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The Commonwealth of Massachusetts

FIRST ANNUAL REPORT

OF THE

DEPARTMENT OF AGRICULTURE

REPORT OF THE COMMISSIONER FOR THE YEAR 1919



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MAR 24 1921

DEPARTMENT OF AGRICULTURE, 1920.

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	Term expires November 30,
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STUART L. LITTLE of Newbury,	1920
LESLIE R. SMITH of Hadley,	1921
EVAN F. RICHARDSON of Millis,	1921
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Secretary, LESLIE R. SMITH of Hadley.

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The Commonwealth of Massachusetts

FIRST ANNUAL REPORT OF THE DEPARTMENT OF AGRICULTURE.

REPORT OF WILFRID WHEELER, COMMISSIONER,
1919.

*To the Senate and House of Representatives of the Commonwealth of
Massachusetts.*

Since the close of the war the spirit of unrest which has been world-wide has to a certain degree been communicated to the farmers, not to the extent of drawing the agricultural people to the various forms of radicalism which have been sweeping over the world, but has rather reflected itself in a decreased production, due not alone to the labor situation and the cost of doing business but rather to the uncertainty of a profitable market. Many farmers rather looked for a speedy resumption of normal conditions and a rapid return to pre-war conditions, not realizing, perhaps, the world-wide extent of the upheaval. We have looked, also, to a quicker return to the normal transportation conditions to equalize the distribution of agricultural products, not realizing the enormous losses sustained in the shipping of the world.

Food stored in many out-of-the-way places and predicted to be available as soon as the war was over has not been forthcoming. Labor conditions, which were thought to become more normal, have gone to the extreme of scarcity, and plans of farmers who looked forward to normal production have not materialized. Production has been on an increasing cost basis, and this in face of the fact that influences have been at work to depress prices to the farmer without any attempt to consider the cost of production. Such efforts, while they serve to satisfy

the multitude for the present, are in the long run disastrous alike to consumer and producer. Few people seem to realize what a severe interruption to agricultural production means; that price on hogs below the cost of production drives many farmers out of hog production; and, when the price takes an upward turn, it is not immediately possible for the farmer to get back into the business again, even though he be inclined to do so. What is true of hogs is true of all other animals and crops. Already the sudden depression of the hog market the past summer is having its effect in lessening the breeding of hogs for next spring. In contrast to this, it will only be necessary to recall the remarkable response of the country to the guaranteed price on wheat, for, in this case, the farmers planted in an unstinted way, feeling assured of a fair return; not that we believe in guarantees, but only to show that if some definite contract basis could be worked out whereby the farmers were assured of a profit, there would be little doubt of there being enough food produced. Not alone have food products been and are scarce, but textiles of all kinds were never in so short supply. Cotton has reached a new high level, restricted planting and insect damage being largely responsible for the short crop. Wool, too, has remained high, and while sheep have increased in America to a considerable extent, the world-wide number has decreased, and the demand for wool products is still far beyond the visible supply.

Very few countries of the world report farmers as being unusually prosperous, owing to the prevailing high prices. Those that do so report are the smaller countries where agriculture has been and is largely conducted on the one-man farm basis, and therefore more or less independent of outside labor.

This country as a whole has produced enormous crops of all kinds of products, valued in dollars and cents higher than any other year's production. Yet adverse conditions have had a tendency to reduce production in many places, as severe droughts in the northern wheat area; too much rain in eastern United States; and heavy insect damage in certain other sections. Favorable winter weather conditions were general over all the country, although many sections reported severe frost in spring, with consequent late plantings.

New England conditions were, on the whole, favorable, and for our own State most crops had a fair season. Farmers can undoubtedly look forward to a few more years of relatively high prices, although it must be borne in mind that these high prices do not always mean high profits. It is doubtful if those farmers who keep books can show a more creditable profit on this year's prices than they could on pre-war conditions.

MASSACHUSETTS CROP SITUATION IN 1919.¹

The past winter (1918-19) was comparatively mild, so that fall-sown crops and fruit wintered well, including meadows and pastures. There was no very injurious freezing in the spring to hurt meadows, pastures or new seedings. The spring remained cold and backward until quite late, thus retarding the planting of most crops and vegetables somewhat beyond the usual dates. At the end of April came the cold snap with frost and freezing, which was then thought to have damaged heavily prospective crops of peaches and apples; however, both these fruits happened to be in a stage of development where they were not seriously hurt. Although the spring held cold and backward, there was gradual increase of temperature and no severe late frosts occurred.

The first half of the season, in fact until July 1, was acutely dry in many sections of the State and was unfavorable for grains, pastures and meadows. This condition was made worse by some periods of unusual heat. The second half of the season was wet, there being rather frequent rains and much cloudy weather. This interfered with haying, although noticeably increasing the hay crop. A good, heavy rowen crop resulted, so that the total hay crop is well up to the usual. The fall months continued very wet and cloudy. This seriously retarded harvesting and threshing operations; however, these conditions develop the meadows and pastures well, so that they go into winter in excellent condition. The fall has been mild with no harmful temperatures to December 1. With the farmers fairly well satisfied with their season's returns, the usual amount of fall farm work and plowing has been done, except, perhaps, that

¹ Statement furnished by Bureau of Crop Estimates, United States Department of Agriculture.

threshing and husking are somewhat behind. On the whole, it was a fairly favorable year for farmers.

With the war over, and scarce, high-priced and often unsatisfactory labor demanding ever shorter hours, farmers naturally tended to let crop acreages become normal again, with resulting increases for oats and potatoes and decreases for beans, buckwheat, corn, hay, onions and rye, and no change in barley, cranberries and tobacco.

The agricultural crop of apples, *i.e.*, the entire crop, is estimated at 3,240,000 bushels as compared with 2,430,000 bushels last year; while the commercial apple crop is placed at 335,000 barrels as against 300,000 barrels last year. The fruit has been of good quality and has sold unusually well; the demand for apples for by-products has been especially strong and at good prices.

Peaches were somewhat disappointing because of the wet, muggy weather at harvest time and due to the sugar shortage, which lessened demand. The crop was of good size and many growers sold their crops at good prices. The crop is estimated at 136,000 bushels, or 80 per cent of a full crop, as against a practical failure last year, due to the winter of 1917-18.

Cranberries are estimated at 340,000 barrels as against 195,000 last year. The demand in New England markets has been poor much of the time, due to the sugar situation; but the demand in western markets is reported as fairly good. Labor was more or less restless and control over the pickers was less effective than usual, with the result that greater wastage of the cranberries and more damage to the vines are reported by the cranberry growers.

Pears, although a minor crop in importance, were considerably better than average, while nearly all berries were plentiful in most sections.

The acreage of beans fell off from about 5,000 last year to about 2,500 this year, but the yield was higher and the production is estimated at 40,000 bushels against 70,000.

The acreage of field corn was about 43,000 as against 45,000 last year; but the season was unusually favorable, resulting in high yields. Silage corn is estimated at 32,900 acres as against 35,300 acres last year; and the crop was one of the heaviest in

years, due to the absence of fall frosts. There were 150 acres of sweet corn for canning; and the acreage of corn for sale green is estimated at about 4,900 acres.

The acreage of hay apparently is decreasing slowly with the decrease in number of horses; and although the main hay crop was rather light, the rowen crop came on well under the generous rains and made the total production fully up to normal.

Oats as a grain crop have shown some gain in the west end of the State, as is the case rather generally over New England. There were about 15,000 acres as against 12,000 last year, but the yield was less; however, the production during each year was about 500,000 bushels.

The onion acreage was 4,250 as compared with 4,600 last year; average yield was 340 bushels as compared with 475 last year. Hot, dry weather at the end of July, followed by thrips, cut down the crop seriously.

Soy beans in mixture with silage corn had an acreage of 1,464 as compared with 1,100 last year. This crop seems to be gaining in popularity.

Under the war stimulus spring wheat reached about 2,400 acres last year, but fell back to 1,300 this year. It has been found poor farm economy to try to grow this crop extensively because of so many adverse conditions. Winter wheat is of small importance, there being about 450 acres last year and about 600 this year. Much of it is for hens and is not threshed.

There were some 10,000 acres of tobacco both in 1918 and 1919; the average yield last year was 1,500 pounds with a production of 15,000,000 pounds as compared with an average yield this year of 1,540 pounds and a production of 15,400,000. There was little hail damage to the crop this season, practically all being in Whately, Hatfield and Deerfield. The crop was of fine quality, but excessive moisture during the curing season caused a small amount of pole sweat.

The potato acreage was 33,000 acres as against 34,000 last year. The growing season had been only fairly favorable; and at the end of August late blight spread rapidly over the State, followed by weeks of hot, wet weather, which caused very heavy rot to develop, so that about 40 per cent of the crop was lost either before or after digging. The larger part of the crop

is grown on comparatively small acreages, spraying is often not effectively done, and poor and infected seed is too often planted. The net production of potatoes, after allowing for the rot, is about 2 970,000 bushels this year as compared with 4,564 000 last year.

FERTILIZER SITUATION.

The fertilizer outlook is not as bright as one might wish. Appreciable relief from the existing high prices and shortage of supply of 1919 does not appear to be immediately forthcoming. A well-informed fertilizer authority comments on the situation in part, as follows:—

The strike called in the rock phosphate fields of Florida last May is still nominally in force. These fields furnish 77 per cent of the rock phosphate produced in the United States, and practically all of that used in the New England territory. The mines have to be guarded, and quite recently it has been necessary to place guards in rock phosphate trains. For a time the workings were tied up absolutely. The supply of phosphoric acid for wheat fertilizer was decreased, and because of shortage of this material, factories were idle during the time when they should have been laying up stocks against next spring's demand. Indications seem to point to a shortage in the spring of 1920.

