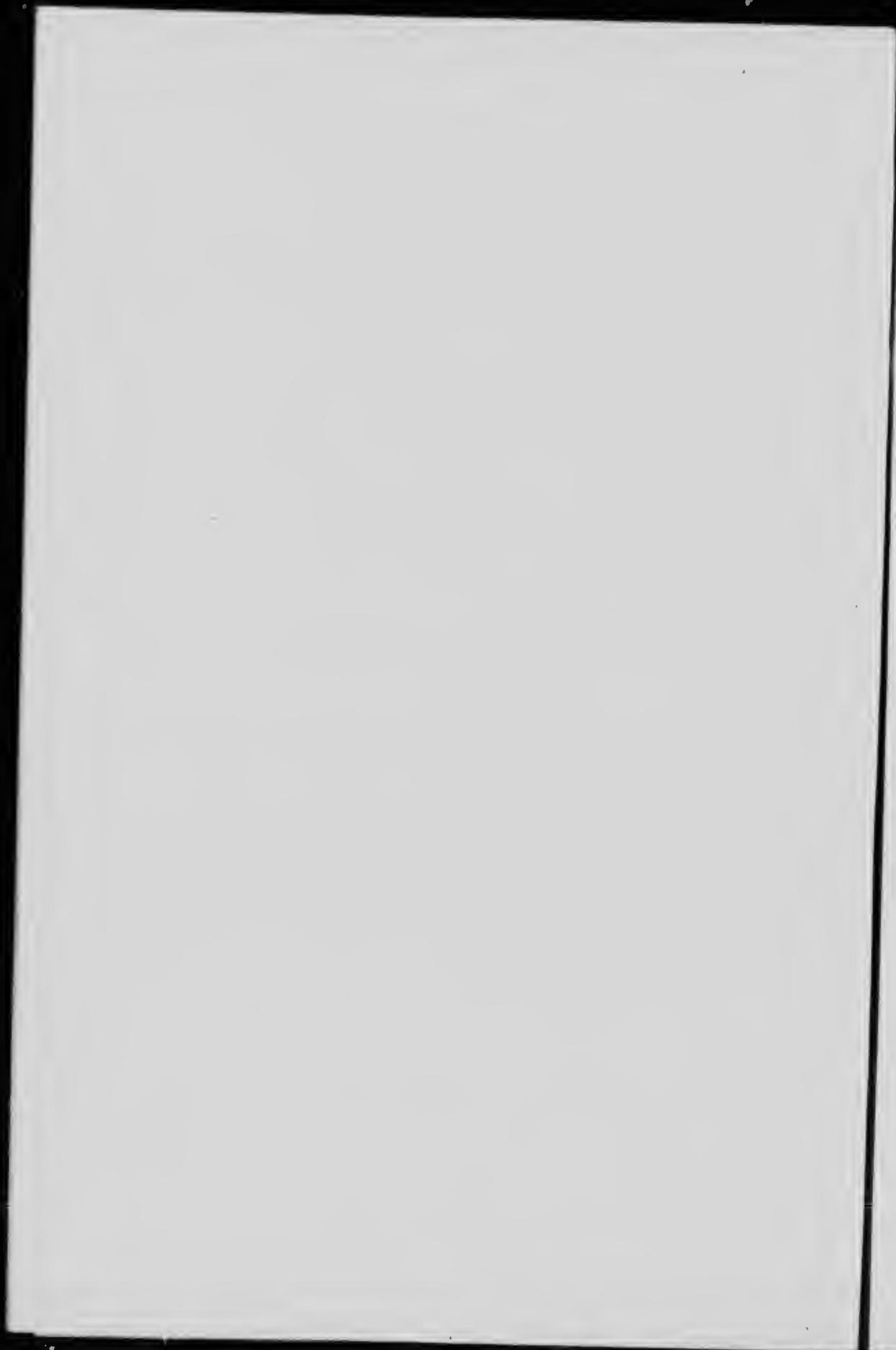
This paper contains much useful and valuable information regarding the methods followed by various European Departments of Agriculture in effecting the dissemination of useful knowledge and otherwise assisting in the development of the agricultural resources of their respective countries. I am satisfied that it will be read with interest and profit by many Canadian farmers and would, therefore, recommend that it be published for distribution as Bulletin No. 15 of the Live Stock Branch.

I have the honour to be, sir,

Your obedient servant,

J. G. RUTHIERFORD,

Veterinary Director General and Live Stock Commissioner.



