

Author: Pennsylvania Department of Agriculture

Title: Preliminary report of the Secretary of Agriculture, 1900

Place of Publication: Harrisburg, Pa.

Copyright Date: 1900

Master Negative Storage Number: MNS# PSt SNPaAg102.5

<215790> * *OCLC* Form:mono 2 Input:LDB Edit:FMD
008 ENT: 980708 TYP: s DT1: 1900 DT2: LAN: eng
035 (OCoLC)39378327
037 PSt SNP aAg102.5 \$bPreservation Office, The Pennsylvania State
University, Pattee Library, University Park, PA 16802-1805
090 00 S107 \$b.P46 1900 \$cst*7406164
090 20 Microfilm D344 reel 102.5 \$cmc+(service copy, print master, archival
master)
110 1 Pennsylvania. \$bDept. of Agriculture.
245 10 Preliminary report of the Secretary of Agriculture, 1900 \$cCommonwealth
of Pennsylvania, Department of Agriculture
260 [Harrisburg, Pa.] \$bDepartment of Agriculture, Commonwealth of
PennsylvaniaThe Department \$c1900
300 54 p. \$c24 cm.
500 "Submitted [by] John Hamilton, Secretary of Agriculture"-p. 53
533 Microfilm \$bUniversity Park, Pa. : \$cPennsylvania State University
\$d1998. \$e1 microfilm reel ; 35 mm. \$f(USAIN state and local literature
preservation project. Pennsylvania) \$f(Pennsylvania agricultural
literature on microfilm).
590 Archival master stored at National Agricultural Library, Beltsville, MD
: print master stored at remote facility.
590 This item is temporarily out of the library during the filming process.
If you wish to be notified when it returns, please fill out a Personal
Reserve slip. The slips are available in the Rare Books Room, in the
Microforms Room, and at the Circulation desk.
650 0 Agriculture \$zPennsylvania \$xStatistics
650 0 Agriculture \$zPennsylvania
700 1 Hamilton, John \$d1843-1921.
830 0 USAIN state and local literature preservation project. \$pPennsylvania.
830 0 Pennsylvania agricultural literature on microfilm.

COMMONWEALTH OF PENNSYLVANIA.

DEPARTMENT OF AGRICULTURE.

PRELIMINARY REPORT

OF THE

SECRETARY OF AGRICULTURE.

1900.

ENVELOPE

S107
.P46
1900



WM. STANLEY RAY,
STATE PRINTER OF PENNSYLVANIA.
1900.

THE PENNSYLVANIA
STATE UNIVERSITY
LIBRARIES



CONTENTS.

	Page.
Condition of Agriculture in Pennsylvania,	5
Classification of Department Work,	7
Farmers' Institutes,	10
Apportionment for 1899-1900,	11
New Methods,	12
Crop Reports,	14
County and Local Agricultural Societies,	14
Dairy and Food Division,	15
History of Oleomargarine Legislation,	15
Color Clause,	17
Enforcement of the Law,	17
Number of Cases Brought,	21
Limit of Powers of Dairy and Food Commissioner,	22
The New York Law,	23
Grout Bill,	25
The McCann Case,	25
Appropriation Needed,	26
Oleomargarine a Menace,	26
Pure Food Laws,	28
Division of Economic Zoology,	28
Hessian Fly,	29
Green House Industry,	30
Forestry Division,	31
Veterinary Division,	34
Commercial Fertilizer Inspection,	37
Special Investigations,	40
Farmers' Bulletins,	41
Library and Museum,	43
Public Roads,	44
Feeding Stuffs,	47
Agricultural Education,	49
Summary of Legislation Needed,	51
Conclusion,	53



PRELIMINARY REPORT

OF THE

SECRETARY OF AGRICULTURE.

HARRISBURG, PA., *January 1, 1901.*

Hon. William A. Stone, Governor of Pennsylvania:

Sir: In compliance with the requirements of sections 2, 3 and 6 of the act of Legislature of March 13, 1895, establishing this Department, I have the honor to present herewith my preliminary report for the year 1900, being the sixth annual report of the Department of Agriculture of Pennsylvania.

The year 1900 has been one of prosperity for the farmers of Pennsylvania. The prices of all farm products have been above those of the previous year, and with the exception of hay, the yield has been up to the average of other years. The demand for articles produced by our mills and mines has stimulated mining and manufacture, thereby securing profitable and regular employment to a large number of laborers whose daily needs for food and clothing have furnished a remunerative home market for most of the farmers' crops.

The price of improved farm land in Pennsylvania has advanced, and there is no lack of tenants for farms that are at all favorably located and in good condition. Poor, run-down or badly located farms are not wanted, and in the same class are poor, run-down or ill-bred animals. The complaints of low prices and hard times among the farmers of the State come chiefly, either from political agitators whose occupation is to beget discontent, or from the occupants of ill conditioned farms, or the owners of ill-bred and unprofitable stock.

Agriculture in this State was never more advanced than it is now, and agricultural people in Pennsylvania never had better op-

opportunities for lucrative returns for their labor, than have been before them during the past year. That the farmers of Pennsylvania have profited by their opportunities, is proven by the reports of the increase in the farmers' bank accounts which have been received from all sections of the State.

A circular letter was prepared in the autumn of 1900, addressed to about 125 bankers and distributed in all of the counties of Pennsylvania, asking for information as to the condition of the bank accounts of farmers since 1895, rating the deposits of that year at 100 per cent. One hundred and seventeen replies have been received. Twenty-nine were unable, for various reasons, to give data. Eighty-eight gave statements. The result shows that there has been a steady increase in the bank accounts of farmers in Pennsylvania since 1895. The average shows 104½ for 1896, 115½ for 1897, 124½ for 1898, and 144½ per cent. for 1899, or an increase of 44½ per cent. since 1895. Inquiry also shows that the debts of farmers in Pennsylvania are for the most part, balances due upon farm properties purchased by them, and not for losses occasioned in the conduct of their business. Farm mortgages are being rapidly lifted, and while this is being done, the farmer is enjoying a comfortable living for himself and family, and more children of farmers are being sent into the higher educational institutions than ever before in our history.

The statements, therefore, that appear from time to time, alleging that farming in Pennsylvania is retrograding and that this business is becoming more and more unprofitable as the years elapse, are unsupported by any reliable evidence. On the contrary, the facts show that the exact reverse is true. Farming in Pennsylvania is profitable, and is also rapidly becoming a highly scientific and most difficult profession, requiring the highest intelligence and most capable management to properly conduct. Because it is advancing beyond the capacity of men of less than average ability, therefore the cry of the incapable who are being left behind by the operations of the inexorable law of the "survival of the fittest," is heard. It is true that some men who once were able to pursue agriculture profitably can no longer do so, but their inability is due not to the unprofitable character of the occupation, but to their own failure to keep abreast of the advanced methods and scientific knowledge required by modern conditions in the agricultural profession. The old time farmer can no more succeed in the use of the old time methods and with the old time appliances than the engineer of forty years ago can succeed if he insists upon the use of the knowledge of that period. The crying need in agriculture to-day, is for more knowledge, and those who would succeed must

inform themselves, otherwise they will fail, and no lamentation, however loud or sincere, will prevent it. Those, therefore, who would benefit agriculture in this age must address themselves to the dissemination of accurate, reliable and applicable information among agricultural people. There is no other remedy for existing ills and no other salvation from those yet to be met.

This Department has undertaken to work along these lines. During the past year its operations have been wide, extended and most important, covering the whole list of subjects outlined in my report for 1899.

The extent of the operations of the Department can be partly understood from the following recital of the work which it embraces: The Farmers' Institutes; Crop Reports; The Inspection of Foods; Enforcement of the Pure Food Laws; Dairy and Food Statistics; The Purchase of Forest Lands; The Preservation and Control of our Forests; The Conservation of Water; The Improvement of Soils; The Control of Injurious Insects; Blight, Mildew, Infectious Disease among Trees; Market Gardening; Flower Gardening; Orchard Culture; The Inspection of Cattle Herds; The Prevention of Disease among Domestic Animals; The Control of Infectious and Contagious Diseases among Animals; The Analyses of Fertilizers; The Publication of Bulletins upon Important Farm Topics; Special Scientific Investigations into the Problems of Agriculture; The Publication of Reports; Dissemination of Information upon Good Roads; Agricultural Education in the Public Schools and Colleges; Legislation for the Benefit of Agriculture; The Aid and Encouragement of Agricultural Organizations; Country and Village Improvement Societies, and correspondence upon a wide range of questions which interest agricultural people. These and other subjects are a part of the work of the Department of Agriculture of this State. This work is distributed among several Divisions or Bureaus of the Department, and each Division, through its official head, is entrusted with carrying out of the details which the class that it embraces involves.

The following summary shows the classification and the particular Division to which each class of subjects is assigned.

SUMMARY.

DIVISION OF FARMERS' INSTITUTES. The work of this Division is educational, carrying information to the districts in which

the farmers' live, and reaching during the past year about one hundred and fifty thousand farming people.

CROP REPORTS. The system of crop reports is made part of the work of the Institute Division. Careful reporters are engaged in collecting data for the Department in every county in the State. These data are then arranged and published in the Annual Report.

THE DAIRY AND FOOD DIVISION. This Division is under the immediate supervision and direction of a Dairy and Food Commissioner, who is charged with the enforcement of the laws relating to the inspection of the character of the various foods on sale in the State, and the prosecution of those who are found violating the law. The Commissioner has charge also of the Dairy industry of the State, including dairy statistics and improved management of creameries and dairy herds.

DIVISION OF FORESTRY. The Commissioner of Forestry is charged with the development of the forestry interests of the State. As a member of the State Forestry Commission for the purchase of forest lands for the State, he is engaged in investigating forest lands offered for sale, and acts as the executive officer of this Board. He also recommends to the Board of Property, lands which he considers suitable for State reservations, and with their approval completes the purchase and turns over the lands to the Department of Agriculture, of which his Division forms a part.

He is also charged with the work of investigating the soils of the State, with a view to their reclamation and improvement, and is also required to report upon the timber cut during the year and the amount destroyed by forest fires.

DIVISION OF ECONOMIC ZOOLOGY. This Division is in charge of a Commissioner who is known as The Economic Zoologist, whose duties are to make examination and investigations into the insect enemies of crops and report upon their ravages and give suggestions for their control or eradication. There is assigned to this Division the Orchard, Greenhouse, Market Garden and Flower Gardening industries of the State. Information is sent out by him to those engaged in these industries, giving the latest scientific and practical discoveries in these lines of work, and as new questions arise he endeavors to have investigations made and proper solution discovered to meet the new conditions.

DIVISION OF VETERINARY SCIENCE. The chief of this Division is by law, required to be "a graduate of some reputable veterinary college." The law further makes it the duty of the Secretary of Agriculture "to obtain and distribute information on all matters relating to the raising and care of stock and poultry; the best methods of producing wool and preparing the same for market."

This work is consigned to the Veterinary Division. The Veterinarian is also a member of the State Live Stock Sanitary Board, whose duty it is to "protect the health of the domestic animals of the State," and powers to adopt means to effect this are granted by the act creating the Board.

FERTILIZER INSPECTION AND ANALYSES. The work of the licensing and inspection of Commercial Fertilizers is in the hands of the Secretary. Agents are employed to collect samples of goods upon the market, and these are transmitted to the chemist for analyses. The results are published for the information of farmers and dealers, twice each year.