A further difficulty has to do with a ten weeks' strike among the miners of the Alsatian potash fields. This has now been settled, but the resulting shortage cannot be made good. Moreover, Europe is in a much better position than the United States to make use of the raw salts from these mines. Very few of the mines are as yet sufficiently equipped to refine the salts for export to the United States.

Another complicating factor is that our domestic producers curtailed operations last winter, fearing that they would be swamped by competition from Europe. Perhaps that fear had its origin in the fact that farmers had been assured of a plentiful supply from Alsace and to a certain degree were discriminating against domestic production. Unless conditions change, it will still be some time before quantity production and cheap potash is resumed.

Labor troubles are imperiling our supply of ammoniates. A shutdown in our coal mines and the resulting tie-up of ocean transportation reduces both the supply of domestic produced sulphate of ammonia and of imported nitrate of soda. At the present time these two materials furnish the great bulk of nitrogen used in commercial fertilizers. In addition, more and more, during recent years, packing house by-products have been used for animal foods instead of fertilizers. Similarly, just now, there is a tendency to make such use of fish refuse. This change is certainly economical, but, equally, it diminishes the supply of ammoniates during the time when readjustment is being made.

Little relief is anticipated from the high prices of mixed fertilizers which have prevailed during the past few years. Although some manufacturers have not as yet sent out their traveling agents, there seems to be very little difference between prices of the same quality of fertilizer quoted by different manufacturing companies. It seems to be a good year to favor home mixing. Savings to the farmer of from \$15 to \$17 per ton on a 5-3-5 mixture (ammonia, available phosphoric acid, water soluble potash) which is used largely for tobacco, in about the same proportion on a 4-8-4 mixture which is used for onions, are predicted by men prominent in this specialty. This will probably hold true with most mixed fertilizers.

To summarize the situation, it seems that there is not a liberal supply of raw materials. Particularly is this true of acid phosphate, due to the long-continued strike in the South. It is questioned whether the high price for this important material is entirely due to a shortage in the supply. The foreign demand for sulphate of ammonia has so increased the demand on our fertilizer concerns that the supply is nearly all sold. Cotton seed meal and animal ammoniates, such as dried blood and tankage, are not in liberal supply.

Potash compounds are certain to be more freely offered than last season, although market reports indicate that the supply of domestic potash has been fairly well sold up until the first of January. The labor situation in the potash fields, and the coal shortage with resulting curtailment in shipping, does not promise much relief from this quarter.

In view of the fact that potash and nitrate of soda are both bound to be somewhat lower, it does seem as though mixed fertilizers ought to be below the price asked for them in 1919. There is question whether the increased cost of acid phosphate and the new labor and transportation troubles with which the manufacturers have to contend will counterbalance the low cost of potash and nitrate. At any rate, prices for mixed goods, so far as can be ascertained, lead one to conclude that such mixtures are likely to be held somewhere near the price asked for them a year ago.

The abstract below, taken from a summary of the fertilizer industry, United States Bulletin 798, hits upon a phase of the fertilizer problem which is indeed interesting:—

The fact that from three-fourths to seven-eighths of the mixed fertilizer sold to farmers consists of inert matter which does not contribute to the fertility of the soil, but on which freight must be paid and which must be ground and bagged and transported, is one of the fundamentals in the fertilizer industry. If a means were devised by which farmers could buy practically undiluted plant food and make up their own mixtures, an enormous saving would be effected, and any method that would decrease the amount of inert matter carried in fertilizers would be of great benefit to the agriculture of the country. The quantity of filler used is only a minor phase of this problem, but perhaps the part of it which is most easily susceptible of improvement while the present general methods prevail in the industry.

If a scheme could be devised to eliminate these inert materials, the saving in transportation charges, time and labor should substantially reduce the cost to the farmers and grinders.

There are at present between 900 and 1,000 grades of fertilizers on the market. Many of these vary so slightly in their composition that no perceptible difference in plant growth could be determined. A trade agreement along the line of restriction in the number of grades of commercial fertilizers would be advantageous both to the manufacturers and to the farmers. This phase of our fertilizer problem should command our serious attention.

SEED SITUATION.

Seeds are the capital stock of the farmer or planter. He is both a broker and an investor. In his production and consumption of seeds, it is important that he have cognizance of the market situation. The increased seed production of the United States, stimulated by war conditions, causing a marked advance during 1918 over the figures of 1917, has not undergone an appreciable change during the period of reconstruction we are now experiencing. A slight falling off in certain imports has been compensated in our own increased production.

Men familiar with seed growing and market conditions concur in the opinion that the supply of field, general vegetable, grass and clover seed is ample. The outstanding exception lies in the deficiency of garden peas and beans. Although the acreage of seed garden peas planted this spring was about equal to that planted a year ago, adverse growing conditions, principal among them being the drought sustained on account of the light snow-

fall during the previous winter and the consequent inadequate irrigation, have cut production from 25 to 50 per cent of normal. This condition is aggravated by the absence of the usual "carry over" from the previous season's crop, which will necessitate complete reliance upon this year's yields for our supply.

The crop of garden beans is only 50 to 75 per cent of normal, but there is an appreciable "carry over" from last year. Consequently, there will be no serious shortage in the garden bean seed trade.

Growers in the South Atlantic and Southern States report a shortage of 25 to 55 per cent on the locally grown seed oats and rye. The field and seed corn, by far the most important seed crops raised in Massachusetts, are reported as having had a favorable out-turn and quality. The season was long and adequate to insure maturity.

The grass seed trade seems to be assured of a sufficient supply of fair quality, but good samples are reported scarce by many seedsmen. An increase in price is predicted, chargeable to increased labor costs. Millets are short, excepting Golden millet, which appears in good supply. The total receipts of red clover up to June 30, 1919, as compiled by the United States Department of Agriculture, Bureau of Markets, show a reduction of about 12 per cent on the figures obtained a year ago. Prominent Massachusetts seed firms are agreed in their prediction of a short supply of red clover seed, and, further, that the price will probably be equal to that of last year, when red clover seed prices were about as high as known. The quality of this year's clovers does not vary materially from previous years. Heavy importations in crimson clover were experienced during July, to which, no doubt, decline in price may be attributed. On July 1 the total available supply exceeded by 300,000 pounds the figures reported at this time last year.

The onion seed crop in the far West is considered to be average and of good quality, whereas the Middle and Eastern States report slightly lesser yields. The general condition is average.

With the possible exception of both field and sweet corn, Massachusetts is dependent upon the rest of the country and foreign countries for its seed supply. There is offered here a broad field for trained men to develop this branch of agriculture in Massachusetts.

POULTRY SITUATION.

Undoubtedly, never has there been such a situation as has developed in the poultry industry of the State the past year. As the war ended it was generally believed by poultrymen that there would be an immediate return to pre-war conditions, with cheaper grain and materials. With this in mind, our poultrymen got ready for a big season. Orders were placed for chicks and eggs in larger numbers than for the past two years, and the poultry business began to look up. Much of the poultry stock held over on the poultry farms has not been as carefully selected and cared for as during pre-war conditions; hence, there has been a general deterioration of this stock, and chicks hatched from it have not been as strong. Consequently, there has been a heavy loss to persons purchasing day-old chicks. Added to this loss was an increase in the price of grain, which brought the poultryman to a point where, in June, he found his young stock had cost him about double what he had counted upon. Many decided to sell out at once, while others held on for a while and then sold out, so it would seem at this time as if there are fewer persons in the business than last year. Add to this the almost total disappearance of the backyard flock, and we are indeed in a very serious situation in regard to poultry.

A day's ride through the former poultry districts shows more unused houses than have been noted for years. It is estimated by careful observers that Massachusetts has probably lost 80 per cent of the poultry which she had before the war. This situation has had the effect of forcing eggs to prices unknown before, for few persons ever believed it possible for eggs to sell for \$1.25 per dozen, and yet this price was reached in December of 1919. It is a common saying among poultrymen now, that any one who keeps books will not stay in the business. There is not much in sight to encourage the return to the business another year, for with high prices for all feeds, building material and labor, to say nothing of the scarcity of stock, few but the most venturesome will try their luck again.

There has been a marked return to the raising of turkeys throughout New England, and much credit is due to the New England Turkey Breeders' Association and particularly to Miss

Margaret Mahaney of Concord for her work in this direction. Turkeys are really becoming plentiful again, although the stage we are now going through will not place many of these birds on the market as dressed poultry, for there is too large a demand for breeding stock, which is selling for fancy prices, certain good birds often bringing \$100 each.

There also seems to be a revival in the production of geese and ducks in small flocks, although it is difficult to explain why this is so.

The future outlook is not very promising, unless the grain situation changes, and this is not likely for some time, due to export demand and short crops in this country. That New England will ever become enough of a grain-raising section to make itself independent of the West is extremely doubtful, and yet to lose our poultry industry because of grain prices would indeed be a serious calamity to our agriculture.

MILK SITUATION.

