1889.

NEW ZEALAND.

EDUCATION:

INSTRUCTION IN AGRICULTURE UNDER THE DIRECTION OF THE COMMISSIONERS OF NATIONAL EDUCATION IN IRELAND.

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

I. Outline (by the Secretary for Education, Wellington).

1. In the ordinary national schools in rural districts (that is, except in large towns) "agriculture" is an obligatory subject for boys of Fourth and higher classes, and an optional subject for girls. The work prescribed is as follows:—

Fourth Class.—To answer intelligently on the subject of crops, as treated in the "Introduction to Practical Farming."

Fifth Class—1st Stage.—In addition to the course prescribed for Fourth Class, to answer intelligently on cottage gardening, as treated in the "Introduction to Practical Farming."

Fifth Class—2nd Stage.—In addition to the course prescribed for Fifth Class, 1st Stage, to answer intelligently on Part II. of "Introduction to Practical Farming."

Sixth Class—1st Examination.—In addition to the course prescribed for Class V., to answer intelligently on the soils, manure, and drainage. Subsequent Examination—To answer intelligently on the "Introduction to Practical Farming."

For each of the five examinations specified in the foregoing paragraphs a teacher receives a grant for each pupil that passes—4s. for the Fourth Class examination, and 5s. for each of the other examinations. The number of children examined on this programme in 1887 was 78,036; of whom 47,334 passed.

2. In 1887 there were 54 national schools having school farms, and 29 with school gardens attached. Such schools are called agricultural national schools. In connection with these schools there is an examination in the practical part of agriculture. The number of pupils examined in school farms in 1887 was 863, of whom 613 passed. In school gardens 507 were examined, and 390 passed. In such schools, in addition to the grants for passes in the examinations specified above, grants are made according to the scale set forth in Sections XV. and XVI. of the Appendix to Regulations. These sections are as follows:—

XV.—1887-88.—Rules for Payment of Teachers of Agricultural Schools under Local Management.

Section I.—Scale of Payment for Proficiency of Pupils in Agricultural Knowledge derived from the "Introduction to Practical Farming," &c.

	£	s.	d.
Fourth Class.—To answer intelligently on the subject of crops as treated in the work, "Introduction to Practical Farming"	0	4	0
Fifth Class—1st Stage.—In addition to the course prescribed for Fourth Class, to answer intelligently on cottage gardening as treated in the "Introduction to Practical Farming"	0	5	0
Fifth Class—2nd Stage.—In addition to the course prescribed for Fifth Class, First Stage, to answer intelligently on Part II. of "Introduction to Practical Farming"	0	5	0
Sixth Class—1st Examination.—In addition to the course prescribed for Class 5^2, to answer intelligently on soils and manures and drainage	0	5	0
Sixth Class—Subsequent Examination.—To answer intelligently on the "Introduction to Practical Farming"	0	5	0

Section II.—Scale of Payment for Practical Proficiency of Pupils, as tested on the School Farm and Garden.

A teacher newly appointed to conduct a national school with an Agricultural Department must possess a certificate that he attended a course of agricultural instruction at the Albert Institution, or a certificate of competency from some other authority satisfactory to the Commissioners of National Education.

Scale of Payment for Practical Proficiency, as tested on the School Farm and Garden.

	£	s.	d.
Fourth Class.—For a pass in a knowledge of the crops grown on the farm and of the modes of raising and saving them	0	3	0
Fifth Class—1st Stage.—For a fair knowledge of the points of good animals, and of the modes of feeding and managing those on the school farm	0	3	6
Fifth Class—2nd Stage.—For superior proficiency in same and in a knowledge of the crops raised in garden	0	3	6
Sixth Class—1st Examination.—For proficiency in a knowledge of the use of improved implements and machines	0	5	0
Sixth Class—2nd Examination.—For superior proficiency in same	0	5	0

Section III.—Scale of Payment for well-managed School Farms and Gardens.

	£	s.	d.
1. For a pass on the management of the farm, including the course of cropping, the mode of cultivation, and the productiveness of the crops	2	0	0
2. For a pass in the management of home-made manure, taking into account for sanitary as well as practical purposes the position of the manure heap, the way the manure is preserved, and the quantity of it produced and available	0	10	0
3. For a pass in live stock, taking into account the quality of the animals, their adaptability to the holding, and the mode of managing them	1	0	0
4. For a pass in farm offices, their cleanliness, state of repair, and adaptability to the holding ..	0	10	0
5. For the cottage garden, its aspect and enclosure, the suitability of the system of cropping to the wants of the country, and the productiveness of the crops	1	0	0

Notes.—The results fees for Section I. of the foregoing programmes may be paid on the report of the District Inspector, a copy of whose marks will be sent to the Agricultural Superintendent for his information, who will give further examination, should he deem such expedient, in literary knowledge of the subject. If the classes fail to pass satisfactorily in Section I. fees for Sections II. and III. may be withheld. Examinations under Sections II. and III. may be conducted by the Agricultural Superintendent or such other officer as may be approved by the Commissioners. The school farm, where practicable, shall contain not less than three statute acres. About half an hour per day, as a general rule, must be devoted to agricultural instruction of pupils, practical or theoretical. Pupils, however, are not to be employed on the farm or school garden during school hours, except, at the discretion of the teacher, during the time for recreation. If no practical instruction is given on the farm or garden (Section II.) no fees are payable under Section III. The fees accruing under Sections II. and III. are payable only to the teacher who conducts the practical instruction (Section II.) and holds the farm or garden. Every pupil who comes forward for examination must have made one hundred attendances in the school for the twelve months ending on the last day of the month preceding the examination in Section I.

XVI.—1887-88.—Rules for Payment of Teachers of National Schools to which School Gardens are attached.

Section I.—Scale of Payment for Proficiency of Pupils in Agricultural Knowledge derived from the "Introduction to Practical Farming," &c.

	£	s.	d.
Fourth Class.—To answer intelligently on the subject of crops as treated in the work, "Introduction to Practical Farming"	0	4	0
Fifth Class—1st Stage.—In addition to the course prescribed for Fourth Class, to answer intelligently on cottage gardening, as treated in the "Introduction to Practical Farming"	0	5	0
Fifth Class—2nd Stage.—In addition to the course prescribed for Fifth Class, 1st Stage, to answer intelligently on Part II. of "Introduction to Practical Farming"	0	5	0
Sixth Class—1st Examination.—In addition to the course prescribed for 5², to answer intelligently on soils, manures, and drainage	0	5	0
Sixth Class—Subsequent Examination.—To answer intelligently on the "Introduction to Practical Farming"	0	5	0

Section II.—Scale of Payment for Practical Proficiency of Pupils, as tested on the School Garden.

Fourth Class.—For a pass in the knowledge of the crops grown on the school garden	0	2	0
Fifth Class—1st Stage.—For a superior knowledge of foregoing, a more extended examination ..	0	2	0
Fifth Class—2nd Stage.—For further knowledge of foregoing, with a knowledge of the management of swine and poultry	0	2	0
Sixth Class—1st Examination.—For increased proficiency in foregoing	0	2	6
Sixth Class—Subsequent Examination.—For increased proficiency in foregoing, a more extended examination	0	2	6

Section III.—Scale of Payment for Well-managed School Gardens.