SPECIAL INVESTIGATIONS. The law creating the Department provides for "the employment of experts to make special examinations and investigations." These experts are selected by the Secretary, and the results of their examinations are printed either in a special Bulletin or in the Annual Report. The investigations are upon subjects relating to the agricultural industry.

BULLETINS. The Secretary is also directed to "publish from time to time such bulletins of information as he may deem useful and advisable," "the number not to exceed five thousand copies of any one bulletin." Seventy such publications have been issued since 1895.

ANNUAL REPORT. Each year the Secretary is directed to "make an Annual Report to the Governor," and in this report "he may include so much of the reports of other organizations as he shall deem proper." Thirty-one thousand six hundred copies are authorized to be distributed; 9,000 to the Senate, 20,000 to the House of Representatives, 2,000 copies to the Secretary of Agriculture, 500 copies to the State Librarian, and to the State Experiment Station, 100 copies.

BOOKS OF ACCOUNT. The General Books of Account of the Department are in charge of the Secretary, and the Special Books are in charge of the several Division officers.

REPORTS OF DIVISION OFFICERS. Monthly reports of the operation of each Division for the preceding month are made to the Secretary by the chief of each Division, and special reports from time to time are made as may be necessary in order to keep the Secretary fully informed as to the work of the several Divisions. At the close of the year, full reports of the work of each Division are made out and transmitted to the Secretary, and printed in the Annual Report of the Department. The care of the library, the reading of proof and the mailing lists are in charge of the Chief Clerk.

FARMERS' INSTITUTES.

The education of the farmers of the State, by means of the "Institute School," has been more successful than in any previous year. Three hundred and twenty-two days were devoted to this method of giving instruction in agriculture. The average daily attendance, is reported by the Director of Institutes, as being four hundred and sixty-five, and the total number of people reached was 149,855.

The Director reports that "Institutes were held in all the counties of the State. In twelve counties the attendance reached over 3,000 to the county. The banner county was Montgomery, with a total attendance of 6,100. The county having the second highest attendance was Perry; her attendance, including the summer institute, was 5,505. In fourteen counties there were in each over 3,000; in twenty-one counties the attendance was between two and three thousand." The State was divided into five sections, and days allotted to each county and section. The apportionment was made on the basis of two days of institute, to every county having not over 1,000 farms; three days, to each county having more than 1,000 and not over 1,500; afterwards, one day, for each 1,500 farms or fraction thereof additional. The following schedule shows the number of days allotted to each county, on this basis:

Apportionment for 1899-1900.

Section 1.		Section 2.		Section 3.		Section 4.		Section 5.	
COUNTY.	Days.	COUNTY.	Days.	COUNTY.	Days.	COUNTY.	Days.	COUNTY.	Days.
Adams,	5	Blair,	4	Allegheny,	6	Bradford,	8	Bucks,	7
Bedford,	5	Columbia,	5	Armstrong,	5	Clinton,	3	Berk,	7
Chester,	7	Centre,	4	Butler,	6	Clarion,	6	Carbon,	2
Cumberland,	4	Clearfield,	4	Beaver,	4	Cameron,	3	Delaware,	4
Fayette,	5	Cambria,	4	Crawford,	8	Elk,	3	Lehigh,	5
Franklin,	5	Dauphin,	4	Erle,	6	Forest,	3	Luzerne,	4
Fulton,	3	Huntingdon,	4	Greene,	4	Jefferson,	4	Lackawanna,	4
Juniata,	4	Indiana,	6	Lawrence,	4	Lycoming,	5	Montgomery,	6
Lancaster,	9	Lebanon,	4	Mercer,	6	McKean,	4	Monroe,	4
Perry,	4	Mifflin,	3	Venango,	4	Potter,	4	Northampton,	5
Somerset,	5	Montour,	2	Washington,	5	Sullivan,	2	Philadelphia,	3
York,	8	Northumberland,	4	Westmoreland,	5	Tioga,	6	Pike,	2
.....	.....	Schuylkill,	4	.....	.....	Warren,	4	Susquehanna,	6
.....	.....	Snyder,	4	.....	.....	Wyoming,	4	Wayne,	6
.....	.....	Union,	3	.....	.....	.....	.....	.....	.....
.....	64	.....	59	.....	63	.....	59	.....	65

The cost of these Institutes was an average of about \$37.00 per day, and at all of these meetings, the Department furnished at least three lecturers.

The limit of number of Institutes has been reached until the appropriation, which is now \$12,500 per year, is increased; and the limit as to the number who can attend has likewise been reached, for the capacity of the halls has been taxed to their utmost, and the size of these rooms controls the number who can be present. The development of interest on the part of the farmers of the State in this course of instruction has been very remarkable, and now the difficulty is to select the places where Institutes shall be held, from the large number and urgency of the applications.

The greatest cordiality and most generous spirit of co-operation exists on the part of the local boards toward the Department. This greatly simplifies the work of the Director in arranging for the Institutes, and in the selection of lecturers who are to represent the State. The demand in every county is for "more Institutes;" but this cannot be met, except as the means of holding them are increased.

New Methods.

In my opinion, the time has now arrived, when Pennsylvania should take a step in advance, in this Institute work. Hitherto we have been devoting our efforts to the holding of meetings of farmers for the discussion of the leading problems in agriculture, and the results attained by this method, have abundantly justified and proven its wisdom. They were chiefly "revival" meetings, to awaken an interest in the scientific side of agriculture and start farming people to thinking along new lines and encourage the reading of the excellent literature, which is now issued by the State and United States Departments of Agriculture, the results of the investigations at the Experiment Stations, and the practical thoughts suggested by an advanced agricultural press.

A large portion of our agricultural people are now awake to their interests, as is evidenced from the volume of correspondence which the Department has to answer, and the large number of those who are engaged in study in the Correspondence Courses, conducted by the Agricultural School of the State College, as well as the numerous meetings by Farmers' Clubs, Granges, Alliances, Agricultural Societies and kindred organizations of farmers. The teaching, thus far, has of necessity, been by oral explanation and description of the processes of nature in her various operations: in other words, we have been dealing with practical things at arm's length. We find now that we need to get down closer to the actual work upon the farm, to see precisely the conditions under which each man is placed, and then, after a full knowledge

of all of his surroundings and conditions, advise him as to improvements that he can adopt, which will add to his comfort and increase his income. This means personal visitation, to the workers on the farms, to the creameries and cheese factories, the dairies and herds, the orchards and vineyards, the gardens and greenhouses, carrying information to these workers which will aid them in their occupation, and when necessary, by practical demonstration, show exactly how the suggestions can be carried into effect.

A skillful operator with a spray pump in an orchard, can give more practical illustration in thirty minutes, than by a whole day's talk upon fungicides or spraying methods. A skilled veterinarian in a herd of cattle, a flock of sheep, or a stable of horses, can show the owner in a few minutes, more that will be of value to him than can possibly be done by the most extensive correspondence. The same is true in all lines of agriculture; and we should now begin this new and most effective method of teaching agriculture, by object lessons on the ground. This will mean the permanent employment of a few competent, skilled teachers, who shall visit certain districts in turn, organize small clubs of farmers, and go out on their premises and show how the most approved methods known may be taken advantage of by the ordinary farmer on an ordinary farm. The practical difficulties that every farmer has to meet will there be seen, and these skilled experts can there study the problems under the most favorable conditions, and endeavor to discover their solution. It is in this way that all of the marked advances of science in the past, in its application to art, have come, and it is in this way that future development in these directions must be effected. A farmer here and there through the country could be induced to plant an acre of wheat or corn or rye or grass in some way prescribed by the expert who represents the Department of Agriculture of the State. Plant this acre in some conspicuous place, along some much frequented highway, and if the acre so treated shows a marked improvement over the others treated in the ordinary way, there will here be an object lesson to every passerby, which will excite inquiry and result in its adoption by many who have witnessed the demonstration.

In this way could be taught the judicious use of fertilizers, the most satisfactory rotation of crops, the value of cultivation for the conservation of moisture in the soil, the effect of fungicides upon fruits and vegetables, the value of new crops never before tried in this country, the economy of machinery, and a thousand other lessons that agricultural people need to learn.

To attempt this work, in addition to carrying on the Institutes as now organized, will require at least \$25,000 per year, and no money appropriated by the State would bring in a larger return.

CROP REPORTS.

The Division of Institutes has also charge of the collecting, each year, of statistics showing the prices of farm crops, the rates of wages of farm laborers, the value of agricultural lands, the value of farm animals, together with other items of interest and value to the citizens of the State. These results are all published in the Annual Report. The reports submitted, show that the prices of farm produce of every kind have advanced—wheat from 68 cents in 1899, to 73 cents in 1900; corn from 42 cents to 48 cents; oats from 26 cents to 32 cents; potatoes from 42 cents to 53 cents; clover hay from \$8.20 per ton to \$11.20; timothy hay from \$10.69 to \$13.85; butter from 20 cents to 22 cents; horses from \$78.49 to \$87.61; cows are the same as in 1899; the same is true of ewes and lambs. Farm labor has increased a little less than one dollar per month. Well improved farm land is worth, on the average, \$60.25 per acre, and average farm land is reported at \$36.60 per acre. This is the average of the reports from sixty-one counties.

COUNTY AND LOCAL AGRICULTURAL SOCIETIES.

The Deputy Secretary has also charge of the work of getting statistics from the county and local agricultural societies of the State. He gives the number reported to the Department last year, as 91. Sixty of these societies held fairs during the fall of 1900. It is the purpose of the Department to endeavor to come into closer relations with these fair associations, with the view of aiding them in their work and encouraging them to extend their operations and influence through a wider circle than they have hitherto. These societies are made up of our most capable and progressive citizens, and their services in advancing the cause of agriculture would be invaluable if they could be secured. Plans are being matured for securing their co-operation in advancing the agricultural interests of the several counties in which they are located, by giving new direction, to some of the energy and skill, that is now wholly devoted to a single line of work.

THE DAIRY AND FOOD DIVISION.

The work of this Division during the year has been under difficulties, which only those who have had them to meet, can appreciate. These difficulties, were chiefly those connected with the new law, known as the oleomargarine law of 1899.

Inasmuch as the Dairy and Food Division, and the entire administration of the Department of Agriculture have been severely criticised in their administration of this law, it is proper, now, when the facts can be dispassionately considered, that a clear and impartial statement of the circumstances surrounding the case, be made.

History of Oleomargarine Legislation.

For the better understanding of the situation, it will be well to first, briefly, give the history of oleomargarine legislation in this State.

On the 21st of May, 1885, an act was approved prohibiting the sale of oleomargarine in Pennsylvania, under a penalty of \$100 and costs, to be recovered by any person suing in the name of the Commonwealth; one-half of the fine to go to the county and the other half to the prosecutor.

It was provided that the violators of the law could also be prosecuted criminally; and upon conviction "shall be punished by a fine of not less than \$100, nor more than \$300, or by imprisonment in the county jail for not less than ten nor more than thirty days, or both, such fine and imprisonment for the first offense, and imprisonment for one year for every subsequent offense." It was made the duty of constables to make quarterly reports to the court of quarter sessions of violaters of the law.