Conditions attending the production of milk in Massachusetts during the past year have been more satisfactory than in recent years, although the reports from assessors indicate that there are 2,000 fewer cows in Massachusetts than there were a year ago. The work of the Federal Milk Commission in fixing prices which farmers should receive for their milk formed a starting point for the year's prosperity. These prices were fixed as a result of sworn testimony on the part of a large number of farmers as to their costs for producing milk. It was found that the average cost of producing milk in Massachusetts was higher than in any other State in New England. This is probably due to the nearness of Massachusetts farms to industrial institutions and the wage which the Massachusetts farmer has to pay in competition with other kinds of labor, and it is due, also, to the fact that the valuation of land in Massachusetts is somewhat higher, on the average, than in other States.

An extensive campaign for advertising the food value of milk has been inaugurated in the larger cities of the State under a co-operative agreement of the New England Milk Producers' Association, various Boston milk distributors, the Massachusetts Department of Agriculture, the Massachusetts Agricultural College, the Boston Chamber of Commerce, and other

civic organizations. The purpose of this campaign has been to teach consumers the food value of milk, that milk at present prices is a cheaper source of animal food than any other material on the market, and that it is indispensable to a sound diet, particularly for growing children. This campaign has notably increased the consumption of milk in this State.

There is a strong tendency for the large milk contractors to buy less milk in Massachusetts and more milk in the northern States, particularly in Vermont. This is probably due to the fact that they are able to more easily obtain their supply from certain intensive dairy regions and ship this to Boston in car-load lots. It is also due to the greater prevalence of Jersey and Guernsey herds in Vermont, New Hampshire and Maine, which supply a higher grade of milk than our prevailing Holstein herds. The gradual tendency for milk dealers to buy Massachusetts milk on a straight can basis, without offering a bonus for increased fat content, has led the Massachusetts farmers to purchase Holstein cows, which give a larger quantity of milk, regardless of its richness, as these men have never received a larger price for rich milk, and the inducement for the production of such milk has been lost sight of. A careful study should be made of this situation to see if it is not possible to increase the production of milk by a change in this practice.

The raising of heifer calves from best cows and pure-bred bulls should be encouraged. There is a tendency for the large farms near Massachusetts cities, many of which have unusually fine herds, to sell their calves at birth, and buy mature cows when they are needed. The practice of raising these calves should be encouraged. In order to bring this about, a plan is being encouraged whereby young calves can be sent to other parts of this State or to other States where there are creameries and where farmers have plenty of skim milk to feed to the calves the first year and plenty of cheap pasturage to raise them to maturity. It is hoped that a co-operative arrangement of this sort will bring about a change in this condition.

Cow-testing associations should be established throughout Massachusetts to encourage the breeding of better cows, and this should accompany the more extensive raising of heifer calves.

NURSERY INSPECTION.

The work of the nursery inspection service has been chiefly concerned with the nursery inspection proper, the white pine blister rust and the European corn borer. The usual inspections for pests and diseases have been made in the nurseries, together with inspections of interstate and foreign shipments. The nurseries were found to be in excellent condition, and the interstate shipments in most cases up to our standard. The Federal Horticultural Board made effective quarantine No. 37, which prohibited after June 30, 1919, the further importation of foreign nursery stock. This naturally increased the amount of stock brought in this spring and necessitated a larger inspection force. Many insects were intercepted on this stock, and while some of them were already established in this country, others were entirely new and might have caused serious deprecations if allowed to enter.

The white pine blister rust work was conducted under the direction of Mr. Carl C. Perry. Considerable work was done in the eradication of Ribes in the town of Marshfield; also the co-operation of the director of the School of Forestry of Harvard University was secured and \$500 was contributed through his efforts for the examination of the lands owned by the university in Petersham. In connection with this work on the Harvard Forest similar work was performed on an adjoining estate, for which \$125 was appropriated by the owner. By an arrangement with the State Forester, \$500 was made available for control work on certain plantations set out in 1909 by the Forestry Department.

In the town of North Andover an appropriation of \$450 was pledged by certain property owners for the protection of pine upon their estates. In this co-operative work the funds of the local co-operators were met by an equal amount by this Department, and, in addition, Federal funds were available to match the combined appropriations of the local co-operator and the State Department. This co-operation on the part of individuals is very gratifying, and it is to be hoped that it will be continued while funds are available for this purpose.

An active campaign has been carried on against the European

corn borer. Besides the actual clean-up work in the field, a great deal of publicity work has been conducted through exhibits at fairs and public meetings and by distribution of circulars. Various organizations, especially the Massachusetts Nurserymen's Association, Boston Market Gardeners' Association and the National Association of Commissioners of Agriculture, have been instrumental in securing legislation and appropriations to carry on this work.

The corn borer is now known to be present in 113 towns in Massachusetts, besides two small areas in New York State. There is, of course, the possibility that it is present in other localities, but as yet not discovered. During the past season the spread in Massachusetts has been great, but the area determined by the government last year, comprising 34 towns, was later found by our inspection to be far from accurate. It is therefore impossible to state just what the increase has been this season. Scouting under the present conditions is extremely important and should be carried on as carefully and thoroughly as possible.

With the very open winter in 1918-19, it was possible to do considerable clean-up work, more than could be expected under normal conditions; however, a great deal of this work remained to be completed in April and May. To meet this the Legislature made available \$100,000, which was expended under the supervision of L. H. Worthley, employed by the Federal government.

Scouting was continued all summer, and immediately a town was found infested it was quarantined and corn grown in that town was prohibited leaving the quarantined area. By the time the corn in this section was ready to market, the infested area included several large markets, such as Newburyport, Haverhill, Lawrence and Brockton, so that very little hardship was experienced by the growers except those who catered to the summer trade in Maine and New Hampshire. In the last Legislature a bill enabling the State Nursery Inspector to establish such quarantines, and providing a penalty of \$25 to \$300 for violation, was passed.

A more intensive method of clean farming and a more thorough clean up than is ordinarily practiced would assist greatly

in checking this pest. It is evident that in order to exterminate or control the European corn borer large appropriations must be made available at once, and, as this is a national problem, the expense should be borne by the Federal government.

APIARY INSPECTION.

In accordance with the recommendation in the annual report for 1919, the apiary inspection was carried on by the nursery inspection service. The work was conducted along the same general plan as in previous years, with the assistance of the three deputy inspectors who had previously acted in this capacity. The Department also had the advantage of the services of Dr. Burton N. Gates, former State Inspector of Apiaries, whose advice was much appreciated, and who gave great aid to the beekeepers in the distribution of sugar.

The results of the inspection show a remarkably low loss during the winter of 1918-19. The status of brood diseases shows no appreciable change. The wet autumn and resulting lack of stores, together with the shortage of sugar, do not promise another winter for the bees comparable to the last.

DAIRY DIVISION.

The work of the Dairy Division has gone smoothly during the year. Fewer violations of oleomargarine and renovated butter laws have been found than for many years. The usual number of investigations by agents has been made.

Special investigations have been made regarding the condition of milk, cream and condensed milk as sold in various cities and towns. In the milk investigations the beneficial results of the Clean Milking Contest carried on by this Department for several years are manifest. Usually condensed milk has been found to be sold according to law. In cases where the law has not been strictly complied with, the manufacturers have promptly rectified the condition upon notice. Cream is frequently found to be sold at prices not indicative of its fat content. Why light and medium cream should be sold at the same price is not clear. To be sure overhead charges are the same, but it seems hardly right to sell two qualities, one containing double the amount of milk fat, at one and the same price.

The Grade Heifer Calf Contest conducted by the division was a decided success, showing an increase of entries over last year, and should be continued. Three of the prize-winning calves were shown at the Eastern States Exposition at Springfield and attracted much attention, furnishing a splendid object lesson of the benefits of using pure-bred sires of superior merit.

The division has co-operated with the United States Department of Agriculture, the Agricultural College and other organizations in a State-wide "Use More Milk" campaign. This has been done for the reason that it is believed that the average consumer is benefited both physically and financially by using more milk, it being pointed out to him that these benefits come both directly and indirectly. The part played by this Department in the campaign was the furnishing of milk folders and leaflets written by the general agent. These circulars have proved very popular not only in this State but in other States. Almost daily inquiries are coming into the office from all parts of the United States and Canada concerning the illustrated folder entitled "Food Value of Milk."

DEMONSTRATION SHEEP FARMS.

The demonstration sheep farms, which are to serve the State as demonstration centers for those desiring information regarding sheep husbandry, have been selected with great care. In their selection the conditions governing sheep husbandry of the district they serve have been ever in mind. Farms have been chosen as follows: —

Ashfield,	Mr. John W. Howes, Manager.
West Brookfield,	Mr. C. D. Richardson, Manager.
Richmond,	Mrs. H. A. Dorr, Manager.
South Hanson,	Mr. Marcus Urann, Manager.
West Tisbury,	Mr. Johnson Whiting, Manager.
Topsfield,	Mr. Dimon Lockwood, Manager.

Typical farms have been chosen, each combining sheep with other branches of agriculture, such as hogs, orcharding, poultry, cranberry culture and dairying. Much of the time since making the final selections of the demonstration farms has been taken up with the purchase and forwarding of equipment it seemed

advisable for these farms to use in their work. In these supplies have been included drenching outfits, with which to give the bluestone treatment, shearing machinery both hand and gasoline engine power, dipping tanks, docking pincers and a variety of other equipment, all to be used by the managers and to be loaned to interested parties with the expectation that in this way a better standard of sheep husbandry may be obtained. Although the demonstration farms have been in operation only a short time, some very interesting reports of service rendered have been received. Dipping demonstrations have been held, and not only has the dipping tank been liberally used in one case for fall dipping, but it is also being engaged for next spring's work. The shearing outfits, especially the power shearers, which have been located where the greatest number of sheep are at the present time, will without doubt be kept very busy next spring.