OBSERVATIONS UPON GOVERNMENT ASSISTANCE TO AGRICULTURE IN CERTAIN COUNTRIES OF EUROPE.

The observations upon the particular assistance rendered to agriculture and agricultural industries by the governments of certain countries in Europe, as contained in this report, are based upon notes made by the author while on a visit to Great Britain, France and Belgium during the summer of 1909. It had been the original intention, in planning this visit, to confine the account to an inquiry into the nature of the work undertaken in connection with horse breeding, but the organization of the Department of Agriculture in Ireland seemed to offer such valuable suggestions, that a brief outline is included of the operation of measures in use by it for the encouragement and development of general agriculture in that country. As originally presented these notes were issued in the form of a report to the then Minister of Agriculture of the province of Quebec, with whose assistance they were obtained and prepared. They have now been partially rewritten and revised in so far as seemed necessary, in order to extend their suggestion and application to the wider field of the agriculture of Canada.

Ireland's need, agriculturally, had been seriously recognized for many years, and it will be remembered that a Royal Commission took evidence, in 1907, upon the nature of congestion in the rural districts. The memoranda, compiled by this commission, established very pointedly that lack of information and lack of organization had been two features of very great importance in retarding progress and in continuing conditions which had maintained poverty upon the land. Previous to 1899, the efforts of the Royal Dublin Society had been directed strongly toward the improvement of conditions amongst the farming population, but, in part, the somewhat local nature of its organization prevented its work from having the wide significance that was necessary and in the end found desirable. It paved the way, however, for a more comprehensive policy and in 1899 an Act was passed creating a Department of Agriculture and Technical Instruction for Ireland, whose business it has been to administer a rather large amount of money and machinery in the interests of Irish agriculture.

For convenience sake, the work undertaken by this body may be considered under three heads:—

1. Agricultural instruction.
2. Improvement of live stock.
3. Special investigations.

Professor Campbell states in his evidence before the Royal Commission that, after the organization of the Department, the first duty of the staff was to attend meetings of county councils for the purpose of explaining to them the provisions of the Act and to receive and consider suggestions as to what the Department should do for agricultural development. During these visits advantage was taken of studying the peculiarities of Irish agriculture with a view to meeting the particular need of the various counties in a more intelligent way. The conclusions arrived at were to the effect:—

1. That the most important work which the Department had to perform was that of laying the foundation of a system of agricultural education.
2. That the application of the Department's energies might be effectively directed, in the interests of the farming community, toward the improvement of live stock.

3. That further projects of a more specific nature in the way of special investigations might wisely be undertaken because of their value for demonstration and experimentation.

It is proposed to give a brief outline of what methods have been pursued in these three directions and, as far as possible, an appreciation of the value of the work to the country.

AGRICULTURAL EDUCATION.

The general scheme evolved was framed in such a manner that it might adapt itself to the peculiar conditions of the country. The scheme provides in the first place for a system, in each county, of 'itinerant instruction' in agriculture, horticulture, dairying and poultry keeping, such that a fund of information and a source of advice may be readily accessible to farmers and their sons who, in many cases, have few other means of acquiring it. This method of instruction was followed in subsequent years by winter schools of agriculture, held at various centres in the counties, where a little more systematic training was made possible, but which could still be obtained at small expense.

Upon the work of this itinerant instruction is based the permanent institution of the agricultural schools and colleges. At three stations in the country young men are taken in as apprentices for one year and receive practical and technical training in agriculture at a moderate fee. More stations would have been established had teachers been available, but there has been a lack of these from the start.

This station work, in turn, leads up to that of the central institution for the country, the Albert Agricultural College at Glasnevin which is in affiliation with the Royal College of Science in Dublin. At this college is provided the highest form of technical education for the training of men who are to become teachers and specialists in agriculture.

A conception of the nature and policy of the work undertaken in connection with education can be gathered from the above summary of the methods employed, as well as an idea of the purpose that suggested the framework of the whole institution. The details of the attendance in the various branches will indicate what has been accomplished. In 1907-8, there were enrolled in the agricultural course at the Royal College of Science, 26 students; at the Albert Agricultural College, 73 students; in the three schools at Athenry, Ballyhaise and Clonakilty, 66 students, and at the winter classes in the counties, of which there were 33, 529 students. Most of the courses in these winter classes were from fifteen to twenty weeks in duration.