1. For the cottage garden, its aspect and inclosure, the suitability of its management to the wants of the country, and the productiveness of the crops..	0	10	0
2. For a pass if pigs, poultry, or other live stock of a proper description are well kept; for the mode of preserving the manure made from them; for the offices—their suitableness and condition ..	0	5	0

Examinations under the foregoing programme are conducted by the District Inspector. Every pupil who comes forward for examination must have made one hundred attendances in the school for the twelve months ending on the last day of the month preceding the examination. About half an hour a day as a general rule must be devoted to agricultural instruction of pupils. Pupils are not to be employed on the school garden during school hours, unless, at the discretion of the teacher, during the time for recreation. If no practical instruction is given to the pupils no fees are payable under Sections II. and III. The fees accruing under Sections II. and III. are payable only to the teacher who gives the practical instruction and holds the garden. If the classes fail to pass satisfactorily in Section I., fees for Sections II. and III. may be withheld.

3. In national schools one of the extra subjects, with an allowance (to the teacher) of 5s. for each pass, is "dairying." The regulation is as follows:—

Dairying.—Programme for Pupils (Females, Fifth Class or higher).

In any national school to which a dairy is attached having at least five cows and proper appliances approved of by the Agricultural Superintendent, dairying may be recognised as an approved extra branch, and a fee be paid for each pupil passing in the prescribed course. The person giving the instruction in this branch must hold a certificate of competency therein. The course of instruction includes the theory and practice of dairy-management—viz., (*a*) Dairying as treated in the text-books sanctioned by the Commissioners of National Education; (*b*) a knowledge of the use of dairy implements and of dealing with the products of the dairy; (*c*) butter-making.

Under this regulation one school was examined in 1887. There were 42 girls examined, and 41 passed.

4. There were in 1887 two national schools in which the pupils received instruction in the management of poultry.

5. There are two institutions devoted to instruction in agriculture—viz., the Albert National Agricultural Training Institution, Glasnevin, Dublin, and the Munster Model Agricultural and Dairy National School, Cork. The regulations relating to each school are embodied in the prospectus, which is here reprinted at length. At Glasnevin there are generally 35 to 50 pupils attending as agricultural students, 25 being free pupils admitted on competitive examination. About 50 teachers attend the special agricultural sessions for teachers. Each dairy session is attended by about 50 female pupils. At Cork about 30 female pupils attend each dairy session, and from 6 to 10 young men attend a four months' agricultural session.

Education Department, Wm. Jas. Habens.
Wellington, 22nd February, 1889.

II. Prospectus of the Albert National Agricultural Training Institution, Glasnevin, Dublin.

Patrons.—The Commissioners of National Education in Ireland.

Superintendent.—Thomas Carroll, Esq., General Superintendent of the Agricultural Department of National Education.

Lecturers.—Natural History and Botany: E. P. Wright, A.M., M.D., Professor of Botany, Dublin University, Author of "Animal Life." Chemistry and Geology: Sir C. A. Cameron, M.D., M.R.I.A., Analyst, City of Dublin, Author of "Chemistry of Food," &c. The Diseases of Farm Animals and their Treatment: C. Steel, F.R.C.V.S., late Inspecting Veterinary Surgeon, A.V.D. Editor of "Blain's Veterinary Art," &c. Theory and Practice of Agriculture and Horticulture and Dairy Management: The Superintendent and Staff.

Objects.—This institution is designed to supply instruction (*a*) in the science and practice of agriculture to the sons of farmers, to national teachers, and others; (*b*) in the most improved systems of dairying to young women.

The Training Institution.—The training institution is situated on the farm. The buildings comprise dormitories, dining hall, lecture and schoolroom; museum, library, and laboratory; an extensive range of farm offices and dairies fitted up with improved machinery and implements.

The Farms and Gardens, which contain about 180 statute acres, are situated about three miles north of Dublin, and one mile from the Village of Glasnevin. An area of 6 acres and 17 perches (statute) is cultivated as a small spade-labour farm, with the view of exhibiting a proper system of cultivating the vast number of small farms in Ireland. An area of 22 acres 3 roods 7 perches has been set apart with a view of illustrating a system of farm management adapted to the circumstances of farmers whose holdings are large enough to give employment to one or two horses. The remaining portion of the land forms the large farm. The arrangements for affording to the students as large an amount of information as possible upon every branch of the business of farming, including dairy husbandry, the fattening of cattle, the breeding and rearing of different kinds of live stock, the various operations of field culture, and the permanent improvement of the soil, are such as to place within their reach an opportunity of becoming acquainted with the details of practical agriculture.

The Gardens.—In order that the students should have an opportunity of acquiring a knowledge of horticultural pursuits, about three statute acres are set apart and cultivated as a kitchen garden. There are also a small conservatory, peach house, vinery, fruit, flower gardens, &c.

Instruction.—The course of instruction imparted by the literary teacher embraces all the branches which constitute a sound English education—namely, English grammar and composition, arithmetic, book-keeping, and mathematics, natural philosophy, land surveying, levelling, and mapping. Each of the lecturers of the institution delivers a course of lectures every session. These lectures are illustrated by means of diagrams, collections of minerals, plants, &c., and chemical apparatus. In order that the students may become fully acquainted with improved practical husbandry, they are called upon to take part for a limited time in the performance of every farm operation—the feeding and management of live stock, &c. They are also made practically acquainted with the uses of a large collection of improved farm implements and machines. There is one session of eight months in the year—from the 1st March to the 31st October.

Admission.—Four classes are admitted to the institution:—

1. Free Intern or Resident Students—who are boarded, lodged, and educated at the public expense, and who are admitted by competitive examination. These free places are open to all well-conducted young men throughout the country. Intending candidates should make application to the District Inspector of National Schools. Some respectable person must certify (1) that the candidate's age is not under seventeen years; (2) that he possesses the necessary health and physical capacity for farming; and (3) that he is of good moral character and possesses the required literary attainments, industrial habits and tastes. The young men nominated for competition are required to attend an examination in the subjects specified in the programme, held in their respective districts, in January of each year. Travelling expenses of students admitted to the institution will not be paid.

2. Paying Intern Students—a limited number of whom are admitted on the following conditions: They must possess sufficient literary acquirements to enable them to profit by the lectures of the various professors. Accordingly, candidates will be required to pass an examination in the following subjects: To read and spell with tolerable correctness the words of an easy lesson, and explain the meaning; to know the parts of speech, and write easy sentences from dictation; to write on paper a fair hand; to know the first four rules of arithmetic, and work easy sums in them; to know the general outlines of the maps of the world, Europe, and Ireland. Each candidate must submit, for the information of the Commissioners of National Education, an application paper, duly signed by some respectable person who has known him, setting forth his age—which must not be under sixteen years—and full particulars as to the school or schools where he received his previous education. The fee for the session of eight months is £15, which is to be paid in advance on entrance. This payment includes the cost of instruction, board, lodging, washing, and medical attendance. Students whose conduct has been satisfactory may, with the sanction of the Commissioners of National Education, enter upon a second term, and such additional sessions as may be necessary for their training. The Commissioners will not admit any candidate who has been expelled from a school or college for bad conduct. Any paying student who shall leave of his own free will before the expiration of the session, or who shall be removed for misconduct, will be liable to forfeit the fee for the remainder of that session. Paying students must conform to all the regulations for the discipline of the establishment. They must take part in all the farm operations. They take their meals at the same table with the free students, sleep in the same dormitories, and receive the same treatment in all respects. Paying students whose conduct is satisfactory will be allowed to compete among themselves each session for a limited number of free places—one free

place being reserved for every five paying students. Students of the above classes (free and paying students) are required to provide themselves on entering the institution with two suits of clothes (a strong working suit and a Sunday suit), four towels, two night-shirts, a pair of slippers, a hair brush and comb, tooth brush, and other necessary articles. Candidates seeking admission to the institution should either have had the small-pox, or have been successfully vaccinated. Each student on entering the institution will be required to lodge £2 for necessary repairs to clothing, &c.: any portion of this money not expended will be refunded to him on his leaving the institution.