STATE ORNITHOLOGIST.

The State Ornithologist has published his annual report, a leaflet for distribution in schools of the Commonwealth on Arbor and Bird Day, two circulars on methods of attracting birds, one on the English sparrow and means of controlling it, and one on bird study for beginners. A part of his time has been given to an experiment in attracting birds by means of nesting boxes. Many data have been collected and recorded on the distribution and migration of birds in Massachusetts. These data were obtained largely by correspondence with about four hundred observers, continued through the year. Much material has been collected for a bulletin on the utility of birds. An investigation has been made regarding the causes of the periodical decrease of the ruffed grouse, and an inquiry made regarding the destruction of bird life by the severe cold wave and storm of March 28. Also, the Ornithologist has assisted in the development of several reservations for the protection of bird life, has taken a census of the heath hen, has visited and inspected the principal colonies of sea birds along the Massachusetts coast, has made recommendations to the Massachusetts Commission on Fisheries and Game regarding additional protection to these birds, and has lectured on the conservation of birds.

APPLE GRADING LAW.

The enforcement of the apple grading law up to June 1 was in the hands of Mr. R. E. Annin, Jr. Since that time, owing to Mr. Annin severing his connection with the Department, the work has been directed by Mr. A. W. Lombard. Mr. F. H. Greeley of Salisbury, Mr. Karl M. Perham of Chelmsford, Mr. Walter E. Piper, Jr., of Quincy, and Mr. C. E. Rogers of Newbury served as inspectors in the field.

The policy of the Department in enforcing this law has been the same as in previous years, viz., along the lines of education and instruction. Two additional regulations have been adopted during the year: one, making the slatted box and basket closed packages; and the other, requiring commission dealers and others who cover open packages intended for resale to brand the same in accordance with the apple grading law. Both of these regulations have been found to be necessary owing to the large number of boxed apples being sold, and as a result of their adoption a campaign of education has been carried on to aid the growers and dealers affected by these rulings.

The need of a standard bushel box is being felt more keenly than ever, as the only box now in use is the Boston bushel box, which contains approximately 20 per cent more than the United States standard bushel.

Six cases which were entered in court last year have been disposed of, and in all cases convictions were secured.

Inspections of truck loads of apples and "lots" of apples in storage, before release from storage for purposes of sale, have been made during the entire shipping and storage season.

The growers, packers and shippers are now apparently becoming familiar with the law, and less trouble should be encountered each year in its enforcement.

The apple grading law is proving to be a benefit to the apple industry, and it deserves the hearty and united support of all in its enforcement.

FARM MACHINERY.

The law establishing in the Department authority to purchase and operate machinery to aid crop production during the war became inactive this year, but an appropriation was secured

to continue obligations assumed during 1918 and also to sell out what machinery there was on hand in 1919. The whole of the machinery has been sold under this arrangement and the work stopped.

The value of this experiment has been well demonstrated. It has given the farmers of the State a chance to see the place of the tractor in their operations, and it has also given them an insight into general use of labor-saving devices on their farms. Certainly, more machinery than ever before is in use on our farms, and while labor conditions have forced this, still the demonstration of this State-owned machinery has done much toward bringing this matter to the farmers' attention. While it would no doubt be unwise to continue this work as during the war period, still the State should own and operate some heavy machinery, as ditching and dredging machines, and, possibly, at the various State farms, some of the best types of tractors.

MARKETING WORK.

It should be a source of great satisfaction to realize that at last this Department is to have a Division of Markets. We have been very much behind other States in this respect, but should now come into the field with a chance to profit by their examples and avoid many of the mistakes made by these departments in the past few years.

In July, when the United States Department of Agriculture dropped the co-operative city market reports, this Department was able, through an arrangement with the Boston Market Gardeners' Association, to continue this work, and it has been a source of much satisfaction to have done so. Mr. Harry Campbell, who carried on the work with the government, was retained to do the reporting, and while it increased the work in the office very considerably, there has been a very great willingness on the part of all the office employees to help get out the report.

Most Massachusetts farmers need the assistance of a Division of Markets, although farmers have got to be classified in order to come within the definite scope of this work.

Farmers near cities can be assisted greatly by making better marketing conditions within the cities they serve, also by in-

forming the large farmers of conditions in other cities. This class of farmer should, however, look forward and work for a co-operatively controlled market which they themselves shall run.

There is also a very large body of small farmers throughout the State to which a Division of Markets can be of great assistance. Most of these farmers grow a small amount of farm produce which is difficult to sell, chiefly because of the expense in getting it to the consumer. To these farmers a Division of Markets should be of assistance by rounding up all of their produce and finding a buyer for it, or, better still, by getting these small farmers to grow enough of one thing so that they can dispose of it themselves through a co-operative association.

The Market Division should find out what products are in demand and encourage their growth within the State, and also be able to furnish information to outside purchasers or distributors as to the condition and demand of our markets. The question of running an exchange paper is very debatable. There is grave danger of becoming too much like an auction-room sales bill, and, perhaps, the larger question of the danger of being placed in the position of guaranteeing something which it is impossible for the division actually to see. There is also grave danger that the public will demand that the division serve their interests to the exclusion of all others, that it maintain a price schedule in the papers and in the market, and that it also attempt to regulate prices. A Division of Markets which tries to do this is bound to fail and will not benefit greatly either side. The final question of price must be left to the parties who are bargaining and to the law of supply and demand. A market news letter service should be maintained in the principal markets of the State, and every effort made to get to the farmers such market information from other sections as will aid them in the movement of their crops.

Marketing is the basis of our agricultural prosperity. The proper distribution of our food supply is also the basis of contented, prosperous people, and the whole process should be alike of interest to both the producer and the consumer.

SOIL SURVEYS.

An appropriation of \$5,000 was made by the Legislature of 1919 for soil survey work this year. Assistance of the United States government was obtained and two expert soil survey men were sent up here by the government. The Department has furnished two assistants in this work as well as two automobiles. Work was begun late in May in Bristol County and this was finished in September, when both parties went into Barnstable County and finished it late in October. Considerable data regarding the agricultural features of the county were gathered, and it is hoped to put these data in such shape that they will be readily available. Soil surveys, while technically valuable, are of little use to the farmer or would-be settler unless they are translated into practical language. It would therefore be advisable to make an additional survey of each county in connection with this work, with the special purpose of getting such definite agricultural data together which can be published in a bulletin of each county, this being used particularly to assist in advertising the section in other parts of the country.

Soil surveys should go on until the whole State is covered, for this is only one step in a State-wide plan which we need in order to bring into full use all the resources of the State. Soil surveys are not only valuable to the farmer and land purchaser but to the forester as well, and the work has the added value of making it possible to compare different parts of the country where land similar to ours is being developed with crops which we had not thought of raising on such land here.

It is recommended that a larger appropriation be made this year in order that a larger area may be covered next summer, and it would be advisable to employ at least one experienced man in the field and for publication work as well, preparing the data gathered in the summer.

FARMERS' INSTITUTES.

The department was called upon to furnish speakers for 53 institutes, or 56 sessions, at a cost of \$876.02. This figure does not include the cost of the speakers of the union agricultural meeting, which amounted to \$785.98. Twenty of the institute lectures were on general agriculture, 8 on dairying, 7 on sheep,

5 on birds, 4 on fruit, 3 each on poultry and vegetables, and 1 each on marketing, flowers and blasting.

While some of the meetings were very poorly attended, a few drew unusually large crowds, making the aggregate attendance for the year, exclusive of the union meeting, 7,122, or an average of 127 per session.

THE DRAINAGE BOARD.

This Board as now organized is made up of Dr. Eugene R. Kelley, chairman, Wilfrid Wheeler, secretary, X. Henry Good-nough, engineer, and R. W. Harwood, clerk.

Very little work has come to the Board this year, although four different problems have been considered, namely, Salisbury marshes, Marshfield marshes, Barnstable dike lands and Barnstable North River.

The most important of these has been the Salisbury drainage area, the owners of which have formed themselves into a drainage district and the Board has made the preliminary surveys. Unfortunately, a part of the area of this marsh lies within the State of New Hampshire, where a dike already built would, if it were possible to make some arrangement with the State of New Hampshire, simplify the draining of this area and cut the cost of the work in two. So far as applying the present law to fit this case, it seems impossible, and it is with great regret that the Board has had to report adversely on this project, as it undoubtedly seems to be the best one yet brought to our attention.

The Board has acted in an advisory capacity to many persons seeking information on matters connected with land drainage. The Board feels that much more work of a preliminary nature, such as making surveys of such places where eventually drainage work will be done, should be undertaken. The present drainage law, while in many ways satisfactory, should be amended in order to give an easier method of financing drainage districts. It might be possible for the State to make the loans direct, or at least to guarantee the bonds issued upon the undertaking.

The Drainage Board should be able to employ an engineer permanently in order that new work may be laid out and assistance rendered to those in need of advice in regard to drainage.

AGRICULTURAL FAIRS AND SOCIETIES.