As a supplement to the regularly organized system of education, as outlined above 1,453 lectures were given by itinerant instructors, of whom there were 34, at which 81,276 persons were present. Much other work of like nature in connection with dairying, poultry raising, plot demonstration, spraying, bee keeping and butter making, was also undertaken, but of which the details may be omitted. The greater part of this general work is placed in charge of the itinerant and private instructors and their efforts are effecting noticeable improvement in the methods employed by the farmers. The co-operation of the county councils in relation to this itinerant instruction is obtained by placing a large share of its direction under their control. The final responsibility, however, works back naturally to the central authority, and a comprehensive system is thus constituted by which the organized effort may be rendered most acceptable and efficient according to the needs and opportunities of the various districts.

The following statements may serve to reveal the gradual but satisfactory growth in popularity of the general scheme. In 1902-3, there were but two winter classes organized with an enrolment of 44 pupils. In 1903-4, the pupils numbered 161; in 1904-5, 317; in 1905-6, 422; in 1906-7, 449; and in 1908-9, 529. Such an expansion

is particularly suggestive as indicating the degree in which these classes have grown in popular favour. Another instance of the same general fact may be given. In 1900-1, there were but three itinerant instructors at work, one in each of three counties, while in 1907-8, there were 34, and these were distributed through practically all the counties of Ireland.

For an estimate of the actual monetary value of this work, the following table giving the export value of eggs and butter will be suggestive.

	1904.	1907.
Butter exported.	£3,793,391	£4,008,220
Eggs exported.	£2,257,362	£2,920,539

It is estimated that the annual increase in the value of eggs exported pays of itself the cost, to the country, of the Department of Agriculture. Much encouragement has been given through the facts noted, to those who have been engaged in agricultural education in Ireland, and particularly to those upon whose shoulders has fallen the major share of its direction and control.

IMPROVEMENT OF LIVE STOCK.

Apparently the most popular of all the undertakings of the Department has been that which has had to do with the improvement of live stock. The energies of the Royal Dublin Society had been in earlier years more particularly engaged in this direction. The Irish farmer's income is derived mainly from live stock and, after the passage of the Act, the interests of those engaged in the industry were early placed before the Department for its consideration. Whatever has been attempted has been undertaken in co-operation with the local county committees upon whom in fact has fallen much of the management and supervision of the details of the various schemes. It may be stated here that the Act empowered the county councils to impose a rate equal to one penny in the pound, on the taxable value of rural districts, comprised within the county, for the purposes of agriculture and such other rural industries upon which they were authorized to expend money. In the majority of instances in the case of counties that were able to afford it, the initiative and assistance of the Department depended upon the action of the counties in assessing themselves for the purposes of the schemes in question. The fact that every county in Ireland now voluntarily so assesses itself to make good its share of the expenditure connected with the undertaking, is perhaps the best guarantee of the need and utility of the whole enterprise.

In connection with the live stock improvement scheme there are three lines of work involved, that with horses, that with cattle, and that with swine. For convenience sake, the horse-breeding scheme may be treated of at this point in conjunction with the other two, though at the risk of breaking the account when the methods employed in horse-breeding in other countries are dealt with.

HORSE-BREEDING

It may be here noted that Irish saddle horses have been for many years accorded rather a fine reputation on the English markets and that they have chiefly gained favour as hunters and for chargers and remounts in the British army. The lines of effort followed by the Department have been mainly to conserve this type and to promote the breeding of this class of horse more generally throughout the country. It was found that the introduction of draft blood into Ireland was playing havoc with the breeding of saddle horses and the use of draft sires is now confined to certain counties only and even to limited areas in these counties. The first business of the Department was to invite applications from owners of high class stallions to have

their animals inspected for suitability and soundness, which inspection became the basis for enrolment into its register and for a subsequent subsidy. The standard of recognition and entry into the register was placed on a high level at the beginning and more than one-third of the horses presented were rejected as being unsuitable for use as sires. Much disappointment was caused by this seemingly stringent regulation, but it is now realized that it has been of direct advantage to the country, since it has led to the importation of a large number of good sound sires and as Professor Campbell says: 'a larger number of worthless animals which would otherwise have been imported have been excluded.'