By an act approved May 26, 1893, the law of 1885 was modified, and the duty of enforcing it was placed in the hands of the State Board of Agriculture, and the president of that Board was authorized to appoint an agent, to be known by the name and title of Dairy and Food Commissioner, who was specifically charged with the enforcement of "all laws now enacted, or hereafter to be enacted in relation to the adulteration or imitation of dairy products." Under this law the Dairy and Food Commissioner received a salary of \$2,000 and his necessary expenses. He had power "subject to the approval of the State Board of Agriculture, to appoint and fix the compensation of such assistants, agents, experts, chemists, detectives and coun-

sel as may be deemed by him necessary for the proper discharge of the duties of his office." The one-half of the fines, instead of going to private informers, as was the case under the act of 1885, are by this act paid to the Dairy and Food Commissioner, and are to be used for the payment of agents, chemists, attorneys, etc., employed by him.

By the act approved March 13, 1895, establishing the Department Agriculture, the Dairy and Food Commissioner is made an official of that Department, and is appointed by the Governor. His duties are "under the direction of the Secretary of Agriculture such as are prescribed by the act of May 26, 1893."

By act of May 5, 1899, the sale of oleomargarine or butterine is permitted in Pennsylvania, provided it be "free from coloration or ingredients that cause it to look like butter," and that those who manufacture or sell "shall first obtain a license and pay a license fee," and "shall stamp each package with the words OLEOMARGARINE or BUTTERINE," and shall exhibit a "sign or signs, clearly setting forth that he, she or they are engaged in the manufacture or sale of oleomargarine or butterine, or any similar substance, as the case may be, which said sign or signs * * * shall be hung up in a conspicuous place or places on the walls of the rooms or store in which the oleomargarine or butterine or other similar substance is manufactured or sold."

Under this law, the enforcement is placed exclusively in the hands of the Dairy and Food Commissioner, and all fines, with costs, are to be paid to him, or his agents, and by him to be paid into the State Treasury, to be drawn upon for the purpose of enforcing this law, upon presentation of warrants signed by the Secretary of Agriculture, and approved by the Auditor General.

The license law, as has been stated, went into effect May 5, 1899, and repealed the laws of 1885 and 1893. Under the new law the Dairy and Food Commissioner, solely, is charged with its execution.

It was necessary, before the law could be put into effect, that dealers throughout the State should have an opportunity to know what the provisions of the law were. Ten thousand copies were printed and distributed by the Dairy and Food Division. License blanks and books of record and account were prepared and printed. It took about one full month to get the laws into the hands of the dealers. It was, of course, impossible for the dealer to comply with the law before he had the proper blanks upon which to make out his application for license, and the Department had license blanks in hand ready to issue. It was, therefore, about the 1st of June before applications for licenses were received, and in that

month the Department issued one hundred and fifty licenses under the new law.

The agents of the Department were then instructed to collect samples and submit them to the chemists for analyses. By the time these were taken and the chemists had opportunity to analyze and report upon them and suits be begun before the magistrates, the courts had adjourned for their summer vacation.

Color Clause.

On the first of August, 1899, a sample of colored oleomargarine was taken from J. K. Van Dyke, of Philadelphia, who represented the Oakdale Manufacturing Company, of Providence, R. I. Prosecution was begun before Magistrate Eisenbrown. The defendant was fined \$100 and costs. An appeal was taken from this decision to the court of common pleas No. 4, of Philadelphia county, as of September term, 1899, No. 226. On the 20th day of November the Commonwealth filed a statement to which a demurrer was filed by the defendant. Argument thereon was had and demurrer overruled in an opinion by Judge Arnold, handed down January 17, 1900. From this opinion an appeal was taken by the defendant to the Superior Court of Pennsylvania on the 15th day of February, 1900. The case was advanced on the list and argument was had thereon on the 20th day of March, 1900, and the decision of the lower court was affirmed by the Superior Court in an opinion filed April 30, 1900.

May 15, 1900, writ of certiorari from the Supreme Court. The same day the record was sent to the Superior Court.

May 29, 1900. Motion to quash filed, and petition to have motion to quash granted at once, filed on motion of attorneys for the appelle.

July 7, 1900. Answer of appellant to petition of appelle for motion to quash appeal filed, by attorney for appellant.

July 11, 1900. Appeal quashed per curiam.

This was a case to test the constitutionality of the color clause in its relation to the Interstate Commerce law.

Another case was brought in the city of Pittsburg, raising the same question, with regard to the legality of the color clause as it affected sales of oleomargarine in the retail trade in Pennsylvania. Pending the decision of these cases it was the opinion of attorneys that it would be unsafe to bring any considerable number of prosecutions against dealers for violation of the color clause, but suits were brought against dealers upon all of the other provisions of the law.

Enforcement of the Law.

The day after the decision was rendered the following letter

was issued by the Secretary of Agriculture, directed to Major Wells, Dairy and Food Commissioner, and a copy of the same sent to every agent of the Department:

Harrisburg, Pa., May 1, 1900.

Hon. Levi Wells, Dairy and Food Commissioner, Harrisburg, Pa.:

My Dear Sir: I am just informed that the Superior Court has affirmed the decision of the court below in the Van Dyke case declaring the color clause of the law relating to the manufacture and sale of oleomargarine in this State constitutional.

I desire you to send out at once to every agent the following directions:

"To Agent of the Dairy and Food Department:

"Dear Sir: The Superior Court has handed down an opinion declaring the color clause of the law of 1899, relating to the manufacture and sale of oleomargarine constitutional.

"You are hereby directed to enforce this law in all of its provisions, requiring that licenses shall be taken out by all dealers in oleomargarine or butterine, that placards containing the words 'oleomargarine' or 'butterine' shall be posted in conspicuous places; that all tubs, packages or parcels containing oleomargarine or butterine shall be marked in a conspicuous place with a placard containing the words 'oleomargarine' or 'butterine' in plain, uncondensed gothic letters, not less than one inch long, and such placards shall not contain any other words thereon; and every print or roll shall be wrapped in wrappers plainly stamped on the outside thereof with the words 'oleomargarine' or 'butterine,' and where oleomargarine or butterine or other similar product is sold from solid packages, before being delivered to the purchasers it shall be wrapped by the seller thereof in a wrapper plainly stamped on the outside thereof 'oleomargarine' or 'butterine,' and said wrapper shall contain no other words.

"All oleomargarine or butterine shall be sold free from coloration or ingredients that cause it to look like butter.

"You will visit all stores where oleomargarine is sold, as frequently as possible, take samples or suspected goods, and where the law has been found to be violated in any particular, suit shall be brought against the dealer, and the penalty provided by law exacted.

"Agents are positively forbidden to compromise any case, but will see that it is prosecuted to the full extent of the law.

"You are directed to make full weekly reports to the Dairy and Food Commissioner, giving full information in regard to samples taken, places visited, suits brought and cases concluded, keeping

him thoroughly informed with regard to all of the details of the work in your territory.

Very respectfully,

"JOHN HAMILTON,
"Secretary of Agriculture."

Up to this date, as has been stated, the law, so far as the color clause was concerned, could not be enforced, and the Department was guided in its action by the opinion of some of the best attorneys in the State, in withholding suits and prosecutions against violations of the color clause, until the decision of the court was had. Samples, however, were taken in the meantime, and cases were ready to be brought as soon as the decision of the Superior Court would be reached.

Ever since the decision of the Superior Court was handed down, a most vigorous and determined effort has been made to discover offenders and to bring them to account for violation of the law. Indisputable evidence of this is furnished by the following statement of the work done during the year, from January 1, 1900, to December 6, 1900, as taken from the books of the Dairy and Food Commissioner:

Number of licenses issued during the year,	467
Number of samples taken by the agents and analyzed during the year,	1,919
Number of samples found pure or true to name,	806
Number of prosecutions brought under oleomargarine law,	945
Number of prosecutions brought under pure food law,	76
Number of prosecutions brought under renovated butter law,	60
Number of prosecutions brought under cheese law,	7
Number of prosecutions brought under vinegar law,	7
Number of milk cases,	19
Number of cases brought to a final termination through the courts,	126

Samples Taken Since January 1, 1900.

Allspice, pure,	7
Butter, pure,	638
Butter, renovated,	60
Butter, oleomargarine,	945
Butter, color,	4
Baking powder, pure,	1
Buckwheat flour, pure,	1

Buckwheat flour, adulterated,	1
Cream of tartar, pure,	4
Cream of tartar, adulterated,	1
Cinnamon, pure,	4
Catsup, pure,	2
Catsup, adulterated,	2
Cream, pure,	1
Cocoa, pure,	4
Cocoa, adulterated,	1
Chocolate, adulterated,	2
Coffee, pure,	1
Cheese, up to standard,	5
Cheese, below standard,	1
Cloves, pure,	3
Cloves, adulterated,	1
Extract of vanilla, pure,	1
Extract of vanilla, adulterated,	14
Fruit syrup, adulterated,	2
Flour, adulterated,	3
Ginger, pure,	3
Ginger, adulterated,	2
Grape juice, pure,	1
Honey, pure,	3
Lard, pure,	6
Lard, comp.,	2
Lemon extract, pure,	4
Lemon extract, adulterated,	14
Maple syrup, pure,	1
Maple syrup, adulterated,	1
Milk preservative,	2
Milk, pure,	75
Milk, preservaline found,	8
Milk, added water,	11
Mustard, pure,	5
Mustard, adulterated,	2
Pepper, pure,	10
Pepper, adulterated,	19
Peas, canned, adulterated,	2
Raspberry jam, adulterated,	1
Soda, pure,	1
Vinegar, pure,	30
Vinegar, adulterated,	7
Total,	<u>1,919</u>

TOTAL NUMBER OF CASES BROUGHT BY THE DAIRY AND
FOOD DIVISION OF THE DEPARTMENT OF AGRICULTURE
FROM JANUARY 1, 1900, TO DECEMBER 6, 1900, SEPA-
RATED BY COUNTIES.

County.	Total.	Terminated.	Pending.
Allegheny,	721	42	679
Beaver,	3	..	3
Bedford,	4	..	4
Berks,	6	1	5
Blair,	22	8	14
Cambria,	25	13	12
Carbon,	2	1	1
Chester,	4	3	1
Clearfield,	15	4	11
Columbia,	2	2	..
Crawford,	1	1	..
Dauphin,	9	2	7
Delaware,	18	8	10
Erie,	5	1	4
Fayette,	41	..	41
Indiana,	1	..	1
Jefferson,	1	..	1
Lawrence,	7	1	6
Lebanon,	14	13	1
Lehigh,	2	2	..
Luzerne,	6	1	5
Mercer,	2	1	1
Montgomery,	11	6	5
Northampton,	4	4	..
Northumberland,	1	1	..
Philadelphia,	117	2	115
Potter,	2	2	..
Somerset,	2	1	1
Schuylkill,	13	4	8
Tioga,	4	2	2
Venango,	1	..	1
Westmoreland,	47	..	47
Washington,	1	..	1
Total,	<u>1,113</u>	<u>126</u>	<u>987</u>

Of the 1,113 cases brought during the year, 1,013 were prosecuted after April 30, 1900, the date of the decision of the Superior Court. The 100 cases brought from January 1, 1900, to April 30th, are classified as follows:

Oleomargarine cases,	81
Renovated butter,	1
Pure food,	13
Vinegar,	5
	<hr/>
Total,	100
	<hr/> <hr/>

The foregoing schedule of work actually accomplished by the Department, is the only refutation needed to show the falsity of the charges that nothing, or next to nothing, had been done to enforce the law.