The tremendous effort on war drives, relief work and increased production, put forth by our public during the war, consumed much of the resources normally expended on educational and encouragement work embodied in such institutions as agricultural societies. In addition to this mobilization of effort, the influenza epidemic constituted a further influence to lessen attendance and interest. In fact, five agricultural societies were forced to cancel their shows. However, with the return of peace a marked renewal of interest and enthusiasm was exhibited by the public. I regret that I cannot state that the same degree of enthusiasm was shown in the exhibits of live stock and farm products. Markedly is this true of many of the old-line societies. I do not hesitate to state that the small fair situation constitutes a problem which is demanding our attention. The work is to be taken over by the director of the recently established Division of Reclamation, Soil Survey and Fairs. I look forward to a new era of co-operation and intimate association with the agricultural societies, by which we may be of greater service in the assistance and encouragement of agriculture in our State.

The amount of allotment made through the agricultural societies was determined for 1919 from the data and the reports submitted by the inspectors in 1918. It is regretted that the scoring of these societies cannot be completed by a single individual, thus ensuring uniformity and an equitable criticism brought about by a single point of view. It is obviously impossible to accomplish this, as the societies are widely distributed and their dates in many instances conflict. With the purpose of obtaining, as far as possible, a single point of view, the inspection of the agricultural societies was made largely by members of the Department, making up the Committee on Agricultural Prizes. A score card was drafted by members of this committee, and through their intimate relationship a high degree of uniformity was obtained, to the end that an equitable distribution of the agricultural prize money is established for 1920. Much delay is entailed in our present system of payment of agricultural prize money. The Anti-Aid Amendment

makes it necessary that prize money be paid directly to prize winners, instead of any one payment to the society management, as was formerly the case.

An effort has been made by the Department this year to encourage the sheep industry through the offering of special prizes. A premium list prepared by the Department was sent to the fairs to which these premiums were offered. The societies listed below, which received this money, were selected both with respect to their geographical and economic location as regards the sheep industry.

Allotment to Fairs of Sheep Prize Money, 1919.

NAME OF SOCIETY.	Allotment.
Brockton,	\$500 00
Essex,	500 00
Franklin,	500 00
Housatonic,	500 00
Martha's Vineyard,	100 00
Nantucket,	100 00
Worcester North,	250 00
Worcester South,	250 00
Total,	\$2,700 00

Fifteen poultry associations have already signified their intention to conduct poultry shows during the season 1919-20. The Department expects to devote \$2,000 to the payment of poultry prizes through these societies. A certain portion of the prize money regularly allotted to the payment of prizes through agricultural societies is also paid to winners of poultry premiums.

Chapter 241 of the General Acts of 1918 authorizes the State Department to offer prizes for competitive exhibits of certain agricultural products. There was \$35,000 appropriated by the Legislature of 1919 for this purpose. The following list shows the manner in which this money was expended: —

Agricultural Prize Money.

SOCIETY.	Allotment.	Awarded.
Amesbury and Salisbury,	\$300 00	-1
Barnstable County,	750 00	\$639 50
Blackstone Valley,	700 00	656 25
Boston Fair, Inc.,	250 00	-1
Brockton,	500 00 ²	98 00 ³
Deerfield Valley,	800 00	739450
Eastern Hampden,	700 00	-1
Essex Agricultural,	1,300 00 ⁴	778 00
Franklin County,	1,400 00 ⁴	1,305 00
Greater Lynn,	100 00	100 00
Groton Farmers' and Mechanics',	350 00	256 50
Hampshire,	100 00	-1
Hampshire, Franklin and Hampden,	900 00	990 00
Harwich,	100 00	73 00
Heath,	100 00	81 00
Highland,	700 00	635 50
Hillside,	775 00	775 00
Hingham,	525 00	517 00
Hoosac Valley,	250 00	250 00
Housatonic,	1,300 00 ⁴	1,062 00
Lawrence,	100 00	100 00
Lee Grange,	75 00	55 00
Marshfield,	450 00	447 50
Martha's Vineyard,	700 00 ⁴	521 00
Massachusetts Horticultural,	700 00	700 00
Middlesex North,	350 00	-1
Nantucket,	700 00 ⁴	669 25
Oxford,	500 00	441 00
Plymouth County,	600 00	514 00
Quannapowitt,	900 00	-1
Rehoboth Grange,	50 00	50 00
Rockland Grange,	100 00	100 00
Sandwich Agricultural,	100 00	77 50
Union,	700 00	700 00
Warren Grange,	25 00	16 25
West Taunton,	400 00	325 75

¹ No fair held.² Allotted for sheep prizes only.³ And cups.⁴ Includes allotment for sheep prizes.

Agricultural Prize Money — Concluded.

SOCIETY.	Allotment.	Awarded.
Westport,	\$450 00	\$450 00
Weymouth,	200 00	200 00
Worcester,	900 00	858 50
Worcester North,	950 00 ¹	772 00
Worcester Northwest,	700 00	679 50
Worcester South,	950 00 ¹	681 50
Worcester County West,	800 00	800 00
	\$23,300 00	\$18,055 00

¹ Includes allotment for sheep prizes.

BOYS' AND GIRLS' CLUB WORK.

The Department of Agriculture set aside \$3,000 of the agricultural prize money appropriation to be awarded through the junior extension service of the Massachusetts Agricultural College.

Ten projects of work have been carried on during the year, the enrollment being as follows: —

Corn,	76
Potato,	195
Home garden,	35,127
Canning,	2,756
Market garden,	1,346
Poultry,	1,014
Pig,	1,231
Calf,	111
Home economics,	2,513
Onion,	22

The junior extension work has been planned in such a way this year that several phases of the work might receive special emphasis.

1. *The Organization of Clubs with the Holding of Regular Meetings.* — Time has shown that this is an excellent means of keeping up the interest of the young people through the time given to a project.

2. *The Working Out of a Program covering a Period of Two, Three or Four Years.* — This retains the interest of those who have previously done this work. We have found that simply to repeat what has previously been done causes loss of enthusiasm.

3. *The Training of Demonstration and Judging Teams.* — We feel that no exhibit is complete unless teams are given an opportunity to demonstrate their knowledge of the work they are doing, and to show the visiting public that they have the ability to judge the quality of the products shown. Inter-town and city contests have been held to select the county champions. County teams representing the various projects were sent to the New England Fair at Worcester for competitive tryouts to determine the teams which should represent the State at the Eastern States Exposition. Ten States were represented at this exposition, and I might say in this connection that out of 22 possibilities, Massachusetts teams won first place in 11 of the 22. The winning of 11 first prizes out of a possible 22 shows not only that there must have been local interest, but that the teams representing Massachusetts must have been well trained by the county leaders.

The Department of Agriculture money has been used for prizes as follows: —

Washington trip.	Banners.
Camp.	Pins.
Books.	Printing (certificates, etc.).
Exhibits.	

EXHIBITIONS AND CONTESTS.

At the first annual Public Winter Meeting of the State Department of Agriculture, held in conjunction with the union meeting of the leading Massachusetts agricultural organizations at Horticultural Hall, Boston, February 11 to 14, inclusive, prizes aggregating \$352 were offered for exhibits of field corn and \$150 in prizes for vegetable exhibits.

In addition, later in the year, two orcharding contests were held: one, a "Thinning Contest," in which prizes amounting to \$115 were offered, and the other, a "Marketing Contest," in which an assignment of \$150 was made.

At the meeting of the New England Turkey Breeders' Association, held in Concord November 15 and 16, \$50 was offered by this Department; and at the New England Fruit Show, held at Providence, Rhode Island, November 10 to 13, inclusive, a silver cup was offered in the "Students' Team Judging Contest."

In addition to the corn and vegetable shows held in connection with the Public Winter Meeting, interesting exhibits were put up by the various divisions of the Department, showing their respective activities, viz., dairying, apiary inspection, boys' and girls' club work, farm machinery and ornithology.

The largest exhibit of farm crops ever attempted by the Department was made in the new State building on the Eastern States Exposition grounds in West Springfield during the week of September 15 to 20, inclusive. A State exhibit of apples, honey and apple products was shown at the New England Fruit Show at Providence, Rhode Island, November 10 to 13. The Department of Horticultural Manufactures, Massachusetts Agricultural College, furnished the apple products exhibit.

EASTERN STATES EXPOSITION AND DEDICATION OF MASSACHUSETTS BUILDING.

The return by the government of the grounds of the Eastern States Agricultural and Industrial Exposition to the management was marked by the finest exhibit of live stock, farm tools, machinery, and other exhibits ever brought together in the East, and for a week the grounds were crowded with interested spectators from all over the New England States. Special emphasis was given this year to State exhibits, and these were very nicely arranged in the machinery hall with the exception of those of Massachusetts, which had its own building.

On Tuesday, September 17, 1918, the dedication exercises of the Massachusetts Building were held, and a splendid program was carried out as follows:—

PROGRAM.

WILFRID WHEELER, *Commissioner of Agriculture*, Presiding.

Singing by Audience. Led by E. E. Chapman.

Address of Welcome. Theodore N. Vail, First Vice-President, Eastern States Exposition.

Dedicatory Address. Lieutenant Governor Channing Cox of Massachusetts.

Five-minute speeches by visiting Governors or representatives of the Departments of Agriculture.

Delivery of keys to Massachusetts Building by John K. M. L. Farquhar, chairman of building commission, to Wilfrid Wheeler, Commissioner of Agriculture.

Singing of "America." By Audience.

It was of special value to have the Governors of the different States or their representatives present, and the speeches made dwelt especially upon the need for a new development in agriculture and a closer affiliation among the group of New England States.

The dedicatory address by Lieutenant Governor Cox was most fitting to the occasion and highly approved by the audience. After the exercises the guests inspected the exhibits and building and expressed themselves as very much pleased with the arrangement of both building and exhibits.