The Department advertises in September of each year that it is prepared to open a register. The applications are received in October and November for such stallions as have already stood at stud in Ireland. Applications for other stallions must be forwarded in September. After the applications have been received, an officer is sent to the country to inspect the stallions entered. His examination is in respect to appearance and soundness. In addition to this inspection, there are other regulations required to entitle the stallion to entry in the register and no stallion not in the register can receive a subsidy. Stallions which are approved are accepted for particular districts only and may not without the written consent of the Department be removed to other districts. In 1908, there were 296 stallions on the register, while in 1901, there were but 128. The increase has been due largely to the desire of farmers not only to have their horses receive the official recognition of the Department, but that as well, through this recognition, they may obtain assurance of increased patronage from the farmers and breeders. It may be added that in the event of there not being a sufficient number of registered stallions in any county for breeding purposes, the Department has, through a well-controlled system of loans, enabled individuals and societies to purchase approved stallions on easy terms.

In making such a loan, it is a matter of first importance that the interest of the community be well served. There is also a proviso attached that the total amount of the loan shall be paid in regular annual instalments in five year's time, during which time or until the loan be paid the stallion remains in substance the property of the Department.

Another feature of the horse-breeding scheme which parallels the registration of stallions is the selection or nomination of mares, a feature which helps to induce farmers to retain their best mares for breeding purposes. In the spring, exhibitions of mares are held in the counties where a limited number of the largest and best are selected, to the owners of which nomination tickets are issued entitling each to select any registered stallion to mate with his mare. This ticket is given to the stallion owner at time of service in lieu of fee, and he in turn, upon presentation of the ticket, collects his money from the Department. The ticket has a value of from £2 to £3, and if the service fee exceeds that amount the difference must be paid by the owner of the mare. In 1907-8, there were in all 11,036 mares presented at these exhibitions, of which number 5,442 received nominations.

In the popular estimate the subsidy to the mares has been the most effective part of the scheme, but the Director of the work holds very strongly to the opinion that the registration of the stallions has been of greatest value to the country. The utility of the undertaking appears to lie in the stimulus and impetus it gives to systematic breeding, particularly as regards selection and judicious mating and again in the greater degree of uniformity which it promotes and renders possible in the animals that are bred and reared throughout the country. It may be thought to involve a large expenditure to be continued for any great length of time. It would appear, however, that its service is largely initiatory and educational and that shortly the burden of its continuance may be thrust back upon the communities as they acquire the ability to carry it on themselves.

CATTLE-BREEDING.

The cattle-breeding scheme has been an especially valuable one to the Irish farmers and one in which they have taken great interest. There is a very large trade between Ireland and England in store cattle, which are bred and reared in Ireland and fattened in England and Scotland. A keen demand has always existed for well-bred, early maturing animals and the better class of bulls introduced by the Department into the country has had a decided influence in levelling up the capacity of the cattle to take on flesh. Such was the opinion expressed to the writer by the well known editor of the *Scottish Farmer* in the course of an enthusiastic comment upon agricultural organization in Ireland. From what could be learned, no scheme has received greater endorsement at the hands of the farmers and none has brought greater financial advantage to the country.

Briefly it consists in this. The Agricultural Committees of the County Councils offer subsidies of £15 each to the owners of high-class bulls, provided that they allow the use of their bulls to farmers at the nominal fee of one shilling per cow. Government inspectors make a selection of bulls in the country as a basis for awarding the premiums and, in addition, personally attend fairs and sales with a view to the purchase of suitable animals for resale on easy terms to individuals or to county organizations. In 1908-9, there were 999 bulls receiving premiums in this way.

Dairy cattle-breeding is also receiving attention in connection with this work though the methods employed are somewhat different from the above. The main virtue of the scheme lies, no doubt, in the generous introduction of new and better blood into the country and, were it not for the poverty of the farmers, the same results could be obtained with a much smaller expenditure of money. It will be remembered, however, that half what is required is met by a tax which the counties lay upon themselves and it seems to be the opinion that no other money expenditure has been more directly successful in carrying increased revenue to the farm.

The assistance given to swine breeding is organized in much the same manner as in the cattle-breeding scheme and the details of it need not be described. The production of pork is a great industry in Ireland, and the attempt is being made to develop the country into a larger and more influential competitor for trade in the markets of Great Britain.

In connection with the work of live stock improvement one fact has made itself very evident in Ireland, viz., the scarcity of suitable breeding sires in all classes. Not only has this scarcity been made apparent, but difficulty has been experienced in supplying the need through importation or otherwise. It has been noted that the stimulus and encouragement which has been incidentally given to the breeding of pure bred stock has been one of the most hopeful signs during the development of the work. The scarcity which Ireland feels and has felt will be realized and appreciated by any country as it undertakes progressive work in the same direction and is, it will be admitted, a very certain guarantee of the need of something being attempted. It has been further demonstrated that, with improvement in the lower grades, greater progress is made possible amongst the breeders of the better classes of stock and there is thus a compensating activity in either direction that works toward the mutual advantage of all concerned.