It will be noticed that a large number of suits are still pending—987. An examination shows that 794 of these are in the two courts of Philadelphia and Allegheny.

Limit of Powers of Dairy and Food Commissioner.

The power of the Dairy and Food Commissioner to prosecute offenders, consists in the securing of samples of suspected goods, having them analyzed, and when the goods are found to be adulterated in violation of the law, he has the party arrested, brought before a magistrate, tried on the evidence secured, and if found guilty, the defendant is bound over under bail to appear in court. The case has now gone as far as the Dairy and Food Commissioner can urge it. When it reaches the court it is in the hands of the district attorney. The Commissioner, or his attorneys, have no more power over the case at this stage of proceeding than any other citizen. All that they can do is to wait the pleasure of the district attorney and the court. If these officers decline to bring the cases before the grand jury and list them for trial, the prosecution has no remedy. They are effectually blocked as to any further progress. All of the cases that are now pending are in exactly this situation. They have been urged as far as the Commissioner and his attorneys can prosecute them, and now it is simply a question of when the courts will take them up.

The responsibility, therefore, is entirely with the courts and not upon the Dairy and Food Commissioner, or his attorneys, and all criticism that holds him responsible is unjust.

In the meantime, there is no law by which the offender can be restrained from continuing his illegal traffic. All that can be done

is to take additional samples, have them analyzed; if adulterated, arrest him and bring him before a magistrate, and if convicted, hold him in bail for court, where control ceases, and the Commissioner is again at the end of his power.

This can be repeated over and over and over again, and the result is practically the same. The cases that are pending in the Philadelphia and Allegheny county courts are all in precisely the same condition. It can be confidently stated that if the courts in these cities and elsewhere, will hear the cases of the Department promptly and impose the penalties authorized by the law, the illegal traffic in oleomargarine can be broken up inside of six months; but if they delay the hearings, or fail to impose the penalties, it will be impossible to destroy the traffic. All that can be done will be to multiply cases and await the action of the court.

The Department has determined that it will arrest every offender against the law and have him bound over to court, and thus divest itself of all responsibility for any failure of the law that may result. The officers of the Department having performed their duty, are not responsible for the acts of district attorneys, grand juries or courts.

The New York Law.

If the provisions of the New York law, which provides for the issuing of an injunction, restraining a dealer who has been arrested for violating the law, from continuing to sell the kind of adulterated goods for which he was arrested, until the determination of the suit were incorporated into the Pennsylvania law, then we could afford to wait, for during this period the dealer could not sell without placing himself in contempt of court, and be liable to fine and imprisonment at the discretion of the court, without the formality and delay of a trial.

Such an amendment to our law would greatly aid in its enforcement.

The law should also be amended in another respect. At present, under the oleomargarine law we have no power to enter the premises and make search for suspected goods and take samples for analysis; but all of our samples must be obtained by detectives who are unknown and unsuspected, thus making it very difficult for the Department to secure samples after the detective becomes known.

Here again the New York law is an improvement upon ours, for it authorizes the agents of the Department to enter, make search and take samples openly and without interference. For information, copies of these sections are herewith appended.

Extracts from the New York Law.

POWERS OF THE COMMISSIONER, HIS ASSISTANTS AND EMPLOYES. "The Commissioner of Agriculture, his clerks, assistants, experts, chemists, agents and counsel employed by him, shall have full access to all places of business, factories, farms, buildings, carriages, cars and vessels used in the manufacture, sale or transportation within the state of any dairy products or any imitation thereof, or of any article or product with respect to which any authority is conferred by this chapter on such Commissioner. They may examine and open any package, can or vessel containing or believed to contain any article or product, which may be manufactured, sold or exposed for sale in violation of the provisions of this chapter, and may inspect the contents therein and take therefrom samples for analysis."

Section 10. WHEN INJUNCTIONS MAY BE OBTAINED. "In an action in the Supreme Court for the recovery of a penalty or forfeiture incurred for the violation of any of the provisions of this chapter, an application may be made on the part of the people to the court or any justice thereof for an injunction to restrain the defendant, his agents and employes from the further violation of such provisions. The court or justice to whom such application may be made, shall grant such injunction on proof, by affidavit, that the defendant has been guilty of the violations alleged in the complaint, or of a violation of any such provision subsequent to the commencement of the action, and in the same manner as injunctions are usually granted under the rules and practice of the court. No security on the part of the plaintiff shall be required, and costs of the application may be granted or refused at the discretion of the court or justice. If the plaintiff shall recover judgment in the action for any penalty or forfeiture demanded in the complaint, the judgment shall contain a permanent injunction, restraining the defendant, his agents and employes, from any further violation of such provision of this chapter. Any injunction, order or judgment obtained under this section, may be served on the defendant by posting the same upon the outer door of the defendant's usual place of business, or where such violation was or may be committed, or in the manner required by the code of civil procedure, and the rules and practice of the court. Personal service of the injunction shall not be necessary when such service cannot be secured with reasonable diligence, but the service herein provided shall be deemed sufficient in any proceeding for the violation of such injunction."

Grout Bill.

The passage of the Grout bill by Congress of the United States, whereby a ten cent tax is imposed upon all colored oleomargarine manufactured, and the operations of the Inter-State Commerce Law are suspended as to the oleomargarine trade, will greatly aid the State Dairy and Food authorities in suppressing the oleo traffic. This bill has passed in the House by a large majority, but it is not yet out of danger.

The McCann Case.

An appeal has been taken to the Supreme Court by McCann & Co., of Allegheny county, contesting the constitutionality of the color clause of the oleomargarine law. The history of this case is as follows:

July 27, 1899. Information charging Owen McCann, trading as McCann & Co., with selling colored oleomargarine.

August 26, 1899. Hearing before magistrate, and defendant fined \$100 and costs.

September 18, 1899. Court of common pleas No. 3, Allegheny county, issues a writ of certiorari directing alderman to return record to court.

October 10, 1899. Alderman returns record to court.

October 27, 1899. Specifications of error filed in court by defendant.

December 12, 1899. Case argued before full bench in court of common pleas No. 3.

December 12, 1899. Decision rendered, dismissing exceptions and sustaining the Commonwealth.

December 19, 1899. Appeal to Superior Court.

April 26, 1900. Argument before Superior Court.

July 26, 1900. Judgment affirmed, sustaining the Commonwealth, with opinion by Rice, P. J.

August 18, 1900. Petition for appeal to Supreme Court filed.

September 18, 1900. Petition for appeal forwarded to Mestrezat, J.

October 12, 1900. Petition allowed by Supreme Court.

October 19, 1900. On petition of counsel for Dairy and Food Department, case is advanced on the list, and set for argument at Philadelphia, January, 1901.

In the meantime the judges of Allegheny county have decided that the oleo cases now before that court shall be held until the Supreme Court has decided the McCann case now before it.

Two judges in other counties have taken a similar stand, and all of our cases in their courts are likewise awaiting this decision.

Appropriation Needed.

If the law is finally decided to be constitutional, a large appropriation will be needed to enforce it. The appropriation last year was \$12,500. This was supplemented by license fees amounting to \$46,977.00. These licenses were taken out at the time when the color clause was being contested in the courts, and in all probability, in the expectation on the part of the dealer that the law would be declared unconstitutional. If, therefore, the law is now sustained by the Supreme Court, the sale of colored oleomargarine in Pennsylvania will be illegal and no one will take out a license for the privilege of dealing in the uncolored goods, owing to their unsalable character. The money, therefore, necessary to enforce the law will have to be provided from some other source, and the Legislature will need to appropriate the necessary amount from the general funds of the State. In New York, an annual appropriation of \$100,000.00 is made for the purpose of enforcing the oleomargarine law.

Oleomargarine a Menace.

The admitting of oleomargarine in competition with the dairy products of the State, endangers a great industry that is now a part of our system of agriculture, more widely distributed than any other. We have now about 1,100,000 cows in Pennsylvania. Their product is about 90,000,000 to 100,000,000 pounds of butter per year; and according to the census of 1890, the milk product was 437,525,349 gallons. These cows are distributed among 211,412 farmers' families, consisting of over 1,000,000 persons, or about one-fifth of our entire population. The income of the farming people of Pennsylvania last year, from butter alone, amounted between eighteen and twenty millions of dollars; and the milk product, at eight cents per gallon, amounted to \$35,000,000 more. This vast sum is a new product each year, adding this much to the actual wealth of the State, and is distributed all through the Commonwealth, going to the support of over one million of people, enabling them to maintain themselves in comparative comfort. The loss of such a sum as this by the agricultural people of the State would be a calamity, particularly, because, much of the material that is used in the feeding of these dairy cows, would, if the industry were destroyed, be left on the farmers' hands valueless.

If the product of these animals were seriously threatened, there would, also, be an immediate depreciation in the value of milk cows throughout the Commonwealth, amounting to many millions of dollars, and would involve the partial or total loss of the stabling, cream-

ery buildings and machinery, that are now in use in the prosecution of this industry. A large number of our people, also, would be thrown out of employment. Instead of men, women and children on the farms, having at all seasons, occupations suited to their strength and attainments, there would be, in the cutting off of this line of work, comparative idleness during a considerable portion of the year.

The people of this State require about 200,000,000 pounds of butter annually to supply their needs. The business, therefore, is one that has room for growth, and the doubling of the products of milk and butter, will double the income of the farming people—an increase of from fifty to sixty millions of dollars annually.

If oleomargarine were wholly substituted for butter in this State, it would mean a direct loss, on that article alone, of from thirty to forty millions of dollars per year, and the profits of the new industry, instead of being distributed among a million of people, would be retained in the hands of a very few, rendering them inordinately rich at the expense of those whose industry they had destroyed.

It is true, that, in no event, can oleomargarine entirely supplant butter production, but enough is known to make sure, that this product, which can be made for about 7 cents per pound, will seriously injure the butter industry and effectually prevent its development. It would be extremely bad business policy, to drive out a source of revenue and means of livelihood, as important as the dairy industry, for the sake of benefiting a few individuals belonging to the oleomargarine trade; to take from one million of agricultural people the profits of their chief industry, and give these profits to a select syndicate of capitalists, that they may become enormously rich.

If this new industry required for its prosecution, the employment of two millions of people instead of the one million at present needed by the dairies, one could see how it might be to the advantage of the State to substitute the new industry for the old, because of the increased number of laborers that it would employ. But when it proposes to do away with a million of laborers and substitute therefor a factory system employing only a few workmen, the danger that will ensue becomes apparent to every thoughtful citizen. We need employment for more labor, instead of turning men idle who are now employed. We need additional markets for the rough products of our farms, instead of closing up the ones we now have. Under modern conditions, it is necessary to change farm articles of bulk into a more valuable and compact shape, in order to ship them to distant markets. The butter industry does this, and has

the additional advantage, over every other product, in that it at the same time removes almost no fertility from the farm.

The sale of oleomargarine as butter and in imitation of butter is a fraud, and it is also a menace to a great industry which comprises a large portion of our agricultural wealth.

Pure Food Laws.

The Dairy and Food Commissioner has also in charge, the enforcing of the Pure Food Laws of the Commonwealth. These relate to vinegar, milk, cheese and the other articles of food and drink which are found upon the markets of the State. The work is one of great magnitude and importance, and deserves the liberal support of the Legislature to enable the Commissioner to properly carry out the provisions of these several acts for the protection of the public health.