The building was completed early in the winter of 1918-19 and was in splendid condition for the exhibits in September. The grounds were also in excellent condition.

The exhibit was in charge of Mr. A. W. Lombard, and great credit is due him for his good taste in the arrangement of the display. The wings were occupied by the Massachusetts Fish and Game Commission and by the Forestry Department, while the main hall was given up to a general exhibit of the products of the State.

MEETINGS OF THE DEPARTMENT.

The first annual meeting of the Department of Agriculture was held at the State House, Boston, December 19 and 20, 1918, at which time the reports of the various officers were presented and accepted, and officers for 1919 were elected.

Leading agricultural organizations of the State co-operated with the Department in the biggest agricultural meeting ever held in Boston, February 11 to 14, at Horticultural Hall, when such groups as the Massachusetts Fruit Growers' Association,

Massachusetts Dairymen's Association, Massachusetts Federation of County Farm Bureaus and others held their meetings. Much interest was taken in the competitive corn and vegetable shows held in connection with the meeting, and there was a very large attendance at the lectures, a list of which follows:—

- “Fruit Packages,” by H. E. Montague, New York City, and J. H. Putnam, Greenfield.
- “Spraying,” by Dr. T. J. Headlee, New Jersey Experiment Station.
- “Winter Injury of Fruit Trees,” by U. P. Hedrick, Horticulturist, New York State Experiment Station, Geneva.
- “Fruit Market Possibilities:” (a) Export, by A. W. Otis, Boston; (b) New England, by H. W. Selby, Springfield.
- “Small Fruit Culture,” by S. P. Hollister, Connecticut Agricultural College, Storrs, Connecticut.
- “Uses of Fruit,” by Miss Elizabeth C. Nickerson, Assistant Emergency State Home Demonstration Leader, United States Department of Agriculture.
- “Wintering Bees,” by Dr. E. F. Phillips, Bureau of Entomology, United States Department of Agriculture, Washington.
- “Efficient Management of Labor on the Fruit Farm,” by Prof. F. C. Sears, Amherst.
- “Orchard, Berry and Vegetable Fertilizers,” by Dr. H. J. Wheeler, American Agricultural Chemical Company, Boston.
- “Why we started a State Association, and what we believe it should do,” by J. Winthrop Stone, Watertown.
- “What a Co-operative Farmers' Exchange has done to handle Locally Grown Products,” by Porter R. Taylor, General Manager, Providence Farmers' Exchange.
- “Taking the Risks out of Farming,” by E. S. Brigham, Commissioner of Agriculture, State of Vermont.
- “A Method of Safeguarding Milk Supplies,” by William G. Bissell, Director of Laboratories, Buffalo, New York.
- Address by Ernest Kelly, in charge Market Milk Investigation, Dairy Division, United States Department of Agriculture, Washington.
- “Women's Work in Agriculture,” by Miss Helen Holmes, President, Woman's National Farm and Garden Association.
- “Testimony from Employers,” by David A. Ellis, Westwood, and Henry S. Upham, Ipswich.
- “A Forward Look — Agriculture as a Vocation for Women,” by Miss Margaret Hamlin, Supervisor of Agricultural Courses for Women, Massachusetts Agricultural College, Amherst.
- “Work of the Woman's Land Army of America,” by Mrs. William H. Hubert, Federal Director Woman's Land Army of America, Washington, D. C.
- Moving Pictures.

- "Why the Farmer should be a Greenhouse Man, and why the Greenhouse Man should be a Farmer," by William H. Elliott, Brighton.
- "Roses Out-of-doors," by Robert Pyle, West Grove, Pennsylvania.
- "Producing Pork in New England," by J. C. McNutt, Massachusetts Agricultural College, Amherst.
- "Problems of the Eastern Sheep Breeder," by J. C. Duncan, Lewiston, New York.
- "Tuberculosis-Free Accredited Herd Plan of the United States Department of Agriculture," by Dr. E. A. Crossman, Inspector in Charge, Tuberculosis Eradication in New England, United States Department of Agriculture.
- "The Opportunities for Dairymen's Association," by C. R. George, Secretary, Indiana State Dairymen's Association.
- "Can Massachusetts Dairying Survive Competition?" by Prof. Benjamin Southwick, Massachusetts Agricultural College, Amherst.
- "The Dairy Situation in New England," by Dr. A. W. Gilbert, Federal Milk Administrator.
- "The Development of a Dairy Cow," by J. C. McNutt, Massachusetts Agricultural College, Amherst.
- "The Place of Corn in New England Agriculture," by J. L. Hills, Dean, University of Vermont, Burlington.
- "Reconstruction of the Poultry Industry in New England," by George V. Smith, West Willington, Connecticut.
- "Turkey Raising in Massachusetts," by Miss Margaret Mahaney, Concord.

The July meeting of the Department was held at Falmouth, July 16, for the purpose of giving an opportunity to the members of visiting Coonamessett Ranch, North Falmouth, the following day. The visit to the ranch, which is being developed in an extensive manner, proved of much interest, enabling the associate members to get some idea of the possibilities of this section.

The regular Summer Field Meeting was held in co-operation with the State Grange at Hillside Park, Colrain, August 15, when Mr. John C. Ketchum of Michigan, lecturer of the National Grange, and Mr. Chas. M. Gardner, past master of the Massachusetts State Grange, addressed the gathering.

COMMISSIONER'S TRAVEL.

It has been almost impossible to do much traveling outside the State the past year, due chiefly to lack of money available for this purpose.

Your Commissioner has, however, made three trips to Washington, chiefly on corn borer work; one to Chicago, to attend meeting of commissioners and secretaries of agriculture; and one trip to Albany, New York, on corn borer work. A good deal of travel inside the State has been necessary, chiefly to attend meetings and for other engagements.

There should be an adequate sum set aside for this purpose, for the Commissioner should be in a position to attend such agricultural gatherings and make such investigations outside of the State as would assist the work here.

WORK OF THE OFFICE.

Although the office work long ago outgrew its quarters, no additional space has as yet been provided. The work of the stenographic and clerical force has increased very materially the past year, and the need for more help is urgent.

On June 1, 1919, Mr. R. Edwards Annin, Jr., who has been with the department since February, 1914, first as second clerk and since June, 1918, as first clerk, resigned to accept a position with a law firm in New York. Mr. Ralph W. Harwood, Massachusetts Agricultural College, '18, who served with the Twenty-sixth Division in France, was appointed in Mr. Annin's place.

Since July 1 the titles of first and second clerk have been abandoned in accordance with the standardization act which then went into effect and classed them as executive and senior clerk, respectively.

WORK OF THE LIBRARY.

During the year 1919 fifty-two new books were added to the library at a cost of \$83.92. About \$88 has been expended for periodicals and \$47 for binding. No attempt has been made to include the new books on agriculture, only those being added which were necessary to keep the library up to date on the various branches of the subject.

The card catalogue has been revised to include all the books in the circulating section of the library, the circulars and bulletins of the State Department of Agriculture, and the Farmers' Bulletins and department bulletins of the Federal Department of Agriculture. The Agricultural Index, issued by the H. W.

Wilson Company, indexes the publications of the departments of agriculture, of the agricultural colleges, and of the experiment stations of other States. This index also includes the leading agricultural periodicals of the country.

The interest in things agricultural, aroused during the war, was manifested by the increase in the number of patrons, and has been well sustained this last year. In fact, there has been a decided increase in the number of steady borrowers from the library. Most of these are men engaged in some commercial line of work in the city, but who are looking forward to owning a small farm of their own later on. Meanwhile they are reading all they can find on the subject of farming. The demand has been mostly for books dealing with fruit culture, live-stock raising, especially swine, poultry culture, beekeeping and vegetable growing.

The question of more room for the library is a very urgent one. Aside from the fact that there is no place where one may take advantage of the facilities of the library for study or research work, there is no room for the proper storage of the publications that are received daily. As this is the logical library for the people in this part of the State to look up agricultural matters, both scientific and popular, and as the department spends quite a little money and time in collecting the material and making it available for the public, better library space should be provided within a short time, especially if it is intended to keep up this line of work. At the present time many valuable publications and books of historical interest are in a deplorable state, due to the lack of room.

TRESPASS SIGNS.

Five thousand cloth posters, containing the extracts from the trespass laws, were printed the first of the year at a cost of \$686.69, but the supply was exhausted the first of August. To meet the demand, 2,800 paper signs were printed at a total cost of \$20.81. Two hundred and eleven cloth signs were sold to persons requesting more than their allotment of five, \$21.83 being thus realized. At first 6 cents a poster was charged, but on May 1 it was necessary to increase the price to 13 cents to cover the cost of printing.

PUBLICATIONS.