SPECIAL INVESTIGATIONS

The special investigations undertaken in the various branches of agriculture follow along the channels through which government assistance is very frequently given in this country. They touch in concrete fashion the primary element of production and the people have reaped a direct advantage as the results, through demonstration and illustration, have been placed within their reach. It is worth mention-

ing that, as the farmers have learned to recognize the value of this direct method of work, they have given the greater support and adherence to the movement in favour of agricultural education.

FIELD EXPERIMENTS.

Irish farmers were badly in need of assistance and advice in connection with the management of the soil and in the growing of crops. Ignorance of the principles of cultivation, drainage, manuring and seed selection had resulted in wasteful practices and in the incapacity of the farmers to obtain a reasonable and normal return from the land. Consequently much attention has been given to the study of manures and manuring. The results of the experiments in this connection have been embodied in leaflets and distributed over the country and have been drawn upon to furnish the substance of many lectures that have been given by the itinerant instructors.

The Department has viewed with satisfaction the better judgment exercised in the application of manures since its work began and in their increasing use. It believes further that this work alone fully compensates it for what has been spent as a whole on county agricultural instruction. The experiments have covered the principal crops of the farm, viz., oats, potatoes, mangels, turnips and hay.

In connection also with the field experiments, variety tests have been conducted with grains and potatoes. Barley and wheat have received chief attention in these tests because of the value of the one for malting and of the other for milling purposes. Very definite results were obtained in the tests with barley, one variety surpassing all others in suitability for use in Ireland. The potato-growing industry is being extended through the experiments of the Department and the supply of marketable produce is being developed.

Much assistance has been given to the business of flax growing through technical instruction and through experiments with manures and seed. The interests of the tobacco-grower have been considered and the forestry problem has been undertaken in a systematic way, in the attention given to both public and private interests.

In the peat industry, in seed testing and potato spraying the government's activity has also been exercised and with advantage to the country. In the case of the peat industry, the Department rented an Irish bog, erected peat fuel machinery and demonstrated the process of most successful manufacture. The actual object lesson amongst the people themselves has been found almost the most effective method of stimulating interest and improvement in the work in which the Department has engaged.

In the matter of fruit and vegetable growing, a horticultural expert has been at work in making a survey and in estimating the capabilities of the country in this regard, particularly in the non-fruit growing districts. His investigations have extended to giving instruction in the growing, harvesting and marketing of fruit. A profitable outlet for the produce has been made possible, through the extension and in some cases revival of commercial jam-making, fruit-preserving and cider-making.

The poultry industry has been developed through somewhat the same system as has been utilized in connection with the other branches of live stock. Eggs and high class breeding stock have been distributed at moderate prices from central farms. Instruction has been offered, the fattening process has been effectively demonstrated and assistance has been given in marketing produce.

Two other industries have received attention, cheese-making and butter-making. The first is not of large importance since it cannot be successfully worked conjointly with the raising of store cattle, but encouragement has been given to it where its development was deemed most advisable. Butter-making, however, has long been an important industry of the country, though the methods employed were not of the best, and the product lacked in uniformity and much of it in quality. The Department has turned its attention to the encouragement and development of the creamery system, through the inspection and supervision of creameries, through special courses

of instruction for creamery managers and through butter-making competitions. Home dairying has also had its share of attention. The utility of the whole scheme has been spoken of elsewhere.

The important phases have now been covered of the work of the Department in Ireland. From the somewhat general resumé an idea may be obtained of the nature and sphere of its operation, but it is impossible to give an adequate impression of the spirit and motive which underlie it all. The farming population of Ireland has been poor and in some districts the people have suffered from their poverty, particularly as compared with the comforts of civilization which are now believed to be almost indispensable. The barrier of indifference and want of knowledge had made progress an almost impossible and unknown thing. The expenditure of human energy had been wasteful in a high degree and the resources of the country and its people had remained undeveloped and in a large sense unproductive. Ireland's future was menaced through her failure to move forward and in her inability to meet the competition of neighbours and rivals in markets where she had been accustomed to find an outlet for her produce. No one thing has had such an immense and controlling influence on the outlook and possibility of development which it has effected as has the formation and organization of the Department of Agriculture and Technical Instruction. The work undertaken in the interests of agriculture has been especially considered in this inquiry but the Department has engaged itself also in the teaching of domestic science which has opened up possibilities in the home to parallel those upon the land, and in providing facilities for technical instruction which is meeting the claims of technical industries and of those engaged in them, with the same intent and in like degree. The undertaking has been a public spirited enterprise with a large field of labour, and it has borne fruit not only in improving the commercial prospects in the agricultural industries but in stimulating and encouraging the people in educational and social improvement.