DIVISION OF ECONOMIC ZOOLOGY.

The Economic Zoologist reports a large increase in his correspondence during the year. Many inquire in regard to the best methods for combating the attacks of the numerous injurious insects that prey upon their crops, and also for remedies for the fungous and infectious diseases which affect vegetation to its serious injury. Bulletins of information upon special diseases and insect enemies of plants have been sent out to inquirers, and whenever necessary, as new pests appear, expert assistance has been secured, to investigate and give advice as to their control or eradication.

The San Jose Scale is spreading in the eastern portion of the State, and unless remedial legislation is soon had, the nurseries and orchards of the entire State will be infected. Present legislation is altogether inadequate, there being no law except that which was passed in the session of the Legislature of 1899, which is only operative when the local authorities take the initiative and inspect in their own district. These inspectors have no authority outside of their own township, and can do nothing to protect their neighborhood from infection from adjoining nurseries or orchards. We

have no law requiring the inspection of nurseries, or which will prevent the importation of diseased or contaminated stock from other States.

The effect is to make Pennsylvania the dumping ground for diseased and infected nursery stock, which cannot be sold elsewhere, because of the laws in nearby States, which require a certificate of inspection to accompany every consignment.

It is important that our fruit-growers be protected by the passage of a law requiring the inspection of all nursery stock which is raised in this State or is imported from another, and if found to be infected, which will compel the owner to destroy or disinfect it, so as to kill all insects or disease germs that may be present.

Hessian Fly.

A large area has again been visited by the Hessian Fly. Many wheat fields were completely destroyed last year by this pest, occasioning a loss of many thousands of dollars to the farmers of the State. It is well known that the period of activity of the "fly" is comparatively brief, as regards both the spring and fall broods. The times of their activity is not the same in all of the districts of the State, but varies with the latitude and altitude. The only method, as yet found practical, for protecting crops from its attacks, is to delay the seeding until the period of activity of the fly has passed. No general rule can be given, fixing this period, which will apply to the entire State, since the date varies as has been stated, according to the latitude and elevation. It would, however, be entirely practicable for a map of the State to be prepared, which would show the dates at which the fly appears in each locality and by marking the outlines of these districts and giving the dates appropriate for each; the farmers could know the time in which it would be safe to sow their grain. I recommend, therefore, that a sufficient appropriation be made for the use of the Department, to pay the expenses of experts who shall make the necessary investigations and prepare such a map. The addition to the crop of a single year, due to protection from the Hessian Fly, would repay many times all of the expense incurred. The wheat crop of Pennsylvania in 1890 was about 21,600,000 bushels. The loss of one-half of this, at 73 cents, the average price per bushel last year in this State, would be \$7,884,000.00. The question, therefore, is one of great importance, and deserves the careful consideration of the Legislature.

The Green-House Industry.

During the year this Division collected very complete statistics with regard to the "Green-House" industry of the State. Full lists of names of those who are engaged in this business were secured, after a great deal of correspondence and personal visiting on the part of the Economic Zoologist. The results show the extent which this branch of Horticulture and Gardening has reached. The following summary is taken from the Economic Zoologist's report:

Total square feet of glass in green-houses, ..	2,433,334
Total square feet of glass in cold frames, ..	226,575
Area of land cultivated, acres,	1,185
Value of establishment,	\$1,330,570 00
Amount of annual business,	652,269 00
Amount of annual expense,	313,867 00
Number of men employed,	674
Number of women employed,	22
Number of children employed,	39
Number of plants propagated,	2,076,100
Value of plants propagated,	\$42,262 00
Value of cut flower sales,	224,632 00
Value of roses sold,	90,825 00
Value of carnations sold,	51,215 00
Value of chrysanthemums sold,	12,211 00
Value of potted plants sold,	61,135 00
Value of hot house vegetables,	10,657 00
Annual loss by insects and fungous diseases,	24,516 00

This industry is rapidly enlarging, and promises in time to be one that will require and deserve the undivided attention of an expert in the Department to properly attend to its demands.

The experience of the past year emphasizes the statements with regard to this Division made in my report for 1899. In discussing the needs of the Division of Economic Zoology and speaking of its scope, the report states that: "The Division includes Economic Zoology, Horticulture, Flori-culture, Market Gardening, Green-House Gardening and Nursery Inspection. It is evident from the number of subjects that this Division embraces, that no one man can possess the expert qualifications which are necessary to answer all of the questions which arise in the various lines which the Division includes. The one subject of Economic Zoology proper, is more than any one man can master in a life time of study, to say nothing

of Horticulture, Vegetable Gardening, Flori-culture and Nursery Management. At least five experts should be employed in this Division to at all properly equip it."

DIVISION OF FORESTRY.

As the forests of Pennsylvania have now about disappeared, our citizens are coming to realize their great importance as entering into the wealth of the State. The accumulation of centuries of growth was present in our trees, and to the citizens of Pennsylvania, during the past forty years, this forest growth was a valuable gift, inherited or purchased at a nominal price. The wonderful development of the country during this period has made a demand for timber, which the lumbermen supplied, disposing at a profit this raw material, which required but little intermediary work to prepare for market. The professional lumberman, with his army of employes, has lost his occupation and has left Pennsylvania for other harvest fields. Since the forests have disappeared, the farmer who remains, no longer has a timber tract to enter, cut and dispose of in payment of his debts or to enrich his bank account. We have suddenly come to realize that our forests are gone, and with them has disappeared one of our most valuable sources of wealth.

We have begun none too soon to attempt to remedy the serious injury which this industry has suffered through the past reckless waste of our resources as a timber producing State. The problem of another crop is now upon us for solution, a problem of no ordinary difficulty, but one that will take years of patient, intelligent effort on the part of our public and private citizens to properly solve. A beginning has been made in Pennsylvania by the enactment of such legislation as forms a broad and strong foundation for future work.

Authority is granted to the Commissioner of Forestry for the purchase of lands, suitable for forest purposes, at tax sales, at a price not to exceed the amount of taxes for the non-payment of which the lands are being sold, together with the added costs. He has also authority, subject to the approval of the Board of Property of the State, to purchase forest lands at a price to be agreed upon and approved by the Board of Property, and not to exceed the assessed value of the property, and in no event to be above \$5.00 per acre.

The Legislature has also constituted a Forestry Commission, composed of the Commissioner of Forestry, the chairman of the State Board of Health, the Deputy Secretary of Internal Affairs, and two other persons to be appointed by the Governor. This Commission has power to locate and condemn, subject to jury damages, three reservations of not less than 40,000 acres each, upon the head waters of the Delaware, Susquehanna and Ohio rivers. The Commissioner reports that at this time the State is in possession of 40,605 acres and 99 perches, purchased under the acts of 30th of March, 1897, and April 28, 1899, and these lands are under the control of the Department of Agriculture as custodian for the State.

There have been purchased, in addition, by the Forestry Commission, under act of May 25, 1897, 57,768 acres and 12 perches, making a total of 98,370 acres and 111 perches. Additional lands have been reported to the Commission, amounting to 15,542.71, which if approved, will make the State the owner of 113,916 acres and 22 perches. The lands are situate in Elk, Lycoming, Clearfield, Clinton, Pike, Cameron, Tioga, Centre and Mifflin counties.

The proper care of the lands already purchased and of those which the State shall in the future secure, is a subject of great importance. The policy to be pursued should be carefully planned so as to avoid the necessity for change in future years, to the detriment of the interests of the State. A well considered body of principles for their management should be compiled and embodied into law, so as to prevent future Forestry Commissioners, who may be unfamiliar with the purpose of the State, from overturning the entire work of their predecessors.

A well digested plan for future guidance should be at once secured, and all efforts hereafter be directed to the carrying out of this plan in the most economical and satisfactory way. Before any forestry reservation system can be successful, there must be, first of all, an effective means for preventing forest fires. This is fundamental in the forestry question in America, and no progress can be made until this is secured. This being secured, the way is comparatively clear. Mere protection from fire will ensure in most localities a fair growth of timber in a reasonable time, without much additional care. No doubt, in time, we shall set out plantations of trees, selected with regard to their value in the arts, and to their rapid maturing characteristics. In time, also, quick growing trees will doubtless be discovered which can be cropped every fifteen or twenty years; trees adapted to special uses and cultivated to produce the qualities required in the shortest time and with the greatest certainty. Locust, hickory, chestnut, willow, poplar, linden, white pine and others not yet discovered, are examples of what

can possibly be done in this direction. Whenever such crops become possible and profitable, capitalists will invest their money in timber lands instead of bonds, and leave as a legacy to their families, thousands of acres of land which will ensure them a steady and perpetual income, and incidentally, benefit and enrich the State.

To induce investments, the tax rate on such lands should be but nominal, sufficient only to keep the property listed in the records of the county, and whenever these lands are cleared a certain percentage of the value of the product should be paid to the State for the protection afforded during the period of growth. To insure immunity from fire, it is absolutely essential that proper persons be appointed and paid to watch the reservations during the season when fires prevail, and that railway companies shall station watchmen along the lines of their road during the fire season, who shall patrol all forest districts through which railroads run, after every train. Severe penalties should be required from all, who either through intent or carelessness, are found guilty of setting out forest fires. The general public cannot be expected to give the careful and watchful attention to the prevention of fires upon the reservations that their value and importance require. The responsibility for their safety must devolve upon the owner, which is the State, and this means that the State must employ the same methods for protection that individuals find it necessary to adopt in order to secure the same end. A modern city could not exist without a regularly organized fire department, assisted by a police force that is constantly on the watch; neither can exposed and inflammable property, such as forests, be secure against evil disposed and careless persons, unless efficient guardians are provided who shall discover and arrest offenders and extinguish fires. A law, therefore, should be at once enacted which shall authorize the employment of watchmen upon the State reservations, and provide for their proper compensation adequate for the service required.

The report of the Commissioner is largely devoted to a recital of what has been done to arrest offenders and prevent forest fires during the past year. He shows how frequent and destructive these have been, and how inadequate are the means now provided to prevent them. The importance of the question, therefore, cannot be exaggerated, and all of our experience, as well as that of others, shows that this is not only the weak place in our system of forest management, but is also primary, in any plan, if it is to be effective in forest preservation and for the securing of timber growth.

DIVISION OF VETERINARY SCIENCE.

The Live Stock interests of the State are valued at over \$150,000.-000.00. Previous to the establishment of the Department of Agriculture, five years ago, there was scarcely any official recognition on the part of the State of the existence of such an industry. A law did exist, passed in 1889, which authorized the Secretary of the State Board of Agriculture to take action in case of certain "contagious" diseases, but no skilled veterinarian was in charge to make constant study of the conditions that existed and to prescribe remedies to meet them. As a consequence, the spread of certain diseases among our domestic animals was practically unrestrained, and when the Department was organized and the State Live Stock Sanitary Board took charge of the work, it was found that fully 25 per cent. of the herds of cattle in the State were infected with tuberculosis, and many of the animals were in a condition so dangerous as to be a menace to the public health.

The establishment of a Division in the Department, in charge of a skilled veterinarian, at once placed the work of the care of the health of our domestic animals under expert control, and the results have shown the wisdom of this, in the decrease of the number of diseased animals and the better protection of those that are in health.