3. Extern Students.—Young men who board and lodge at their own expense in the neighbourhood are permitted to partake of the advantages of the institution on the following terms: (1) That while at the institution they shall be treated in every way like the resident class; (2) that they attend punctually, with the intern students, all the lectures delivered at the institution; (3) that they be amenable to the rules and regulations; (4) that each shall pay, in advance, a fee of £4 for the session.

4. National Teachers.—Teachers of national schools, especially of those with land attached, will be taken into residence for six weeks. At least three classes will receive instruction during the session, to enable those attending them to acquire a thorough knowledge of the information contained in the books on agriculture sanctioned by the Commissioners, and that they may become acquainted practically with approved systems of farm management and gardening. During the attendance of a teacher at one of these courses, salary and results fees will be allowed to him for the period, provided (*a*) his school is kept open by an assistant or other competent person, or (*b*) is closed by the manager for the ordinary summer vacation during such period. In the latter case the limit of vacation within the year would be extended by a fortnight.

The Dairy School.

The Commissioners of National Education have the co-operation of the Royal Dublin Society in carrying out some of the details of this department.

Dairy pupils (females only) are admitted to the institution for instruction in dairy management. In the institution they will at all times be under the supervision of an experienced matron. The course of training will embrace—(1.) Instruction in the principles of feeding cows, calves, pigs, and of the treatment of milk and its products, poultry and their management. (2.) The practice of dairy work. The making of butter and cheese in large and small dairies, with improved machinery and implements as well as by ordinary appliances. (3.) Instruction in plain cooking will be given on three days of each week, according to an approved programme, by a skilled teacher. Prizes for proficiency at the end of each course will be awarded upon a scale to be hereafter determined. The fee for the session of six weeks is £3. This fee covers the expense of board, lodging, washing, and medical attendance. As the pupils will take part in the work of the dairy they will be required to bring to the institution a serviceable dress, aprons, &c., which should be of plain washing material. In addition to their dress, &c., dairy pupils must bring four towels, a pair of slippers, hair brush and comb, tooth brush, and other necessary articles. Some respectable person must certify that the applicant is of good moral character. She must produce a medical certificate of health and freedom from any cutaneous disease. Each student who deserves it will receive a certificate, bearing testimony to general conduct and proficiency in studies. There will in future be two sessions of six weeks each in the year.

General Time-table for Agricultural Students.

At 6 o'clock, a.m. the students rise; from 6 to 6.30 a.m. they dress and say prayers; from 6.30 to 8 a.m., study, except a limited number, who in turn take part in the feeding, &c., of the live stock; from 8 to 9 a.m., lecture; from 9 to 9.30 a.m., breakfast; from 9.30 a.m. to 2 p.m. students take part in farm and garden operations; from 2 to 3 p.m., dinner and recreation; from 3 to 4 p.m., agricultural examination or lecture;* from 4 to 7.30 p.m., literary instruction; from 7.30 to 8 p.m., supper; from 8 to 9.30 p.m. all study except a few, who in turn attend to the stock; from 9.30 to 10.15 p.m. they say prayers and retire to dormitories; at 10.15 p.m. lights are extinguished in dormitories.

In order to render the practical training of the students as efficient as possible, they are at busy seasons of the year (such as spring and harvest) called upon to give more time to farm business than is set forth above.

Programme of Entrance Competitive Examination for Agricultural Pupils.

Reading.—Any passage selected in the Fifth Book of Lessons. Writing.—Candidates are expected to write a legible hand with facility. Spelling.—Tested by writing from dictation any passage selected from the Fifth Book of Lessons. Grammar.—Parsing sentences in Fourth Book of Lessons. Geography.—The general outlines of mathematical and local geography. Arithmetic.—Fractions, simple and compound proportion, practice, and interest. Book-keeping.—The Board's text book on the subject. Mathematics.—The First and Second Books of Euclid, and the mensuration of superficies. Agriculture.—The agricultural text books published and sanctioned by the Board.

Sessions.

National Teachers.—First session—May 1st, a six weeks' course. Second session—July 1st, a six weeks' course. Third session—September 1st, a six weeks' course.

Agricultural Students.—From 1st March to 31st October.

Female Dairy Students.—From 7th January to 20th February. From 6th November to 20th December.

By order of the Board,

Agricultural Department, Office of National Education, Marlborough Street, Dublin.

JOHN E. SHERIDAN, M. FITZGERALD, } Secretaries.

* Religious instruction is afforded during this hour on Tuesdays.

III. Prospectus of the Munster Model Agricultural and Dairy National School, Cork.

Office of National Education, Marlborough Street, Dublin, July, 1888.

This institution, which is within three miles of Cork, was established for the purpose of affording instruction in the science and practice of agriculture to the sons of farmers and others. A local committee co-operates with the Commissioners of National Education and their officers in watching over the interests of the school, in collecting local funds, and in applying these funds to objects which they think best calculated to promote agricultural education in Munster. There are two main departments of the institution: (1) The instruction and training of the sons of farmers and others in the best modes of developing the resources of the land; (2) the instruction of the daughters of farmers and of others in improved modes of dairy management. On the farm attached to the school, which comprises 126 acres, experiments are carried out on all matters of practical interest in agricultural work, such as the use of manures, cropping of land, feeding of cows, both summer and winter, rearing of calves, &c.

Agricultural School.

The arrangements for the training of farmers' sons embrace instruction in the science and practice of agriculture, with practical demonstration in the most approved means and appliances used in the cultivation and general management of land, and dairying in all its branches. Instruction is also imparted in the general branches of education, including farm accounts, land surveying, levelling and mapping, &c. Lectures are given—(1) in agriculture and in natural history, including the habits of parasites and insects which injure farm-crops, &c.; (2) in chemistry and geology in their application to agriculture, by a chemist; (3) in the structure and diseases of farm animals, by a veterinary surgeon. There is one session in each year for agricultural students, from the 20th August to the 20th December. The fee for the session is £7, payable in advance to the Commissioners. Non-resident or extern students are admitted on paying a fee of £2 for an entire session, or 10s. for each separate course of lectures as set forth above. At the end of each session the students are examined under the direction of the Commissioners of National Education, and prizes, presented by the Royal Agricultural Society of Ireland, are awarded to the most deserving according to the following scale, which is subject to revision by the local committee:—

Prizes calculated upon a Maximum of 23 Pupils, £1 per Pupil being allocated.	Agriculture, &c.	Chemistry and Geology.	Veterinary.	Farm Accounts, Land Surveying, &c.
	£ s.	£ s.	£ s.	£ s.
First prize	3 10	2 10	2 10	2 10
Second prize	2 10	1 10	1 10	1 10
Third prize	1 10	1 0	1 0	0 10
Fourth prize	1 0	...	...	...