The farmers and their families are learning how to do things and the finger of organized intelligence and energy is leaving its impression, upon every phase of operative endeavour in the country. Methods are being improved, production cheapened, markets strengthened and, though such work must necessarily move slowly, substantial progress is being made. Exports are increasing and improving in quality, particularly those of potatoes, butter, poultry and eggs, cattle, pork and horticultural products. The general acceptance of and participation in the scheme by every county of Ireland substantiates its popularity and utility. The largest argument in its favour lies in the fact that steps have been taken to make the work permanent. It began with demonstration to catch the eye and stimulate endeavour and is developing, through education, to the teaching of principles and the training of the faculties of observation and judgment. Ireland may very well be destined to become an important competitor against countries of established reputations in the great produce markets of Great Britain. If so, she will be another example of what has been and is being successfully accomplished in like manner in Siberia, Denmark, Holland and in lesser degree in other European countries.

HORSE-BREEDING IN FRANCE.

Since much space has been taken in a description of the general field of work in Ireland, the resumé of the methods adopted by other countries in the assistance given to horse-breeding must necessarily be short. Those in France are particularly interesting from the fact that organized effort in this direction has been in progress since the 17th century. In that century, the Government established a stable of stallions at Le Pin, which it has since maintained and from the time of Napoleon it has had almost complete control of the breeding of horses for cavalry purposes. At the outset it may be noted that the policy of the Department has been dominated in a very large

sense by the definite purpose of producing and breeding suitable horses for the army. Most of the horses concerned in this policy are owned outright by the Government. The total number of Government-owned stallions in 1907 consisted of 559 Thoroughbred, 2,218 French coach (*) and 574 draught, in all 3,351. It will be seen that the great majority of these horses are Thoroughbreds and French coach, and are in fact sires of most suitable blood and breeding for the production of army horses. The best animals in the country are selected for this purpose and many high-class English Thoroughbreds are imported, together with a few Hackneys.

These stallions were, in 1907, distributed over 947 breeding stations and served 150,934 mares. The service fee in all cases is low, varying from 20 to 100 francs or from \$4 to \$20 in our money. The farmers, therefore, have the opportunity of having their mares served by carefully selected and high-class stallions at moderate rates. The applications for the service of these are determined by lot. Premiums are occasionally given to Thoroughbred mares that they may be reserved especially for breeding purposes. The system of selecting and subsidizing mares was at one time resorted to, but, after a trial, has been largely abandoned. Through the donation of prizes at exhibitions, at race meetings and in various other ways, encouragement is further given to the breeding of horses for this purpose.

In this connection it may be stated that a Government school has been established at Le Pin for the training of men who have to do with the selection, inspection and purchase of horses for the Government. By this means a wonderful uniformity has been obtained in the types approved and bred. The training and equipment of special officers as afforded by the Government school has promoted greater efficiency in the public service and has secured a gratifying degree of permanency for the policy of the Department. The whole system has been admirably adapted to the purpose for which it was intended and has given horse-breeding an impetus and a direction of which the country may well be proud. Under ordinary circumstances, however, and under conditions such as we have in Canada, the method of work involves too large an expenditure of money. A part of the system, nevertheless, not yet described, is worthy of consideration and contains features which, in a modified form, might well be adopted elsewhere.

Reference is to the methods more particularly in vogue in connection with the breeding of draught horses. France has five practically distinct draught breeds, each confined to a particular district of the country. Of these, the Percheron, bred in the district of Perche, is perhaps the most important. From what could be learned the large majority of the mares in this district are registered. They are owned by small farmers who keep usually two or three each and who almost invariably raise at least one or two colts during the year. At weaning time, these colts are practically all sold to the large stallion owners, who grow them until they are a year and a half old. They then either sell them or put them to work until they are of serviceable age. The young horses as they develop are carefully fed and trained and, at four years, a stallion is well grown in body, kind in harness and well mannered. That he has earned his own living for the last two years has detracted nothing from his value and, it may be, has given to the bone, nerve and muscles of his system a strength and endurance that will prove an asset to him for the rest of his life.