The Veterinarian reports that "the losses from disease among domestic animals have been distinctly less for the past year than for any previous year since the establishment of the Department." The Division has "nearly 300 regular correspondents through the State, and about as many more who write as occasion requires." The system of reporting, therefore, is quite complete and no outbreak of disease can occur anywhere in the State without its being immediately known by the Veterinarian and means taken to suppress it.

Much of the work of the Veterinarian has been in the inspection of herds for the detection of tuberculosis. Sixty thousand doses of tuberculin were prepared by the bacteriologist of the Division. Six hundred and fourteen herds, composing nine thousand two hundred and seventy-four cattle have been tested by this method. As many more were subjected to a physical examination. Out of this number, 1,227 were condemned as tuberculous and killed. The law

provides for the appraisalment of animals found to be tuberculous, either by agreement with the owner or by three persons, one selected by the owner, one by the Veterinarian or his agent, and the other by the two thus selected. Unregistered animals cannot be valued at over \$25.00 per head, and those registered at not over \$50.00. The average appraisalment for the year was \$23.10 per head.

The accuracy of the tuberculin test is now generally understood, and no difficulty is experienced in securing the consent of owners for the destruction of animals responding to the test, and there is no longer any suspicion of it producing ill effects upon healthy stock.

The law of May 26, 1897, requiring all cattle brought into the State for breeding purposes, to be accompanied with a certificate of inspection, certifying as to their freedom from tuberculosis, has, in the opinion of the Veterinarian, reduced the number of infected animals imported into the State, to a minimum. The enforcement of the law is neither difficult nor expensive, and the protection which it affords to the herds of the State is worth, according to the Veterinarian's estimate, at least \$60,000 per year.

The Veterinarian calls attention to the gross carelessness of some owners of live stock in the disposition of the carcasses of those that die of dangerous diseases, particularly such as have been affected with anthrax. The carcass is dragged over the ground, leaving the soil infected along the course, and at the end, permitting the body to decay without being covered from access by dogs or carrion birds. The persistent nature of these germs is such as to keep them alive for years, and a soil so infected is dangerous to any animal that crosses it, and germs adhering to the feet of birds or dogs are carried long distances and deposited to the great danger of animals in such localities. Legislation is recommended which shall give authority to the Live Stock Sanitary Board to require the complete destruction of such carcasses and a thorough disinfecting of all places which were contaminated by their presence.

An outbreak of glanders in the coal region was traced to a car load of mules shipped in from East St. Louis stock yards. Great difficulty was experienced in arresting the spread of the disease, for the mules were sold and distributed to several collieries before their condition was discovered. Stables had to be thoroughly disinfected and thirty-five animals killed. This example of the dangers to which the live stock interests of the State are exposed, is only one of a class that are in existence and only await opportunities to enter the State and spread destruction among our most valuable stock. It gives rise to the question, as to whether we must

not have strict inspection laws which shall apply to all classes of stock, and quarantine regulations which shall take care of all animals that are suspected of being affected with any contagious or infectious disease.

The Veterinarian also recommends that authority be given to kill dogs found at large in violation of the regulations respecting rabies. Outbreaks of this disease have occurred in several localities but were prevented from spreading by promptly quarantining the district in which the disease was found.

Sheep scab, hog cholera, forage poisoning, abortion and contagious ophthalmia of cattle, are all referred to in the report of the Veterinarian. He states that "the losses from hog cholera this year have not exceeded \$50,000.00 as against \$400,000.00 in 1897." The complete isolation of swine found diseased has brought about the more satisfactory condition.

As the reliable character and helpfulness of the work of the Division becomes known and appreciated, the duties of the Veterinarian have correspondingly increased, until now his office force is insufficient for the labor to be performed. Many persons apply for advice as to the treatment of trivial cases of diseases, which ought to be sought from practitioners in their locality. This greatly burdens the correspondence, and takes time that ought to be devoted to the more important work of the Division. To what extent this character of inquiry should be encouraged, and where the line should be drawn, beyond which it shall not go, is difficult to determine, and yet if inquiries of this nature continue to multiply in the future, as they have in the past three or four years, there will either have to be a larger increase of expert force in the office or much of the correspondence be unanswered.

At present, the laboratory work is also enlarging, as the report of the past year conclusively shows. The preparation of 60,000 doses of tuberculin, and all of the mallein and anthrax vaccine used by the Board, requires an amount of careful expert work not appreciated by those who have not seen it. Besides this, there are the investigations of specimens for identification of diseases, inquiring into the causes which have induced the disease and the discovery of and preparation of appropriate remedies.

Opportunity should be given for young veterinarians and bacteriologists, graduates of reputable colleges, to enter this laboratory and conduct research work at a small compensation, sufficient only to a little more than to pay their expenses, and thus fit these young men for the more skillful exercise of their profession, and at the same time, secure the expert services needed by the State.

The Department of Agriculture at Washington has adopted this

method, and offers inducements to young men of special skill in any department of agricultural science to enter its Divisions and continue along the line of their specialty while assisting in the particular work of the Division. This has added greatly to the reputation of the Department, and at the same time is giving special opportunity, to young men of ability, to become familiar with research work of an advanced grade.

COMMERCIAL FERTILIZER INSPECTION.

By the act of the Legislature of the 28th of June, 1879, as amended by acts of May 21 and June 26, 1895, every package of "commercial fertilizers sold, offered or exposed for sale for manurial purposes within this Commonwealth, shall have plainly stamped thereon the name of the manufacturer, the place of manufacture, the net weight of its contents, its analysis, stating the percentage therein contained of nitrogen, or its equivalent in ammonia in an available form, of potash soluble in water, of soluble and reverted phosphoric acid, and of insoluble phosphoric acid." The law further provides for the taking out of licenses and the furnishing of statements of the amount sold during the previous year. The Secretary of Agriculture is charged with the issuing of licenses, the inspection of samples and their analysis, together with the publication of the results. During the past year there were one thousand and three brands licensed, thirteen hundred and eighty-nine samples collected, and six hundred and twenty-nine analyses made. Many of the samples taken were duplicates of a given brand and were mixed and analyzed as a single composite sample. The remainder of the samples sent in by the inspectors were omitted from analysis, because of the fact that they had very recently been analyzed. The samples analyzed are classified as follows:

	Samples.
Complete fertilizers,	435
Dissolved bone,	3
Rock and potash,	64
Dissolved rock,	75
Ground bone,	47
Fertilizer salts,	5
	<hr/>
Total,	629
	<hr/> <hr/>

The Department has strict regulations for the guidance and direction of its agents who are entrusted with the work of securing samples for analysis. Extreme care in this respect is necessary, for the slightest mistake on the part of an agent destroys the value of all subsequent work, and does serious injury to the manufacturer or dealer whose goods have been sampled. Manufacturers have come to regard the reports of the Department as of great value in their business, and are much concerned when the analysis shows their goods as falling below their guarantee.

Farmers and dealers no longer purchase fertilizers upon the representations of salesmen, but refer to the reports of the Department for confirmation of their statements as to the constituents and value.

Samples are collected twice each year, in the spring and autumn. The results are compiled and published for the information of all who deal in this class of goods.

The prices of the ingredients of fertilizers are revised each year from the market reports of the preceding year, and the chemists' estimate of the value of the goods is based upon these prices thus ascertained.

The schedule for 1900, as a whole, is as follows:

Schedule of Values for Fertilizer Ingredients, 1900.

	Cents per lb.
Nitrogen, in ammonia salts,	17
in nitrates,	13½
in dry and fine ground fish, meat and blood, and in mixed fertilizers,	15½
in cotton seed meal and castor pomace,	15½
in fine bone and tankage,	10
in coarse bone and tankage,	8½
Phosphoric acid, soluble in water, in bone fertilizers,	5
soluble in water, in rock fertilizers,	3
soluble in ammonium citrate, in bone fertilizers,	4½
soluble in ammonium citrate, in rock fertilizers,	2½
insoluble in ammonium citrate, in bone fertilizers,	2
insoluble in ammonium citrate, in rock fertilizers,	1½
Phosphoric acid in fine bone, tankage and fish,	3½
Phosphoric acid in coarse bone and tankage,	2

	Cents per lb.
Phosphoric acid in cotton seed meal, castor pomace and wood ashes,	4½
Potash in high grade sulphate and in form free from muriate (or chlorid),	5
as muriate,	4½

Potash in excess of that equivalent to the chlorine present, will be valued as sulphate, and the remainder as muriate.

Nitrogen in mixed fertilizers will be valued as derived from the best sources of organic nitrogen, unless clear evidence to the contrary is obtained.

Phosphoric acid in mixed fertilizers is valued at bone phosphoric prices, unless clearly found to be derived from rock phosphate.

Bone is sifted into two grades of fineness: Fine, less than 1-50 inch in diameter; coarse, over 1-50 inch in diameter.

The result obtained by the use of this schedule does not cover the items of mixing, bagging, freight and agents' commission. To cover these, allowances are made as follows:

For freight, an allowance of \$2.00 per ton on all fertilizer.

For bagging, an allowance of \$1.00 per ton on all fertilizers, except when sold in original packages.

For mixing, an allowance of \$1.00 per ton on complete fertilizers, and rock-and-potash goods.

For agents' commission, an allowance of 20 per cent. is added to the cash values of the goods ready for shipment.

The mean quotations on freight from New York, Philadelphia and Baltimore to Harrisburg, in January, 1897, was \$1.68 per ton, in lots of twelve tons or over; in May, 1899, quotations by the Pennsylvania Railroad were: From New York, \$2.40; from Philadelphia, \$1.70; and from Baltimore, \$1.55; mean rate from the three points, \$1.88.

Last year the Department issued a Bulletin upon the "Use of Commercial Fertilizers," prepared by Dr. VanSlyke, of the Geneva Experiment Station, N. Y., which has had a beneficial effect, in teaching farmers their economical use and proper compounding, for various crops.

The trade in commercial fertilizers has been increasing each year, until they are now purchased by almost our entire farming and gardening population. The protection to purchasers, afforded by the annual inspection and analyses of goods offered for their use, is of great value and forms an important branch of the work of the Department.

SPECIAL INVESTIGATIONS.

"The Secretary may at his discretion employ experts for special examinations or investigations." This wise provision of the law has enabled the Department to secure the services of the best specialists for the investigation of such problems in agriculture as are brought to its attention. Valuable results have been obtained through the efforts of these expert specialists, bringing, as they do, to the solution of problems, the exact knowledge and skill required. The field of investigation in agriculture is very wide. Notwithstanding the fact that the United States Department of Agriculture and the Experiment Stations of the several States are engaged with a large corps of experts in inquiring into the underlying reasons for processes in use, and also in discovering new applications of principles already known, yet a large number of important practical questions affecting our agricultural methods are still unsolved.

During the past year experts have been at work for the Department in making investigations upon the following subjects:

The Character of Feeding Stuffs on the Markets of Pennsylvania.
Investigation into the Vitality of Seeds found in the Markets of the State.

Investigation into the Character of Milk, derived from Herds of Cows kept under Varying Conditions.

Investigation into the Best Methods of Feeding Steers for Market.

Examination and Testing of Material Best Suited for Road Ballast.

Special Investigation into the Methods in use in the Several States for the Transportation of Country Children to a Central School.

Special Investigation into the Methods pursued by Canning Factories in the Preparation of Fruits and Vegetables for Canning.

Special Investigation into the Tax System of Pennsylvania.

Special Investigation into the Qualities and Types of the Most Serviceable Horses.