A student whose conduct is satisfactory may enter for a second term.

Dairy Department.

The training of young women of the agricultural classes in dairy management includes—(1) Elementary instruction in the nature of food and the feeding of milch cows, and in the nature of milk and its products; (2) practical demonstrations in the most approved systems of dairy management; (3) such other subjects as the Commissioners and committee may determine. The making of butter is carried on with ordinary appliances as well as with the most approved, including practical instruction in the factory system, and use of the separator.

There are three sessions or terms, of two months each, in the year—viz., first session, commencing first Wednesday in January; second session, commencing third Wednesday in March; third session, commencing fourth Wednesday in May. The fee for each term is £3 3s., payable in advance. Non-resident or extern students are admitted at a fee of 15s. for the session. At the end of each term an examination is held under the direction of the Commissioners of National Education, and scholarships, and prizes presented by the Royal Dublin Society, are awarded to the most meritorious students.

Three scholarships are offered for competition at the end of each session, and will be awarded on total marks of over 75 per cent. gained for—first, proficiency, as tested by examination; second, butter making; third, general dairy business; fourth, best note-book. Other pupils who pass creditably in these subjects will be awarded such prizes as the examiners may recommend.

N.B.—A scholarship consists of a free place, value £3 3s., for one session, to be held within twelve months from date of examination. Any pupil remaining two sessions within twelve months, and passing the prescribed examination, will be awarded a diploma.

Poultry and Bees.

Instruction will also be given in the rearing and feeding of poultry and in bee-keeping.

Cookery and Sewing Classes.

Under the superintendence of the ladies' committee, classes are held during the dairy pupils' term for instruction in cookery and the economical management of food.

Attendance at these classes is not compulsory, and there is no extra fee. Prizes are awarded to all the pupils at the end of the term according to their proficiency. They consist of cooking

utensils to the value of—first class, 7s. 6d.; second class, 5s. These cooking utensils to be selected by the winner of the prize. These prizes are given by the ladies' committee, who also give special prizes for tidiness and needlework. Members of the ladies' committee visit the school regularly during the dairy pupils' term. The fees named above cover board, lodging, washing, and medical attendance. In every case of contagious disease or severe illness a student will be sent home, or to a hospital approved of by the medical attendant. Prospectus, forms of application, &c., can be had on application to the Secretaries, Education Office, Marlborough Street, Dublin; from the Superintendent, Munster Agricultural School, Cork; L. A. Beamish, Esq., J.P., Hon. Secretary to the Local Committee, Ashgrove, Queenstown, County Cork; or from W. B. Lacy, Secretary to the Committee, 15, South Mall, Cork.

Time-table.

Agricultural School.—At 6 a.m. pupils rise; from 6 to 6.30 a.m., dress and devotional exercises; from 6.30 to 8 a.m., study; from 8 to 8.30 a.m., breakfast; from 8.30 to 9.30 a.m., agricultural lecture; from 9.30 a.m. to 2 p.m., take part in the practical business of the farm; from 2 to 3 p.m., dinner and recreation; from 3 to 7 p.m., literary instruction every day, Saturday included; from 7 to 8 p.m., supper and free time; from 8 to 9 p.m., study; from 9 to 9.30 p.m., devotional exercises and retire to bed.

Dairy School.—At 6 a.m. pupils rise; from 6 to 6.30 a.m., dress and devotional exercises; from 6.30 to 7 a.m., take part in milking cows, &c.; from 7 to 7.30 a.m., in dairy; from 7.30 to 8 a.m., make up beds and house business; from 8 to 9 a.m., breakfast and free time; from 9 to 10 a.m., lecture, explanation, and examination; from 10 a.m. to 1 p.m., practical demonstrations in dairy, and general dairy business; from 1 to 2 p.m., dinner and free time; from 2 to 5.30 p.m., part in dairy, and part domestic business, alternately; from 5.30 to 6 p.m., take part in milking cows, &c.; from 6 to 6.30 p.m., dairy; from 6.30 to 7.30 p.m., supper and free time; from 7.30 to 8.30 p.m., reading on subject of lecture, or needlework; from 8.30 to 9 p.m., devotional exercises and retire to bed.

IV. LETTER from the SECRETARY, Office of National Education, Dublin, to the SECRETARY, Agent-General's Department.

SIR,— 2122–88c, Office of National Education, Dublin, 5th November, 1888.

In reply to your letter of the 23rd ultimo requesting that the Agent-General for New Zealand might be furnished for his Government with "the fullest and latest information obtainable from the Commissioners of National Education in Ireland as to their scheme of agricultural schools of various grades and instruction in agricultural knowledge," I am directed by the Commissioners to transmit the following statement, together with the papers referred to therein, which I trust will be found to contain all the information required.

1. The paper marked A gives succinctly an account of all work undertaken by the Agricultural Department. The copy of the Commissioners' Rules and Regulations sent herewith gives details of the different sections noted in paper marked A.

2. *Ordinary National Schools.*—For programme of instruction for classes see Rules, pages 58–63. For fees payable for agricultural instruction see page 30. The number of children examined in agriculture in these schools during year ended the 31st December, 1887, was 78,036, of whom 47,334 passed, being a percentage of 60·7.

3. *Agricultural Schools and School Gardens.*—List sent herewith, marked B. Referred to in Rules, pages 5 and 77–80. There are at present 54 schools having school farms and 29 schools with school gardens attached. The number of pupils examined in the practical part of agriculture, as taught on the school farms and gardens, was, in 1887, 863 in school farms, of whom 613 passed; 507 in school gardens, of whom 390 passed. The total number of pupils brought under agricultural instruction was, accordingly, 79,406, of whom 48,337 gained passes.

4. *The Albert National Agricultural Training Institution.*—Prospectus sent herewith, marked C. Referred to in Rules, pages 5 and 80–83. There are generally 35 to 50 pupils attending as agricultural students, 25 being free pupils who have obtained admission on competitive examination. The session is for eight months, 1st March to 31st October. About 50 teachers attend the special agricultural session for teachers. Each of the dairy sessions for females is attended by about 50 pupils.

5. *The Munster Agricultural and Dairy National School.*—Prospectus sent herewith, marked D. Referred to in Rules, pages 5 and 84–86. About 30 female pupils attend each of the sessions for dairy instruction at this school. From 6 to 10 young men attend the four months' agricultural session.

6. *Dairy Instruction to Pupils of National Schools.*—Referred to in Rules, page 70. There are three schools in which dairying is taught as an extra branch. Two of these have been recognised by the Commissioners since 1887. At the school in operation in 1887 there were examined in that year 42 girls, 41 of whom passed.

7. The cost of the agricultural establishments of the Commissioners of National Education in Ireland during 1887 was as follows:—

	£	s.	d.
Agricultural establishments—general superintendence and inspection	560	18	3
Albert Training Institution, model farms, and agricultural schools	7,401	16	7
	7,962	14	10
Amount received by the Commissioners on sales of farm produce at their model farms (for this amount credit is taken in preparing the annual estimates as a set-off against the expenditure)	4,374	16	0
Net cost of agricultural establishment, 1887	**£3,587**	**18**	**10**

The amount paid in fees to teachers of ordinary national schools for instruction in agriculture in 1887 was £11,027 18s.