The following publications were issued by the Department during 1919, and may be obtained on application to this office:—

NAME OF PUBLICATION.	Pages.	Number.
Agriculture of Massachusetts, 1918,	164	1,500
Report of Commissioner, 1918,	52	500
Report of State Nursery Inspector (seventeenth annual report), .	16	500
Report of State Inspector of Apiaries (ninth annual report), .	12	1,200
Report of State Ornithologist (eleventh annual report), . . .	24	3,000
Report of Boys' and Girls' Club Work (fifth annual report), .	8	1,000
Report of Superintendent of Farm Machinery,	12	500
Circular No. 34, Household Accounting, ¹	16	2,500
Circular No. 50, Apple Grading and Packing, ²	24	1,000
Circular No. 50, Apple Grading and Packing, ³	24	2,500
Department Circular No. 2, Food, Feeding and Drinking Appliances and Nesting Material to Attract Birds. ⁴	36	2,500
Department Circular No. 3, Report of the Entomologist for 1918,	8	200
Department Circular No. 4, The English Sparrow and Some Means of Controlling It. ⁵	20	2,000
Department Circular No. 5, Turkey Raising,	8	1,000
Department Circular No. 6, Factors Affecting Hardiness in Fruits,	12	2,000
Department Circular No. 7, Fruit Market Possibilities in the Export Trade.	8	1,500
Department Circular No. 8, The Efficient Management of Labor on the Farm.	12	1,500
Department Circular No. 9, Control of the Principal Insects Injurious to the Apple above Ground.	12	2,000
Department Circular No. 10, Bird Houses and Nesting Boxes, ⁶ .	28	3,500
Department Circular No. 11, Orchard, Berry, and Vegetable Fertilizers.	16	1,700
Department Circular No. 12, Outdoor Bird Study. Hints for Beginners. ⁷	52	3,000
Department Circular No. 13, Plants that Attract and Shelter Birds and Some that Protect Cultivated Fruit.	32	5,000
Department Circular No. 14, Agricultural Legislation, 1919, .	20	500
Leaflet B (Milk), ⁸	1	5,000
Leaflet C (Milk), ⁸	1	5,000
Leaflet D (Milk), ⁸	1	5,000
Leaflet E (Milk), ⁸	1	10,000
Leaflet J (Milk), ⁹	1	7,000
Leaflet K (Milk), ¹⁰	1	27,000

¹ Fourth edition.² Fourth edition, revised.³ Fifth edition, revised.⁴ Second edition, revised.⁵ Revised edition of Circular No. 43.⁶ Supersedes Circular No. 47.⁷ Supersedes Nature Leaflets 22, 23, 24, 25, "Hints for Outdoor Bird Study."⁸ Reprint.⁹ Two reprints.¹⁰ Three reprints.

NAME OF PUBLICATION.	Pages.	Number.
Leaflet M (Milk), ¹	1	50,000
Leaflet N (Milk), ¹	1	68,000
Leaflet O (Milk), ²	1	48,000
Leaflet Q (Milk), ³	1	10,000
Leaflet R (Milk), ²	1	60,000
Leaflet T (Milk), ³	1	50,000
Leaflet U (Milk), ⁴	1	120,000
Leaflet V (Milk), ⁴	1	30,000
Leaflet AA (Milk), ³	1	150,000
Leaflet BB (Milk), ³	1	150,000
Leaflet AA-BB (Milk), Italian, ³	1	20,000
Leaflet AA-BB (Milk), Polish, ³	1	20,000
Leaflet AA-BB (Milk), Yiddish, ³	1	20,000
Food Value of Milk, ²	4	50,000
Manual of the Dairy Laws,	72	400
Dairy Statistics,	12	300
List of Institute Speakers,	12	300
Directory of Agricultural Organizations,	16	200
Arbor and Bird Day Circular,	8	15,000
List of Useful Books on Agriculture, ⁵	12	500
Land Drainage,	12	500
House Bill No. 290, Relative to the Improvement of Waste Lands and to provide Farm Lands for Persons who have served in the Armed Forces of the United States.	4	100
House Bill No. 329, An Act to create a Division of Markets in the State Department of Agriculture, a Division of Reclamation, Colonization and Soil Survey in the State Department of Agriculture, and to codify the Agricultural Laws.	40	100
House Bill No. 330, An Act to provide for the Purchase and Operation of Farm Machinery by the State Department of Agriculture.	4	100
Bulletin No. 4, Small Fruits, ⁶	150	5,000

¹ Three reprints.³ Reprint.⁵ Second edition, revised.² Two reprints.⁴ New; one reprint.⁶ Fourth edition, revised.

Because of a ruling of the Supervisor of Administration that the lectures and discussions of the Public Winter Meeting do not come within the annual report classification, Part II of "Agriculture of Massachusetts" is no longer being issued. The lectures, however, have been printed in separate form, as in the past.

BULLETINS.

Two of the bulletins — one on "Grasses and Forage Crops" and the other on "Small Fruits and Berries" — have been out of print the last year. There is a continued demand for these

bulletins as well as for one on orcharding which would deal with pears, peaches, plums, and like fruit. The bulletin on "Small Fruits," which has been revised, is in the hands of the printer and will be available the first of the year.

LEGISLATION FOR 1919.

The outstanding feature of the agricultural legislation for 1919 was the passage of the so-called reorganization bill. Among the changes brought about by this act are the reduction of the advisory board from fourteen to six members and the creation of certain new divisions.

Owing to the tardiness of the national budget, our Legislature was called on to pass special appropriations amounting to \$100,000 for the suppression of the European corn borer.

An act was passed directing the sale of farm machinery, purchased under the provisions of chapter 90 of the General Acts of 1918, the sale of the same to be completed not later than the first day of November, 1919.

Chapter 256 (General Acts) authorized the Department of Agriculture to establish demonstration sheep farms. Certain amendments to the existing nursery inspection law were brought about by General Acts, chapter 331.

Buildings and improvement for Bristol County Agricultural School (General Acts, chapter 225) and for Norfolk County Agricultural School (General Acts, chapter 240), together with an act (General Acts, chapter 350) placing the trustees of the Massachusetts Agricultural College in the Department of Education, constituted the legislation for 1919 bearing directly upon agricultural education.

An amendment to General Acts of 1918, chapter 223, "An Act to provide for county aid to agriculture," was passed, requiring that one of the trustees shall always be a county commissioner. General Acts, chapter 75, provided for appointment in the county of Suffolk of trustees for county aid to agriculture. The powers and duties of the State Drainage Board were enlarged through General Acts, chapter 98. A sum was set aside to provide for the testing of poultry for disease by the Massachusetts Agricultural College.

A minor change was made in General Acts of 1912, chapter 218, so as to conform to the Constitution as amended. A bill to provide for the collection of agricultural statistics failed of passage.

LEGISLATIVE APPROPRIATIONS.

OBJECT FOR WHICH APPROPRIATED.	Appropriation.	Used.
Administration: —		
Commissioner's salary,	\$3,000 00	\$3,000 00
Clerical and other assistance,	8,000 00	7,704 13
Associate members,	3,500 00	4,139 10 ¹
Commissioner's travel,	500 00	327 35
Incidentals,	6,000 00	6,000 00
Inspection and encouragement: —		
Nursery inspection,	15,000 00	14,995 50
Apiary inspection,	2,000 00	1,802 23
State Ornithologist,	3,500 00	3,488 35
Disseminating information,	9,000 00	8,953 92
Farm machinery,	25,000 00 ²	17,100 50
Dairy Bureau: —		
Personal services,	3,570 00	3,585 00 ¹
Expenses,	5,430 00	5,428 70
Encouragement of dairying,	2,332 68	2,329 42
State prizes for agricultural exhibits,	35,000 00 ³	30,117 04
Establishment of demonstration sheep farms,	5,000 00	2,277 74
Special: —		
European corn borer,	100,000 00	79,232 74
Survey of soils,	5,000 00	3,067 64
	\$231,832 68	\$193,549 36

¹ Overdraft paid from deficiency appropriation.

² There was \$2,950 allowed from deficiency appropriation to meet 1918 expenditures.

³ There was \$361 allowed from deficiency appropriation to meet 1918 expenditures.

REORGANIZATION OF THE DEPARTMENT OF AGRICULTURE.

Owing to the acceptance by the people of the constitutional amendments, and in this connection the one which had to do with the consolidation of State departments, it became necessary to have a second reorganization of this Department within two years.

It was the hope of many who have agriculture vitally at heart to effect an organization which would embrace all those depart-

ments which are essentially agricultural, and it was hoped to bring within its scope animal industry, forestry, and fish and game. However, the Legislature thought otherwise, and two departments were formed: one, agriculture, and the other, conservation.

The agricultural department has retained all of its old work, and under the bill adopted has been able to start new work along lines for which the Department has been working for years, and with the establishment of these new divisions the Department should have a very complete organization. There has been a very strong movement over all the country among departments of agriculture to get their work on a similar basis, and it is indeed unfortunate that Massachusetts should not have seen the problem as it really existed and have tried to build on constructive lines.

In the new organization the board is merely advisory, and the Commissioner is the final and real authority. This policy is in accord with the general line of the entire State reorganization.

LABOR AND AGRICULTURE.

The past year has been marked with great unrest among working people. Strikes have become so common as to cause little comment. Demands of certain elements in labor organizations have become so extreme that organized labor has hurt itself in the minds of many people and a general reaction against labor has set in.

Many of the demands of labor have been poorly advised and made with little thought as to their effect on labor itself. It has not seemed to occur to labor that an increased price for its work simply means a general lifting of prices for all things, and that instead of shorter hours and more pay, the country needed greater production per man. All of this agitation has, of course, been felt by the farmer. It at first would seem that strikes would benefit the farmer, at least to the extent of furnishing more help, but this has not been the case, as the striking men seem to prefer to loaf, and there also seems to be plenty of money for them to spend.

Agriculture depends very much on labor, particularly at certain times of the year when there are crops to be put in or

harvested, and usually a farmer's production limit is determined by the amount of labor which he is able to command at harvest and planting time. To deny him this labor is to limit production, and this seems to be what has happened the past year.