Special Investigation for the Discovery of the Best Form for and Management of, a Green-house for Profit.

Special Investigation into the Influence of Smoke and Gases upon Vegetation.

Special Investigation into the Causes of Hydrophobia among Animals, and the Best Methods of Diagnosing the Disease.

These are all questions of interest and importance to agricultural people, and their proper solution will materially aid those who have to do with these special lines of agricultural industry.

FARMERS' BULLETINS.

In the act establishing the Department of Agriculture, the Secretary is directed to "publish from time to time such Bulletins of information as he may deem useful and advisable." The number of any one Bulletin shall "not exceed five thousand copies."

Ten Bulletins were issued during the year under the provisions of this act, and several more are in course of preparation. These Bulletins are prepared by persons specially qualified to treat the particular subject assigned, and careful attention is given to see that only reliable information is published, all visionary and ill-considered conclusions being excluded. As a result, the Bulletins of the Department now rank along with the best that are issued anywhere in the country, not excepting those sent out by the Department of Agriculture at Washington and by the Experiment Stations throughout the United States. The demand for some of these publications is much greater than the Department is able to meet. But 5,000 copies of any one Bulletin are permitted to be printed, and we have over 300,000 farmers to supply. Many of these publications are of the utmost value to our farmers and should be accessible to all who desire them. The Department can do no more useful work in aid of agricultural people than to place in their hands late and reliable information in regard to their occupation.

The cost to the State of publications of this character is trifling, ranging from a fraction of a cent per copy to seven and eight cents, depending upon the number of pages and the character of the illustrations. The law should be amended so as to permit the Secretary of Agriculture to print, at his option, at least 25,000 copies of any one Bulletin. Whilst this number would not supply all of the farmers of the State, it would meet, for some time to come, the most urgent demands of the more progressive and advanced agriculturists who are endeavoring to keep informed in all that relates to the improvement of their occupation. The Department of Agriculture at Washington has made the issuing of bulletins of information a leading feature of its work, reprinting from time to time

editions that have been exhausted; and they have established a separate Division to have charge of the preparation, publication and distribution of these pamphlets. The effect of this method in educating the farmers of the country is seen in every community, many being well informed upon difficult technical subjects relating to agriculture, who only a few years ago were in utter ignorance of the existence of such knowledge.

The following list of the titles of the Bulletins, published by this Department, during the past year, shows in a general way, the extent and character of the work in this direction:

- BULLETIN NO. 61. "THE USE OF LIME UPON PENNSYLVANIA SOILS." By Dr. Wm. Frear, Chemist of The Pennsylvania State Experiment Station, State College, Pa. 170 pages.
- BULLETIN NO. 62. "A SUMMER'S WORK ABROAD IN SCHOOL GROUNDS, HOME GROUNDS, PLAY GROUNDS, PARKS AND FORESTS." By Mira Lloyd Dock, Harrisburg, Pa. 33 pages.
- BULLETIN NO. 63. "A COURSE IN NATURE STUDY FOR USE IN THE PUBLIC SCHOOLS." By Louise Miller, Ithaca, N. Y. 117 pages.
- BULLETIN NO. 64. "NATURE STUDY REFERENCE LIBRARY FOR USE IN PUBLIC SCHOOLS." Compiled from lists furnished the Secretary of Agriculture by forty-eight leading Natural History Teachers in the United States and Canada. By Mira Lloyd Dock, Harrisburg, Pa. 21 pages.
- BULLETIN NO. 65. "FARMERS' LIBRARY LIST." Compiled by Mira Lloyd Dock, Harrisburg, Pa. 30 pages.
- BULLETIN NO. 66. "PENNSYLVANIA ROAD STATISTICS BY TOWNSHIPS." Giving the mileage of Roads in each Township, together with the Tax Levy, Proximity of Stone Suitable for Ballast, etc. By John Hamilton, Secretary of Agriculture, Harrisburg, Pa. 97 pages.
- BULLETIN NO. 67. "METHODS OF STEER FEEDING." A Co-operative Experiment by The Pennsylvania State Department of Agriculture and The Pennsylvania State College Experiment Station, under the immediate supervision of Prof. G. C. Watson, Agriculturist of the The Pennsylvania State Experiment Station, and M. S. McDonnell, Assistant Chemist, State College, Pa. 14 pages.
- BULLETIN NO. 68. "FARMERS' INSTITUTES IN PENNSYLVANIA," to be held under the direction of the Pennsylvania Department of Agriculture, season of 1900-1901. By A. L. Martin, Deputy Secretary of Agriculture, Harrisburg, Pa. 90 pages.

BULLETIN NO. 69. "THE ROAD MAKING MATERIALS OF PENNSYLVANIA." Their location, distribution and comparative merits; also some suggestions for the construction, maintenance and repair of Road Surfaces. By Magnus C. Ihlseng, E. M., C. E., Ph. D., Professor of Mining Engineering in the Pennsylvania State College, State College, Pa. 104 pages.

BULLETIN NO. 70. "TABULATED ANALYSES OF COMMERCIAL FERTILIZERS." From samples selected in accordance with the act of June 28, 1879. From January 1 to April 1, 1900. By the Secretary of Agriculture, Harrisburg, Pa. 97 pages.

The bulletins published during the year would, if bound together, make a volume of 773 pages, involving a large amount of painstaking labor. The demand for the Nature Study Bulletin, No. 63, has been altogether beyond the ability of the Department to meet. A copy should be placed in the hands of every school teacher in Pennsylvania.

THE LIBRARY AND MUSEUM.

The nucleus for a Library and Museum has been secured through exchanges, and by gift from public spirited citizens who are interested in the development of the Department in this direction.

The Department cannot be fully equipped for its work without a well selected library of books upon Agricultural Science, for reference by its officers, and by citizens in search of information.

A Museum showing the agricultural products and resources of the State, should also be begun at once, in order that strangers can see, at a glance, the districts best suited to the several crops which the State produces, and thus be guided in their selection of a location for their homes. An appropriation should be made to apply to this purpose. Other States, especially those of the West, have established such Libraries and Museums, to their great advantage. Pennsylvania needs to encourage her agriculture in all possible ways, and the presence of a complete Agricultural Library and Museum will do much to assist in promoting interest in the Department, on the part of citizens who are visitors to the capitol, and assist them in understanding and appreciating the splendid resources of the Commonwealth.

PUBLIC ROADS.

Quick and comfortable transportation throughout the rural districts has become so imperative as to demand the careful consideration of both the State and National Governments.

Good roads are now recognized as a necessity, if we as a people are to compete successfully with other countries where they exist. A highway for traffic which will at all seasons be in condition for use, and so constructed as to admit of loads double or treble those possible upon an ordinary road, and graded to permit the speed of vehicles to be increased in like proportion, will correspondingly reduce the cost of transportation and add to the value of all property situated along its route. This fact is now so generally understood and accepted as to need no further proof.

The question which is delaying their construction, is not one of doubt as to their advantages, but one of cost. Taxation in most of the rural districts of Pennsylvania is now as great as the citizens can bear, and any addition, no matter how excellent the purpose, will be resisted. On the other hand, good roads cannot be built without money, and in most localities the cost is very considerable.

Another difficulty in the way of road improvement is, that found in the "Statute Labor" law. The system of permitting a citizen to appear in person or by proxy and "work out" his road tax, has existed so long in this State as to now be regarded as an inherent "right." Any custom long in use is difficult to supplant, as is evidenced by the opposition to the introduction of the cotton gin and other modern improvements over the hand methods of primitive times. And this difficulty is greatly increased when those who have practiced these old methods believe that the introduction of the new, means the surrender of cherished personal rights, and also involves an increase of burden of expense. Any change proposed in our system of road construction and maintenance, is at once suspected, by many citizens, of attempting to do one or both of these things—take away a cherished right and increase the tax.

The problem, therefore, resolves itself into one of securing the money necessary to build good roads, without increasing the burden of taxation now upon country people, and also of preserving a certain amount of local control sufficient to protect the individual citi-

zen in his option of furnishing, at least, some labor, instead of money, in payment of his road tax.

In our early history, the system of "working out" the road tax was undoubtedly wise, and best suited to the conditions and the times. Our entire population practically lived in the country. As late as 1800, only a little over ten per cent. of the people of the State lived in incorporated towns and cities. Ninety per cent. lived in the country. The citizens, therefore, were equally interested in, and under great necessity for securing immediately some means of communication, however crude. The work of constructing roads was of the simplest character, requiring only the clearing off of the trees and stumps and the constructing of corduroy over swamps and quicksands. This was done and could best be done by the settlers themselves, for they were skillful in the chopping of timber and the clearing of land, and the work was performed at times which did not interfere with the cultivation of their crops. Population has changed since then. Now fifty-six per cent. of our people live in the cities and towns, and only forty-four per cent. in the country, and this forty-four per cent. have increased duties which make it impossible for them to leave their farms at seasons when road construction ought to be carried on. In addition to this, the time has now come when machinery must take the place of hand labor in road building, as it has in other industries, and the work must be performed at seasons most suitable for the construction, rather than at times most convenient for the citizens.

Better roads than formerly are also required to meet the increasing needs of modern life, and these roads necessarily cost, as has been stated, vastly more than the ungraded and ill-kept ways of years ago.

These new conditions, and increasing public needs, make a change from the old system a necessity, if we are to meet the demands of our present and prospective commerce and make the rural districts accessible at all seasons, to the conveyances and traffic which the increasing business of the country requires.

To overcome all of these difficulties, and meet all of these requirements, is the problem that confronts the legislator who is endeavoring to secure good roads. Other States, New York, New Jersey, Massachusetts, Connecticut and Maryland, have gone to work under laws distinct from each other, and each in its own way is securing satisfactory results. It has been suggested that Pennsylvania follow the plan of one or other of these States. The impracticability of such adoption is evident when we consider the radical differences that exist between the tax laws of these States and those of Pennsylvania. In many of these States, taxation on all

kinds of country property is for State purposes, whilst in Pennsylvania all real estate is exempt from this tax. In some States the county is the civil division, or unit, for road control. In Pennsylvania the township is the unit. Laws, therefore, for the construction of roads in any one of these States, would in all probability, work hardship in ours, because of these differences.

In my opinion, Pennsylvania will have to do precisely what these other States have done—construct a system of her own, adapted to her system of local government and tax conditions.

“State aid” is the solution of the problem for Pennsylvania. The money for this comes not from rural people and real estate, but chiefly from corporations and capitalists, stocks and bonds. The distribution of State aid, therefore, will not add to the farmer’s burden of tax. State aid added to the local tax, now levied, in the country districts for road purposes, will meet the conditions and secure the money needed to construct good roads. Provide, at the same time, that the money contributed by the State shall be expended by the local authorities according to directions prescribed by the State. This will ensure uniformity of plan, and hold local authority to strict account for the proper expenditure of State funds.

In order to make such a distribution of State funds possible, it will be necessary to have the local boards constituted in such a way as to possess continuous existence. To effect this, the terms of office of its members should terminate in different years, so as to keep a majority of the board always in existence, and thus preserve the continuance of the records, and ensure at all times in each locality a legal and responsible body with which the State can deal. Provide also, that the roads constructed shall not be permitted to lie neglected, but that some proper and capable custodian shall be held responsible for their preservation and good condition, and that such labor as is employed, whether paid from State funds or by credit on individual tax, shall be so controlled as to secure a dollar’s worth of service for every dollar of credit given.