8. The receipts for sales of farm produce, &c., at each of the model farms under the management of the Board, and the expenditure thereon, in 1887 were as follows:—

Name of Farm.	Receipts from Pupils, Fees, and for Sale of Farm Produce.	Expenditure on Farms and Training Students.		
		Working Expenses of Farm, Live Stock, &c.	Maintenance of Agricultural Students and Salaries of Agriculturists, &c.	Total Cost of Farms and Training Institutions.
	£ s. d.	£ s. d.	£ s. d.	£ s. d.
Albert Farm	3,155 0 6	2,652 6 8	2,460 12 10	5,112 19 6
Munster	1,219 16 0	1,218 18 2	697 9 4	1,916 7 6
	4,374 16 6	3,871 4 10	3,158 2 2	7,029 7 0
Deduct farm expenses ...	3,871 4 10	Deduct farm receipts ...		4,374 16 6
Excess of farm receipts ...	503 11 8	Net cost of farms and institutions		2,654 10 6

9. *Report on the Agricultural Department for the year 1887, furnished to the Commissioners of National Education by their Agricultural Superintendent, Mr. Thomas Carroll.*—A copy of this report is sent herewith.

I have, &c.,
JOHN E. SHERIDAN,
Secretary.

The Secretary, Department of the Agent-General for New Zealand.

V. REPORT ON THE AGRICULTURAL DEPARTMENT FOR 1887, BY MR. THOMAS CARROLL.

GENTLEMEN,—

I beg to submit my annual report on the Agricultural Department of National Education for the year 1887. I may state that the general system of agricultural education under the Commissioners has not undergone change during the year.

At the present time there is considerable discussion in the United Kingdom as to the needs of agriculture. Of the many propositions in respect of such requirements, agricultural education has been set down as one of the most important. In Ireland records of the work of the Commissioners of National Education show that agricultural instruction has from an early period received much attention. The fruits of their efforts in this direction have received considerable criticism. Critics appear to ignore altogether what would have been the condition of the country if it had not had a system of agricultural education. What has been done in the matter of agricultural instruction in this country was carried out under difficulties of no ordinary character. The initiation and direction of the department was a work of great difficulty, including the providing of teachers and the other means of instruction from defective resources. Prejudices on the part of the agricultural interest existed which had to be overcome, and the principles of applied science in relation to farming had to be vindicated.

Fifty years ago the agriculture of Ireland generally was in a wretched condition. The cultivation of green or root crops was mainly limited to the growth of the potato. The operations of the farm were conducted in the rudest manner. Farm animals were badly housed, and a rational system for their treatment was hardly known. The condition at present, although far from being satisfactory, shows what great progress has been effected in the interval.

The Commissioners, in a letter to the then Lord-Lieutenant of Ireland, dated the 12th October, 1837, remark: "Considering the very backward state of agriculture in Ireland, and that it forms the only source of employment for a vast portion of the labouring poor, we think it particularly desirable that a better knowledge of it should be promoted, and that the schools under us should tend as far as practicable to bring forward an intelligent class of farm labourers and servants." In 1838 the Commissioners report that they have provided a normal establishment for training teachers in which practical and theoretical instruction in agriculture will be given. The work of agricultural education since that time has undergone important changes, but its objects have been throughout the same—viz., (1) to qualify teachers to give instruction in agriculture in national schools; (2) to give, as far as possible, to the sons of farmers a sound education in the theory and practice of agriculture.

If a necessity existed fifty years ago for the teaching of agriculture in Ireland, a necessity of equal gravity exists at the present time. In former times England was far ahead of any other European country in an enlightened system of agriculture. England set an example of good practical work in rural economy for other countries, and now we find other countries "bettering the instruction." France, Germany, Belgium, Denmark, and even Sweden, are making rapid strides in agricultural education. Not alone is this practical art improved in those countries, but the knowledge of the scientific principles upon which it is based is making much progress. This increasing knowledge of agricultural theory and practice correspondingly augments the food production of Europe. Any person acquainted, even slightly, with continental agriculture must see

that the introduction of the teaching of natural science to the rural population must do much for the future agricultural prosperity of the country where such teaching becomes general. I need particularise only what has been done by science for sugar-beet cultivation. A diffusion of some knowledge of the principles of vegetable life, with investigations dictated by chemical science, has added materially to the yield of sugar in the crop, and so has largely increased the incomes of German and Belgian farmers. In the United Kingdom we still find a lamentable disregard of science in its application to agriculture, on the part of practical farmers generally; and there are evidences that the day is not far distant when such apathy, if continued, will entail serious consequences in regard to this great industry. Ireland at the present time especially needs a thorough knowledge of agricultural science and of its application to improved systems of farming. Agriculture is our prime industry, and therefore agricultural education demands most careful attention in the national schools generally. It is gratifying to be able to report that much valuable work is done by the Commissioners in this department of national education. The Science and Art Department, the Royal Dublin Society, and some agricultural societies throughout the country are also working in this direction. It will not be disputed that the Commissioners of National Education have exercised a wise discretion in accepting co-operation from other societies in the working of their agricultural department.

It is now seven years since the Commissioners received the co-operation of a local committee, principally from the County Cork Agricultural Society, in working the Munster Agricultural and Dairy School. The relations of the Commissioners and the local committee have been always most cordial; several valuable suggestions of the committee have been favourably entertained by the Commissioners, and the school at present stands in the front rank of such educational establishments. Visitors from other countries interested in agricultural progress have expressed their desire for the establishment of similar schools. The Royal Dublin Society and the Royal Agricultural Society of Ireland have shown practical appreciation of agricultural education by establishing examinations for diplomas, and subscribing money towards scholarships and prizes at the existing schools under the Commissioners. There is reason for thinking that this action of the Agricultural Society will be continued.

The constitution of the Agricultural Department and its operation during the year may be briefly stated as follows:—

The Albert Institution.

The numbers attending each of the several classes of this establishment during the year are shown under their respective headings.

1. *The male Queen's scholars in training for teacherships of primary national schools*, at the Marlborough Training College, and at the Church of Ireland Training College, Kildare Place, received regular instruction in agriculture. These young men attend at the Albert Farm twice in each week during their course of training, for instruction in the practical part of agriculture. Since the Commissioners established the rule for the compulsory teaching of agriculture from text books in all rural schools for boys, the students of the training colleges are more earnest in their study of agriculture. The opportunity afforded them under skilled agriculturists of becoming acquainted with the actual work of the farms and gardens is of great service by enabling them more fully to understand the lessons of the text books which they study, and those especially which they are to teach to their future pupils.

Of the teachers in training at the Marlborough Training College and Church of Ireland Training College who attend at the farm on two days in each week during training, for the purpose of receiving instruction in practical farming and gardening, there were in 1887 — students from Marlborough Training College, 96; students of Church of Ireland Training College, 23.

2. *Young men of the farming classes who were admitted to residence for a session of eight months*, some of whom obtained free scholarships in competitive examination. The session for those students was attended by 38 pupils. The instruction afforded to this class is of a high order, comprising lectures in the schoolroom from eminent professors in natural science and mechanics, with special application to farm practice, land surveying and levelling, lectures on agricultural and horticultural practice. Those students are employed for a part of each day working on the farms and gardens under the agriculturist, in the practical application of the principles upon which they have been instructed. Indeed, any pupil desirous of obtaining a good knowledge of farming, scientific and practical, has full opportunity for doing so at the Albert Institution. The lecturers on the sciences immediately connected with agriculture—viz., chemistry and geology, botany, natural history, and veterinary science—are most painstaking in their efforts for the pupils, who take notes of the lectures; whilst the example of approved methods of cultivation, and the care and management of the animals on the farms, give ample opportunities for becoming practically acquainted with sound farming.