Another phase of the matter which should be considered is the quality of labor. Practically all farmers complain of the poor labor which they get. When high factory wages drew the men from the farms, it took our best men. These men have made good under factory conditions and are naturally inclined to stay at their factory job where they can earn more than on the farm. The poorer help are released from the factory, and they naturally get back on the farm and are even less efficient here than they were in the factory.

The attempt to draw the farmers into organized labor is another indication of the conflict between labor and capital. If there is to be an organization of farmers throughout the country, this organization should not affiliate with any other group except to protect the interests of the greatest number of our people. While we realize that there is bound to be a shorter working day for all labor, we believe that all should be treated alike, and so essential an industry as agriculture should not be made to compete in the market, with its products produced on a ten to twelve hour basis, with those of industries produced on an eight-hour basis.

Undoubtedly agriculture has got to come to paying wages in competition with other industries. It should therefore be entitled to a profit on products produced under these new conditions. The public must therefore expect to pay more for food in the future. While there will be an increase in the use of labor-saving devices on the farm, these devices have their limitations, and without effective labor agriculture will decline.

LAND SETTLEMENT.

A great deal has been said and written this past year on land settlement, and particularly as it relates to use of land by soldiers and sailors of the Great War. Practically all of the allied governments but our own have made it possible for soldiers and sailors to obtain land for homes and farms under easy terms. It is impossible to tell as yet the success of any of these propo-

sitions. Probably the Canadian government has come the nearest to success in this line of work, mainly because Canada has considerable good land which is still available for settlement and also because many of the men have had farm experience. Practically all of the Western States have made some provision in their State governments for land settlement work, not for soldiers alone, but for any one who wished to use land.

Aside from the merits of the question of soldier land settlement, there is the other and larger side which no State with waste and unused land can long ignore, especially those States which have to import most of their food supply. Massachusetts is in this latter class, both with respect to large areas of unused land and in the importation of her food supply, and therefore should seriously consider the problem of land settlement and the re-establishment of her agricultural industry. The soundest method of bringing this about is to encourage and assist our present farmers in every legitimate way, and their prosperity will inevitably cause others to go on the land and begin farming here. The present farmers of the State should not fear the advent of more farmers, as our State will become prosperous agriculturally only when we make more of a business of agriculture. Those industrial operations are most successful where there is the greatest concentration of the same industry; so it will be with agriculture. Competition develops business ability. It also brings the buyers. There should be provision in the Department of Agriculture for having accurate data on hand at all times about farms for sale and large and small areas which may be used for agricultural purposes. Sections of the State where land should be developed should be carefully studied, and also the progress of this work in other sections of the country.

There is a large population in this country constantly seeking new places for farms. There is also a growing number of people coming here from foreign countries who, if they had the opportunity, would settle on the land. To these people Massachusetts should offer a chance to become land-owning citizens. The encouragement of farming offers an answer to the problem presented by the prevalent general unrest.

PUBLICITY AND INFORMATION.

This Department should at all times be in a position to give definite information to the public on matters relating to agriculture, because it now has many resources for acquiring information which it could readily make available. The Department should act as a clearing house for agricultural information at this end of the State, for not only is it in touch with State-wide affairs but national and interstate news and material come to it. It has become quite popular in this country for State departments of agriculture to publish monthly papers, and results from these have been very satisfactory. In this State, where so many county farm bureaus are now publishing such papers, there might be a duplication of effort. The county publications tend to cover the same field and are often sent to the same people from different counties. It would certainly be in the interest of economy if the Department could, in conjunction with the farm bureaus, publish one paper which could be circulated to all. Further, to get matters before the public quickly, as is necessary in many cases, important news should at once be made public through the daily press. Other States, also, wish to know about us, and through both of these mediums information could be quickly presented to them.

The public desires and is welcome to call at the office for all kinds of agricultural information. During the year, thousands of persons avail themselves of this opportunity. It has been a severe tax upon the present office force to meet this demand adequately in addition to their regular work, and it is rather surprising under these conditions that few complaints have been made. A bureau of information and publicity concentrating on this work would give better service, and this bureau could also take charge of the Department's publications.

OUR STATE FARMS.

There are something over twenty farms in the State operated by and in connection with the various State institutions. There seems to have been an idea prevalent among State officials that an institution could not be established unless it had a farm in connection with it, no matter what the surrounding conditions

were. Some of these State farms should be abandoned; others should be enlarged and made more productive. In order to accomplish this to the best advantage, these farms should be gone over carefully by some one who knows or by a small group of persons, and they should then be rated and a general plan for their future adopted.

As a first step in the general development, the Department of Mental Diseases has already started a system of oversight, which, no doubt, has many points of merit, particularly in the buying and disposition of supplies and crops. This should, however, be carried still further and all the State farms be brought under the Department of Agriculture on a similar basis to that adopted in New York State.

LOOKING AHEAD.

Agriculture will undoubtedly meet its obligations in peace as it did in war. The wastage of material brought about during the war is made daily evident in the price of food. Increased production alone will remedy this condition. We fought and sacrificed as a nation. We now face this reconstruction period, each carrying his share of the burden as before. The true test of our patriotism is now being made. Not only agricultural production but industrial production must be increased. Our farmers no longer have the tangible crying appeal that they had during those trying days to spur them on to greater effort. Our appeal must rely upon the prospect of a profitable enterprise to call forth an adequate response.

Two factors will inevitably operate against this program, — cost of material and cost of labor. With regard to the former, it must not be forgotten that the farmer is a buyer as well as a seller, and the cost of cattle feed, farm machinery and other farm necessities determine in considerable measure the extent of his operations. The supply of adequate farm labor is vital in quantity production of farm products. The abnormal high wages in other industries are reducing materially the available labor supply for the farms. The expected surplus on the labor market, predicted on return of our demobilized army, has not occurred. Every indication points to retrenchment and not to an increase in acreage to be planted during the next year;

therefore, every possible assistance and encouragement should be given farmers during the next few years, as a shortage of food would be disastrous in these days of social unrest.

With the advent of the reorganized department, we are launching upon a broader, more workable basis by which we may assist in the development of Massachusetts agriculture.

Already we are feeling the effects of the revitalization of the live-stock industry. This, I hope, will increase as our work goes on. Much careful guidance must be administered in the reclamation of our unused lands and undrained marshes, of which there are many acres which should be producing food for us.

With one-fourth of the nation's population within 300 miles, our farmers need not want for markets. However, this very proximity seems to have operated adversely in the main to the grouping of our producers into commercial marketing organizations and to systems of economic marketing. Much helpful work lies before us in this field. Consumers as well as farmers must be benefited as a result of straightening out somewhat the tortuous route through which farm products now go in their travels from producer to consumer.

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The Commonwealth of Massachusetts

DEPARTMENT OF AGRICULTURE

136 STATE HOUSE

ARTHUR W. GILBERT, COMMISSIONER

DIVISION OF INFORMATION

JOHN W. PLAISTED
DIRECTOR

BOYS' FARM PLACEMENT BUREAU

STEPHEN R. DOW
SUPERVISOR

FARM LABOR INVESTIGATOR

HELEN W. GRANT

Boston, Mass.,
March 15, 1921.

Mr. Charles R. Green, Librarian,
U. S. C.,
Amherst, Mass.

Dear Mr. Green:

Your inquiry of March 12 about the annual reports of this Department for 1918 and 1919 brings out the fact that the title pages of both these reports are incorrect.

You will remember that the old Board of Agriculture was abolished in 1918, the act taking effect on September 1 of that year. By that act the new department was legally entitled "The State Department of Agriculture". The report for 1918 was not, however, the annual report of the State Department because the old State Board continued to exist until September 1, so that the State Department could properly claim only three months of that year. Since the Department was in existence at the end of the year, however, the report was gotten out as the first annual report of the State Department.

The next year, 1919, the Department was reorganized, the act taking effect from and after December 1. Since December 1 was the first day of a new state year, the report for 1919 should have been entitled "The First Annual Report of the State Department of Agriculture" because it was the first and only year during which the State Department existed and acted throughout the twelve months. The report for 1919 was, however, published by the present Department of Agriculture and, through inaccuracy, was published as the first annual report of the Department of Agriculture instead of as a report of the State Department of Agriculture. As the report for 1918 was the first annual

3/15/21

report of the State Department the report for 1919 should have been the second annual report of the State Department. At the time it seemed that the two reports were for the Department in two different forms; consequently, they are both called "first annual reports". Strictly as I have tried to point out, neither title was correct because the year 1918 was divided between the old board and the new State Department and the year 1919 was occupied entirely by the State Department before the reorganization law took effect at the beginning of the state year 1920. I suggest that you mark the title page of the 1919 report by changing "first" to "second".

Hereafter the annual reports of all departments will be designated by year alone and not by number and year as heretofore, that is, the report of this Department for 1920 will be entitled "Annual Report of the Department of Agriculture for the year 1920" and will not be otherwise designated, the Supervisor of Administration having ruled that the numbering of annual reports is superfluous and misleading. It has also been arranged that the year of publication shall not appear on the covers of any reports, but only the year which the report is supposed to cover. Heretofore it has been the practice to put both on the cover so that we have had, for example, reports for 1918 with the numerals 1919 below. Hereafter only one figure will appear on the cover of any report, if the Supervisor's ruling is carried out, as it undoubtedly will be. On this basis there will be no third annual report of the Department and no similar designation of any report by any department or institution.

very truly yours,



DIRECTOR.