The Government concerns itself chiefly, in connection with the assistance which it renders to the horse-breeding industry, with the stallions retained for breeding purposes. In France, all horses that stand for service must pass an examination as to soundness before Government inspectors and must be officially accepted, after which they receive the mark of a star upon their neck. The rejected ones are branded with an R and may not be used for breeding purposes. Stallions deemed especially worthy are termed 'approved' and receive subsidies ranging from 300 to 600 francs. These, in 1907, numbered 1,603, and served 82,736 mares. Other stallions accepted, but not

* Also called 'Anglo-Normans or half-bred.'

deemed of more than ordinary merit are termed 'authorized' and receive no subsidy. In 1907, there were of these 185 and they served 9,746 mares. In all cases a horse is required to serve fifty mares to obtain a premium. After the season a service record of mares is forwarded to the Department and, after foaling, a record of the foals is given. For Draught horses, the service fee varies from 15 to 25 francs. Because of the subsidy, therefore, farmers are able to obtain the use of the best horses at very moderate rates. The encouragement given, through the premium system, to the possession of high-class sires has materially affected the quality and individuality of the horses bred in the district and the principle of the system has been one rather widely adopted in various European countries. The Scotch premium system is well known and Scotch breeders have a large faith in the advantage they have derived from it. In speaking with Mr. Wm. Montgomery at Kirkcudbright, he said: 'We know this system and it has given us the results we want.'

HORSE-BREEDING IN BELGIUM.

In Belgium, the nature of the Government assistance is of much the same character as that rendered through the premium system in France. Government inspection of stallions is obligatory and none may stand for public service except such as are accepted. The card of acceptance is of value for one year only and the official examination is an annual affair. In each district exhibitions or meets are held annually and first, second and sometimes a number of third prizes are awarded for two-year old, three-year old and aged horses, shown in their respective classes. The prizes vary from \$15 for a third to \$40, \$80 and \$110 for first prizes in the various sections. Special prizes of \$140 and \$180 are given at provincial exhibitions where a number of districts compete with their representatives. Another feature is the awarding of what are known as 'primes de conservation' which may be termed 'retaining premiums.' These are granted, in addition to the above mentioned prizes, for the purpose of retaining the horses for breeding purposes. Under ordinary conditions they vary from \$100 to \$160. When, in the annual inspection, a horse of exceptional value is found, the above mentioned premium may be replaced by one having a value of \$1,000 to \$1,200, this amount being payable each year for five years. In this instance, however, the conditions are very rigid and unless they are lived up to the premiums revert to the State. Horses receiving retaining premiums are usually required to serve specially selected mares. It was learned that at one time special prizes had been granted to mares but that such were not now awarded.

In conversation with Mr. Prosper Mathieu, a large horse owner and breeder of Brussels, he expressed himself as well satisfied with the working of the system in Belgium. He preferred the premium system to that of Government ownership of stallions. The uniformity of the horses throughout the country, particularly as regards conformation, type and colour, could not but be noted and the animals bore the stamp of utility in a marked degree. There is a large market for draught horses in the seaport towns such as Antwerp, but the biggest trade is with Germany. This country takes large importations every year and judging by figures which were received the Belgian horses are the most valuable of any purchased from foreign countries. It is partly in recognition of this trade that the Government has taken its interest in horse-breeding and the income which the farmers derive from the industry is an important part of their livelihood.

SUGGESTIVE WORK OF OTHER COUNTRIES.

It would be interesting to follow out the methods employed by other European countries in the way of government assistance to agricultural industries, but mention may be made of those of only one or two. During the last fifteen years the Gov-

ernment of Holland has taken an active interest in all matters pertaining to the manufacture of butter and cheese. Acts have been passed to regulate the industry and extend co-operation through instruction given on the farms in reference to the feeding and breeding of cattle and to the production of wholesome milk.

State schools and experiment stations have been opened and have become centres of information to those engaged in the work whether in the factory or on the farm. A system of State supervision has been inaugurated, through the agency of inspectors and control stations, with a view to improving the quality of the output, making it more uniform, and of giving to the makers the advantage of a Government guarantee in the disposal of their produce. The extent of the market and of the export trade warrants the Government in the support it gives and it would appear that, at the present time, Ireland and Holland are paralleling each other in the work they are doing in this connection.