At the (male) agricultural students' session, from 1st March to 31st October, 1887, there were —paying pupils, 12; free pupils (on competitive examination), 25; extern pupils, 1.

3. *Session for Dairy Pupils.*—This class has been well attended by young women from the farming districts. A large number of the pupils are the daughters of farmers, who, on returning to their homes, practise the lessons taught them in the dairy school. Some of the pupils desire to qualify for taking situations as dairymaids. The class of pupils which are most desirable for this school are farmers' daughters, who in their several districts would be serviceable in circulating knowledge of improved dairy practice.

The dairy sessions and numbers attending were: Dairy pupils (females), 7th January to 20th February (first session), 23; 6th November to 20th December (second session), 18: total, 41.

4. *Special Course for Teachers in Charge of National Schools.*—National teachers are admitted to a short course of six weeks' duration, to enable them to acquire some practical knowledge of agriculture and horticulture, so as to increase their interest in the subject as treated in the text

books on agriculture used in their schools, and give them a more intelligent grasp thereof. There were three sessions in the year, arranged for periods best suited to the convenience of the schools. The teachers were boarded at the establishment, and their travelling expenses were paid by the Commissioners. The numbers attending were: First session, 6; second session, 4; third session, 20. There can be no room for doubt as to the benefits to be derived by teachers from attendance at these special agricultural sessions. The course of instruction is made practical in its character. The working of the farms, cultivation of crops, and stock management are fully explained, whilst plain gardening, vegetable cultivation, and the propagation and growth of flowers are illustrated. The management of the dairy, poultry, and bees is also prominently dealt with. In fine, every effort is made to bring before the teachers such instruction in agricultural economy as, if properly availed of, should be most useful in providing a class of practical instructors for the country.

Handicraft Teaching.—During the year 1888 it has been arranged by the Commissioners to have in operation at Glasnevin an efficient system of useful workshop practice suited to the class of young men who come here as students. I expect this will be a very serviceable branch of instruction at the institution. During late years there has been considerable discussion as to the teaching of what is now known as handicraft. It appears to me that considerable misapprehension exists in the minds of the public as to the nature and effects of such teaching. In an agricultural country, where the labour of the hands is a necessity, the more expert and dexterous labourer is always the more valuable. Everything, then, that tends to promote deftness or handiness should be encouraged. It has been objected against the teaching of handicraft that skilled artisans only should be encouraged, and that a man who has not "served his time" to artisanship—the mere "handy man"—can never be a good workman. But, whilst the teaching of handicraft does not aim at making artisans, it aims at promoting that manual dexterity which is the necessary preliminary condition of becoming skilled workers. In this country at the present time the necessity for industrial training of the people is evident to every observer.

The Irish people when trained as artisans are equal to those of other countries; but lack of opportunity of acquiring handiness at home has retarded their progress in those industries that require skill, and has contributed to bring upon them the reproach of slovenliness and unthrift in the eyes of visitors. Familiarity with the use of tools begets constructiveness, which in its turn promotes industrious habits. A boy who has access to carpenters' tools will acquire a desire to use them. When he finds he can make something useful he will set about it. Each stroke of the hammer or cut with the chisel is followed by increased handiness, and with the attainment of skill there grows a pleasure in work, so that in time the handy youth develops into the intelligent workman. The teaching of handicraft can never take the place of apprenticeship. It will, however, shorten the period necessary for apprenticeship, and it will provide opportunity much needed for creating a taste for industry on the part of our young people.

The introduction of the teaching of workshop practice at Glasnevin is intended to be of a character suited to the agricultural classes. It will be in the direction of teaching the principles of construction as applied to the machinery and implements of the farm, the buildings of the farm, and horse-shoeing. Workshops have been provided in which the pupils will have practice under the teaching of a skilled carpenter and skilled blacksmith. They will each week have opportunities for working in wood and iron, shoeing of horses, and repairs to farm implements. Every effort will be made to give them the opportunity of acquiring such knowledge of the artisans' work required on a farm or an estate as will make them useful to themselves or others.

The Farm.

It may be well to describe here the farm of the Albert Agricultural Institution, and the work carried on in its different departments. The lands attached amount to 178 acres 3 roods 24 perches statute, at a total rental of £723, being at the rate of £4 0s. 9¾d. per acre. They are divided into—

1. *A large farm of about a hundred and forty acres,* which is managed upon such a system as will exhibit to the pupils methods which may be properly applied to extensive farming in the country. The grain crops grown are wheat, oats, and barley. A rotation of cropping is followed suitable to the soil, and for the production of crops and other produce to suit the markets of Dublin.

In 1887 the cropping was as follows: 8¼ acres wheat, yield per statute acre 240 stones; 12 acres oats, 210 stones per acre; 8¼ acres barley, 240 stones per acre; 8¼ acres potatoes, 7 tons per acre; 4 acres turnips, 26 tons per acre; 13¾ acres mangels, 27 tons per acre; 2 acres cabbages, 20 tons per acre; 16¼ acres Italian and perennial rye grass, one year; 63 acres permanent pasture.

The stock kept upon this farm usually consists of dairy cows, a few young cattle, sheep, and pigs. The average stock kept during the year was—horses, 4; milch cows, 31; heifers, one and two years old, 4; sheep, 43; pigs, 32; poultry, 100. The valuation of stock, crops, and implements at commencement of financial year was £2,175 8s. 3d. The rent of the farm is £555 13s. 10d.

From the proximity of the farm to Dublin the production of milk for sale in the city is a main feature in the management. The cows when unprofitable for the dairy are fattened and sold. A few calves are reared for the instruction of the pupils, but the cows are mainly replaced by purchases at country fairs. The wheat and barley grown on this farm are of high-class quality, the produce always realising full market prices. The oat crop is consumed by the stock on the farm. Potatoes of excellent quality are grown for sale. All the other crops are consumed on the farm. A flock of ewes of the improved Leicester breed is kept, and crossed with a Shropshire or Hampshire Down ram. The lambs are all sold fat. The ewes are fattened and sold as soon as possible after weaning time. A stock of pigs of the large York breed is on the farm. The produce is

sold principally for breeding purposes, and as this practice has been carried on for many years the Albert Farm may be credited with a considerable share of the improvement which has taken place in the pigs of Ireland. Fresh blood is imported regularly from the best herds of English pigs.

2. *The farm of twenty-three acres* is managed with a view of illustrating a system of farm management for medium-sized holdings, of which the great proportion of the land of Ireland consists. One horse, ten to twelve cows, and a brood sow are kept upon this farm during the year. The cropping consists of oats, mangels, turnips, potatoes, grass in rotation, and about five acres of permanent pasture. On this farm the produce of the oats and potato crop is sold. Linseed and cotton cake are purchased for the feeding of the cows, and a small quantity of artificial manure is used in the green crop cultivation and for dressing the Italian rye-grass. The cows are partially house-fed, are kept in good condition, and when they are not profitable in the dairy they are sold fat.