The Road Commission, appointed under the joint resolution of the Legislature of 1897, will no doubt formulate such a law as will be adapted to Pennsylvania, and its recommendations, it is hoped, will carry such weight as to secure their adoption by the Legislature of 1901.

FEEDING STUFFS.

Numerous letters have come to the Department, from cattle feeders and dairymen, complaining of the character of the Commercial Cattle Feeds, upon the markets of the State. The impression prevails, that Pennsylvania has become a dumping ground for adulterated cattle feeds which have been excluded from the New England States by their inspection laws. This Department early in this year concluded to make an examination of the condition of the cattle feeds found in our markets, and accordingly appointed agents to collect samples, and had them sent to the State Experiment Station for examination and analysis. The results have not been fully compiled, but sufficient has been ascertained to indicate that the goods on sale in our State are lower in valuable ingredients than corresponding feeds in the States where inspection laws exist. The following table, received from the chemist, Dr. Wm. Frear, will be of interest as exhibiting the condition as developed by the investigation.

Comparison of Feeds Sold in Pennsylvania and Control States.

	Number of samples.	Protein.	Fat.
Cotton seed meal:			
Pennsylvania,	8	44.40	10.10
New England,	205	45.40	11.12
Linseed meal:			
Old process:			
Pennsylvania,	25	33.32	5.98
New England,	25	35.70	7.20
New process:			
Pennsylvania,	3	34.25	2.63
New England,	31	38.20	2.40
Wheat bran:			
Winter wheat:			
Pennsylvania,	5	15.19	4.26
New England,	45	15.50	4.40
Spring wheat:			
Pennsylvania,	9	14.94	4.65
New England,	53	16.10	4.90
All brans analyzed:			
Pennsylvania,	38	15.33	4.48
New England,	120	15.80	4.70

Comparison of Feeds—Continued.

	Number of Samples.	Protein.	Fat.
Wheat middlings:			
Winter wheat:			
Pennsylvania,	3	16.15	4.63
New England,	20	16.00	4.80
Spring wheat:			
Pennsylvania,			
New England,	60	18.80	5.20
All middlings analyzed:			
Pennsylvania,	40	15.99	4.60
New England,	135	17.00	5.00
Mixed wheat feeds:			
Pennsylvania,	3	14.21	3.90
New England,	219	16.60	4.70
Red Dog flour:			
Pennsylvania,	4	19.14	4.87
New England,	9	19.30	4.40
Corn meal:			
Pennsylvania,	14	8.94	4.69
New England,	17	9.50	4.00
Gluten feed:			
Pennsylvania,	12	24.72	2.84
New England,	69	29.68	3.74
Oat feeds:			
Crescent:			
Pennsylvania,	2	6.72	3.25
New England,	3	7.90	3.30
Others:			
Pennsylvania,	4	7.44	2.91
New England,	16	9.30	4.20
Corn-and-cat feeds:			
Victor (American Cereal Company):			
Pennsylvania,	3	8.05	3.59
New England,	26	9.20	3.90
Others:			
Pennsylvania,	17	8.96	4.39
New England,	39	9.44	3.76

A Bulletin, giving the entire results of the investigation will be published for the information of farmers as soon as all of the work of examination is concluded.

A law similar to those in operation in neighboring States, would doubtless protect us, in a great measure, from the frauds now possible in the sale of cattle feeds in our markets.

AGRICULTURAL EDUCATION.

It is a fundamental principle, that no progress can be made in agriculture, except as knowledge is diffused among farming people which gives information of a character applicable to their calling. The establishment in 1862, by the Congress of the United States, of colleges for giving instruction in agriculture, and later, the establishment of Agricultural Experiment Stations in the several States, was in recognition of this principle. Our own State College and Experiment Station are examples of the value of this method of assisting agricultural people, and prove the wisdom of Congress in making provision for their existence.

The educational movement in agriculture, like all educational movements in history, has begun at the top, with a few, and must work down among the masses until all are reached. The higher education in this country in agricultural lines is now well established, and it is the view of many of our most capable, earnest and progressive men, that the time has come when this same information should be made accessible to the mass of our population, and that this dissemination can best be conducted through the public schools.

This addition to the course of instruction given in the primary schools, has taken the form of the study of the natural objects, from the objects themselves. The success that has attended this method of instruction has been so marked as to compel educators to take up the question and consider what modifications of our old system are necessary in order to permit of this addition to the curriculum of studies.

The great obstacle in the way of adding to the existing course of study in the primary schools in the country, is found in the lack of time at the teacher's disposal. An investigation conducted by the Secretary of Agriculture this year into the number of classes heard by the teachers in the country schools, shows that the average for the State is about 27, which gives about eight to ten minutes to each class. It is, therefore, perfectly clear that it is impossible to add to the teacher's duties, as fixed by the present system. The only remedy possible is in a change of the system itself which will give the teachers more time.

Leaving out of the discussion the question of the possibility of making scholars, in any reasonable time, of pupils who have the slight attention which it is possible for a teacher in a country school to give, under our present system, we are met with the other

problem, of securing time for the introduction of new work. There is no way in which this can be done except through the consolidation of existing schools. The consolidation of several schools into one central school, will permit the classification of the scholars, and by this means the work, now imperfectly done by six teachers, can be thoroughly done by three. Every city and borough school is evidence of the truth of this, and when this consolidation and classification is made, it will be possible to introduce new work and to secure teachers capable of giving instruction in these new studies. Without consolidation, the country schools are shut up to the meagre educational course which they now offer. With consolidation will come the advanced work of the new education which has taken possession of every college, university and higher institution of learning in the land.

How can the consolidation be effected, is the question that first arises? The answer is, by conveying the children to and from the school in vans.

This Department has had a thorough investigation made into the working of this method in the States where it is in operation, and a Bulletin giving the results of that investigation is now in press, and will soon be ready for distribution to those interested in this subject. The examination shows that the system is not only practicable, but that it is also cheaper than the old. The children too, are protected in their health as they go to and from school and their advantages for education under consolidation are equal to those of the best town schools. The attention of educators is most earnestly requested to the consideration of this question, which is vital to the uplifting of country children and improvement of country life.

Attention is directed to the discussion of the importance of Nature Study to country children, as given in my report for 1899. Since that date, the sentiment of the farming people of the State has been expressed in the Institutes held by this Department during the season of 1899-1900. The Institutes in 57 counties voted unanimously in favor of the introduction of Nature Study into our public schools, and the same action was taken at a meeting of representatives of the various agricultural organizations of the State, held at the State College. The organizations represented were: The State Department of Agriculture, The State Board of Agriculture, The State Department of Public Instruction, The State Grange, The State Alliance, The State Agricultural Society, The State Horticultural Association, The Pennsylvania Dairy Union, The State Breeders' Association, The Guernsey Cattle Breeders' Association, The Pure Jersey Cattle Club, The State Poultry Association, and The Pennsylvania State College.

These associations at this conference, June 4th to 5th, 1900, passed unanimously the following resolutions:

"Resolved, That it is the sense of this conference that Nature Study should be introduced into the public schools of the State.

"Resolved, That this conference request from the next Legislature an appropriation of \$10,000 per year, for two years, for The Pennsylvania State College, to defray the expenses of continuing the preparation and distribution to the teachers of the public schools of the State, of bulletins and leaflets on Nature Study with special reference to agriculture.

"Resolved, That this conference urges the Legislature to provide for carrying into effect the act of June 28, 1895, providing for the establishment of township high schools.

"Resolved, That we request the State Legislature to make a sufficient appropriation for the erection and maintenance at The Pennsylvania State College, of a suitable building for the teaching of the different branches of Agriculture, including Dairying and Forestry."

Provision was also made for a legislative committee of five members "To formulate and urge the legislation asked for by the conference." The several delegations were likewise charged with the duty of presenting the matter to their several organizations and securing their active support for the work of the legislative committee.

The question is one, therefore, that is upon us for solution and must be considered by those now in position of influence and control, and whose duty it is to look after the highest interests of the whole people. Such action ought to be taken as will properly satisfy this new demand. It is the cry of country children for light and opportunity, equal to the educational advantages enjoyed by their more fortunately situated brothers and sisters in the towns.

SUMMARY OF LEGISLATION NEEDED.

LEGISLATION NEEDED BY THE SEVERAL DIVISIONS OF THE DEPARTMENT, IN ORDER TO INCREASE THEIR EFFICIENCY AND ENABLE THEM TO PROPERLY PURSUE THEIR WORK, IS PRESENTED IN THE FOLLOWING BRIEF SUMMARY.

DAIRY AND FOOD DIVISION.

Power to enjoin from selling a given article while suit is pending for violation of law.

Power to enter premises and search for adulterated goods, and take samples for analyses.

One hundred thousand dollars appropriation needed to enforce the law.

FERTILIZER LAW.

Amend by granting express authority to the Secretary of Agriculture to sue violators of the law, in the name of the Commonwealth, without having to do so through a purchaser.

FARMERS' INSTITUTES.

Appropriation of \$25,000 per year.

PUBLICATIONS.

Authority to print 30,000 copies of any one Bulletin.

Apportion 5,000 of the Annual Reports to the Department of Agriculture.

ECONOMIC ZOOLOGY.

Give authority to inspect nurseries and grant certificates of freedom from injurious insects and contagious diseases.

Authority to inspect orchards and vineyards and prescribe and enforce remedies for diseases and insect attacks. Appropriation of \$4,000 per year.

VETERINARY DIVISION.

Provision for the control of rabies by giving authority to destroy dogs and other animals found at large in violation of quarantine.

Giving authority to compel owners of animals dying of certain infectious diseases, to burn or bury the bodies and destroy the germs.

FORESTS.

Giving authority to employ watchmen to protect the reservations.

CATTLE FOODS.

Provide for the inspection of feeding stuffs, and require packages of goods to be stamped with the name of the manufacturer or dealer, and the percentage of carbo-hydrates and nitrogenous constituents.

LIBRARY AND MUSEUM.

Appropriation for the purchase of books and specimens for the Library and Museum of the Department of Agriculture.

CIRCULATING LIBRARIES ON NATURAL HISTORY AND FARM TOPICS.

Authority to purchase and preserve as the property of the State, Circulating Libraries on agricultural subjects, for distribution through the Commonwealth, to Schools, Farm Clubs, Agricultural Societies, and kindred agricultural organizations.

CONCLUSION.

The work of the Department, it will be seen, has been progressing in all lines of its operation. Each year the duties become greater, owing to the increasing demands of the public for information and assistance. There is urgent need just now, as has been intimated, for an increase of the force in the Division of Economic Zoology, to take up, specially, Horticulture, Market Gardening and Greenhouse work. A skilled expert to take charge of these subjects will have more than he can do to properly aid these important industries, and the time of the Zoologist will be also fully occupied in the work specifically entrusted to him by the law.

Acknowledgment is due to all of the Division officers and their assistants for the cordial co-operation which they may have given me as the head of the Department, and an examination of their several reports will show the vast amount of valuable work which each has done during the year.

I also wish to express my appreciation of the support which you have given me in my endeavors to administer the affairs of this Department. Your unshaken confidence, and wise counsel, under circumstances that attempted the destruction of all that every honorable man holds dearer than life itself, place me under obligations which I deeply feel, and which I deem it but just, to publicly express.

Very respectfully submitted,
JOHN HAMILTON,
 Secretary of Agriculture.