Of Denmark, the advance this country has made in the production of bacon is well known, and of the advantage that it has reaped through its trade on foreign markets. The efficiency of the Government assistance in reorganizing and recreating the bacon and dairy industries is a splendid illustration of what is really possible and of how effective such assistance may be. At the meeting of the British Association for the Advancement of Science, held in Winnipeg in 1909, the Danish Live Stock Commissioner described methods in use in Denmark which had resulted in raising the average yield of Danish cows from 80 lbs. butter in 1864, to 220 lbs. in 1908. This result has been obtained through the formation of local cattle breeders' associations, through which bulls are purchased for use amongst the members; through a subsidy given for such bulls; through the formation of control unions which engage men to conduct tests for the farmers in connection with the milk yield of their cows, the percentage of butter fat and the cost of feed; and again through the giving of prizes at fairs to cows and bulls in recognition, above all else, of their merit as breeders and producers. It is a recognized fact that, compared with Canada, in the production of milk and bacon the Danes are at a disadvantage through rate of rent for land and through cost of feed. Denmark, too, is a very small country and yet she has been able to obtain the best of the argument in competition for trade with Great Britain. The enterprise of the Government in co-operation with the farmers has made this possible and an income of millions of pounds annually has consequently resulted to the country.

CONCLUSIONS.

It is obviously difficult even if we appropriate the experience of other countries to suggest or recommend a policy that will be suitable for our own. Canada, through her provincial and federal Departments of Agriculture, has now, for a number of years, been formulating and developing policies, through the undertaking of which steady and definite progress has been made. It may well seem almost a truism, however, to say that the development of this country, agriculturally, will necessitate the consideration and adoption of measures of wider scope and purpose than have been either advisable or possible in the past. The extent of the territory and the variety of the interests involved, even including only those having to do directly with live stock, creates a situation which makes a comparison with the conditions obtaining in the other countries we have been studying almost out of the question. The primary principles, nevertheless, remain about the same.

The one fact that is emphasized perhaps more forcefully than any other by the experience of foreign countries, and for that matter by our own, is that without intensive effort in a definite direction and with particular application in individual communities, any general system of education or even of demonstration is likely to prove largely inoperative. Without the enthusiastic co-operation of the people

themselves, it is impossible to get results commensurate with the money expended. In observing the methods of work in Europe, nothing was impressed upon the author more forcibly than the fact that government activity had to be carried directly to the country districts and the wheels of its enterprise set in motion there before it could expect to accomplish results. Contact with the people by actual demonstration is necessary before their support and co-operation can be obtained. It is not without faith, therefore, in the aim and direction of the substance of the schemes herein set forth that they are commended for consideration and, with necessary modifications, for adoption and application to the interests of the live stock industry in Canada.

The policy, to give point to what has already been suggested, in principle and in practice, must be eminently simple. It should consist in carrying the information obtained by scientific research and practical investigation direct to the farmer, not through the avenue of lectures and addresses only, but by practical demonstration and preferably by such demonstration as the farmers themselves shall set in operation. System in research is being more and more fully perfected every year, but system in practice of the results of such research has scarcely been more than conceived.

The individual community must constitute the unit in such a system of practice. There can be no better way of effecting improvement in horse-breeding, in cattle, sheep, pig and poultry breeding than, in the beginning at least, by stimulating and directing it in individual centres. The pork packers in Ireland pursue such a policy in their purchase and distribution of Yorkshire boars. In the Eastern states, the proprietors of condensing establishments have adopted a similar system in arranging for a supply of selected dairy bulls for their patrons. That a government is in a position to offer very great assistance in directing the practice of individual communities and of promoting co-operation amongst the members of each is unquestionable. A movement in this direction will constitute an active and powerful agency operating to counteract the evident tendency toward the merging of capital in the ownership of land, thus assisting to secure to the small holder the possession of his farm. Further, it will promote production and so develop the resources of the country as to give Canada a much larger place in the trade of the world.

United States authorities estimate that for every dollar expended in extension work there is a return of \$20 to the farms. A government now need fear no embarrassment in engaging itself in the operation of such measures as have been here proposed. The utility of such work has in recent years been somewhat widely demonstrated and in concerning itself in this aggressive fashion with the important industries of the rural districts, it may be assured of the backing and support not only of the farming population but, as well, of the approval and good-will of all the great business enterprises of the country.