3. *The Spade-labour Farm.*—This farm of five and a half acres is managed as an example for small farmers. Everything connected with it is of an inexpensive character, and the labour is, as far as possible, done by hand. Three and sometimes four cows, entirely house-fed, are kept on the produce of this farm; a small quantity of bran and oil-cake is purchased. The milk of the cows is sold in the city. No calves are reared. A sow is kept, the young pigs from which are sold when they are weaned. The history of this little farm is interesting. In 1860 it was an almost valueless piece of ground, growing only a miserable herbage. The course of farming which was then established has been continued. Each year the farm has given a handsome profit, whilst the yield of crops has increased to quite double what it was at the commencement. This is due altogether to the efficient tillage given by the manual labour, and through the increased fertility brought about by the use of the valuable manure resulting from the consumption of purchased food by the animals of the farm. The large profit of £30 to £60 realised on this farm annually may be accounted for through its proximity to Dublin, but this should not be considered a fair criterion of what average farms of similar size should produce throughout the country. This farm is exceptionally circumstanced in respect of markets, being within easy distance of Dublin. It is farmed with a view of raising such produce as will find a ready sale in this market. A similar system of farming could not be recommended for all districts and all circumstances of the country; but the principles which guide the system of farming here might be applied generally to farms of similar size. Thorough and clean cultivation of land, careful and liberal management of the farm, a constant watchfulness over small details, work done in season, and production to suit the markets, are the factors in success under all circumstances, and, as at the small spade-labour farm at Glasnevin, they will insure the overcoming of disadvantages in other districts.

4. *The Botanical and Experimental Grounds.*—About three acres of the farm are laid out for these purposes. A portion is managed to show types of plants and their botanical classification. A small nursery for the propagation of fruit trees, forest trees, and ornamental shrubs is also here. Plants new to agriculture are tried, and specimens of plants grown for economic purposes are cultivated. Within the past few years specimen forest trees have been planted on the farm, and each year a small plantation is made for the purpose of illustrating the principles and practice of tree planting. Experiments are made on the use of manures in the growth of grass and farm crops. The influence of a variety of foods consumed by cattle and sheep when the manure is applied to cropping is tested. A simple set of meteorological instruments is on the experiment ground, and a record of weather is regularly kept and supplied for publication to one of the agricultural papers in Dublin.

5. *The gardens at the Albert Institution* comprise about three acres. There is a large vegetable garden, with fruit garden and flower grounds, also a small vinery, peach house, and conservatory. The pupils are required to take part in the work of the gardens. They receive instruction in the various operations, including vegetable, fruit, and flower growing, and the propagation, grafting, budding, and pruning of fruit trees. Bees are kept, and the pupils receive instruction in their management.

The Munster Agricultural and Dairy National School.

Dairy Department.—The progress noted at this school has been continued through the year. The local committee and committee of ladies have given considerable attention. I have at the end of each session of instruction held examinations at the school, which have invariably shown satisfactory results. The Chief Inspector of the Cork Butter Exchange has given valuable assistance in helping the pupils by instructing in judging, and supplying samples of butter for experimental purposes. The Superintendent and Matron have performed their duties faithfully and well. The Royal Dublin Society, Royal Agricultural Society, and committee of the Cork Butter Market have continued their subscriptions. The farm has yielded fairly well, and I believe for the work accomplished the expenses have been extremely moderate. A sum of £2,000 has been voted by Parliament during the year as a special grant to the local committee. This sum is invested in trust waiting an opportunity for its profitable expenditure either by increasing the size of the present farm, providing for scholarships at the school, or such other useful work as may be devised.

The attendances at this school during the year 1887 were as follows: Dairy pupils' (females) sessions, two months each: First session, 31; second session, 30; third session, 22: total, 83. Male agricultural students' session, 20th August to 20th December, 9.

It will be perceived from the length of time given to the pupils of the dairy school that instruction in dairying was the main feature of the education here. Situated in the centre of a great dairying district the dairy industry had the largest claim for consideration. It was therefore decided to encourage as much as possible the teaching of this subject; and, although the school in its early years—1880 to 1883—had much discouragement from paucity of pupils and other causes, its success became assured as soon as dairy farmers discovered that those who had been trained at the

school were coming to the front in the quality of butter made by them. During late years the attendance of dairy pupils has been quite satisfactory, whilst the benefits to the district through the working of the school have been conspicuous.

The returns of the Cork Butter Market, which is the largest in Europe, show that there has been since the establishment of the dairy school at Cork a large increase in the number of packages of the higher qualities of butter sent to market, whilst there has been a considerable decrease in the number of packages of inferior quality. The chief inspectors of the market, who are charged with the grading of the butter, have frequently stated that this improvement is due to the working of the dairy school.

Agricultural Boarders.—The agricultural session for male pupils has not been so well attended. The cause for this may be mainly sought for in agricultural depression and the unsettled condition of agrarian matters. Notwithstanding the fewness of the agricultural pupils the Commissioners and the local committee have not relaxed their efforts to make the teaching of the school as effective as possible. An efficient staff of science lecturers is provided by the local committee, the school is fully equipped, and it is hoped with improved times the number of youths seeking instruction in this institution will reach its due level. Many of the students trained therein have obtained free scholarships, value £15 each, at the Glasnevin establishment in competitive examination.

School Farms and School Gardens under Local Management.

There were at the close of the year fifty-five school farms and twenty-nine school gardens. There is some improvement evident in several of the agricultural school farms, but I should like to see further progress. The teachers of these schools labour under serious disadvantages in connection with the Agricultural Department. In the first place many of the older teachers of them have not had opportunities of seeing an example of what a really well-kept small farm and garden should be. The surroundings of the school farm are, to say the least, not suggestive of improvement or tasteful management, so that the eye is accustomed to disorder. Next, the teacher cannot procure skilled or satisfactory labour without considerable expense. Since my appointment as Superintendent of the Agricultural Department I have been reluctantly obliged to recommend that a large number of school farms be struck off the list. I have endeavoured by counsel and otherwise to encourage improvement in the remainder.

There has been a fair response in many, but a few are still unsatisfactory. I believe very considerable good might be effected by a proper development of these agricultural schools, and I earnestly hope to see an extension of the system. Arrangements have been made with seedsmen in the City of Dublin for supplying farm and garden seeds at reduced rates to teachers of agricultural schools and school gardens. I believe this has been serviceable in the districts where the schools are situated in proving the advisability of sowing seeds of good quality. An enormous amount of inferior seed is sold to farmers in backward districts. The loss occasioned thereby is considerable. In some instances teachers of agricultural schools have sold at a good price in their neighbourhood grain for seed grown from imported corn. The farmers are in this way instructed in the value of the system of changing seed.

The school-farm and school-garden system has important considerations in connection with rural progress in this country—amongst others, the cultivating a taste for order and neatness in farm and garden management, as well as bringing before the notice of farmers in backward districts improved varieties of farm and garden crops.

The examination of pupils in practical agriculture in the schools to which farms are attached has given me satisfaction. The percentage of "passes" in those schools at my examination is lower in 1887 than in 1886; but it is right that I should remark, I have adopted a higher standard of examination, as well as a more critical testing of the genuineness of the instruction given. The examination of children in schools having school gardens attached is conducted by the District Inspectors.

The following statement of results may be considered satisfactory:—Pupils examined by me on farms attached to agricultural schools under local management, in programme comprising knowledge of the practical work carried out on those farms and gardens: 1887—Pupils examined, 863; of whom passed 613, being 71·0 per cent. 1886—Pupils examined, 837; of whom passed 665, being 79·4 per cent. Pupils examined by District Inspector on their knowledge of the crops in cultivation in school gardens: 1887—Pupils examined 507, of whom passed 390, being 76·9 per cent. 1886—Pupils examined, 507; of whom passed 362, being 71·4 per cent.

I beg to submit a few observations of a more general character in reference to agricultural progress. The wave of general depression in the agricultural interests, now so universally felt, has not been without its influence in affecting profits on the farms of the Commissioners, as well as in causing a reduction in the numbers of agricultural male pupils in attendance at the Glasnevin Agricultural School, and in preventing a satisfactory development of this department of the Munster Agricultural School. Whilst the number of applications for nominations for free places increase, the number of paying pupils at the farm shows a decrease. The full number (twenty-five) of free pupils has been kept up. The number of paying students at the Glasnevin establishment during the eight months' session ending 31st October was thirteen. During the corresponding session of 1886 the attendance was eighteen, and for 1885 it was twenty-four. I have every reason for considering that this diminution is due mainly to the fact that farmers of what used to be considered the well-to-do classes are crippled in their resources, and, from uncertainty as to the future of agriculture, they are more careful in the expenditure of funds. In many instances I have had applications from farmers for a reduction in the premium for their sons, or for an allowance of time for the payment by instalments of the full amount. I do not believe that there is any increased apathy on the part of the people in respect of obtaining an agricultural education. I have had some cases where young men have written most touching appeals for admission to the Glasnevin establishment on reduced terms when they failed to obtain admission by competitive

examination, and there are several instances where considerable sacrifices have been made by young men and their friends for the purpose of securing a place here. The Irish people have in the past been noted for their desire for knowledge; in the present they are equally anxious to obtain useful information, and I have no doubt that with returning prosperity we shall in the future see even a greater anxiety to avail of such education as may be deemed advantageous to the interests of the country. In corroboration of these opinions I need only direct attention to the eagerness with which pupils came to the dairy schools established by the Commissioners as soon as their practical usefulness had been demonstrated. The necessity for the application of enlightened systems of agriculture has become more strikingly apparent in recent years. Not alone on extensive farms is change necessary; improved systems must, even on the smallest farms, take the place of the haphazard systems of former years. I do not, however, mean to convey that, in order to encourage improved systems, an attempt should be made to prepare youths intended for the business of farming by giving them such an education as should properly be afforded to youths intended for the learned professions.

There can be no room for doubt that very considerable advantage would accrue to this country if the elementary principles of natural science, for which the Commissioners provide results fees, were more generally introduced into our rural schools. Agriculture would in time be benefited from such teaching, and sanitation and domestic economy would improve. The principles of agriculture and the sciences which should control its practice are applicable both at home and abroad, and if we ignore principles, set science aside, and endeavour merely to teach practice, we cannot hope to teach what will be of permanent value in the varying circumstances of soils, climates, &c.

Since the commencement of the Dairy School at Glasnevin, in 1884, the sessions have been attended by 160 pupils, but, as some of these attended two sessions, the actual number of individual pupils who passed through is reduced to 155. The good work done by this school is now generally recognised, and I have no doubt the sessions in the future will be well attended.

The dairy industry of this country is now a matter of vast importance. There are in Ireland about 1,400,000 milch cows, which are principally employed in the production of butter and the rearing of young cattle. The production of butter from these cows with our imperfect systems of management cannot be much more than 140,000,000lb. per annum. This production might be largely increased if more knowledge and skill were brought to bear in the selection and breeding of cattle, and in their proper and economical feeding. In consequence of want of knowledge and skill in the management of the dairy, and owing to foreign competition, during late years prices have been very low. We may safely assume that the value of the butter made in Ireland in recent years has not exceeded £5,250,000. With care in the management of butter this sum might be enormously increased. Improvement to the extent of increasing the value of the above annual yield of butter by 1d. per pound would amount to nearly £590,000 per annum. I feel confident we might increase the value of the butter made in Ireland by quite 3d. per pound, thus increasing the annual income of the agricultural classes of Ireland by about one and three-quarter millions sterling. This improvement is quite possible, and education in the dairy is the first step towards its realisation. One of the first difficulties to be overcome in improving our system of dairy management is to persuade our people that dairy education does not mean increased expense in the future, and that for districts where small farms are general expensive appliances are not necessary. A woman who has had good instruction in dairy matters will soon perceive that results from inexpensive systems may be quite equal to those of extravagant management, and that the best results are obtained by the application of knowledge to small details. Recent investigations have almost revolutionised dairy practice, and each year appears to bring the fact more prominently forward that knowledge of intelligent systems will not alone improve the direct results in dairy practice, but will also lessen expense in management.

At the Glasnevin Institution means exist for the teaching of dairying suitable to a variety of circumstances. The accompanying plan will show the arrangement of the different dairies at Glasnevin. There are three apartments—first, a small dairy in which all the utensils are of a simple character, and in number sufficient for a dairy of five to ten cows; second, a dairy fitted with utensils and implements suited to a dairy where twenty to forty cows are kept; and, third, an apartment fitted up with all the apparatus and appliances necessary for a factory or most extensive dairy. There are two separators worked by a steam-engine, large churn, cheese-making apparatus, ice stores, the Schwartz system of deep setting, &c. In addition, an apartment is utilised as a dairy museum, in which a number of implements are exhibited, in order that the pupils may become acquainted as much as possible with all the instruments used in the various dairy practices necessary for diverse circumstances. It is not too much to say of our dairies and their fittings that, as an educational system, it is quite equal, if not superior, to anything of the kind in Europe.

Should it be urged that this extensive means of dairy education is not suited to the requirements of the country, I may state that the system of training is as practical as it can be made. The dairy pupils are practised in the use of all the machinery which we have in our dairies, whilst at the same time they are instructed in the use of the simplest implements. Indeed, the largest part of the time of the pupils is expended in butter-making by simple instruments. They are taught that the principles of the business are the same whether the system is on an extensive scale or the opposite. The object of the education in our dairy school may be shortly described as being an endeavour to train the mind as well as the hand of the pupil. As already stated, the Royal Dublin Society has continued its aid towards dairy education by liberal contributions for prizes to the pupils at the end of each session. The great railway companies, by conveying pupils free over their lines of railway, have assisted very materially those attending the dairy school.

One of the hindrances to progress in dairying in this country is that those who adopt improved methods, or apply the knowledge which they have acquired in schools, do not gain the proportionate advantage which would accrue if a universal improvement were to take place. The effect

which improvement in one or two dairies has upon a market is extremely slight compared with what would be the case if the measure of improvement had reached the whole district. I fear our people have not yet realised the absolute necessity which exists for extended improvement in all farm practice, so that the largest benefit might accrue to the individual. It may be regarded as an axiom that where the produce is excellent there will the buyers go, and that purchasers always select the market where the supplies are of best quality and largest in quantity. The necessity, then, for an extension of dairy education is apparent, and how this extension should take place is a matter for serious consideration. The schools of Glasnevin and Cork are doing good work. In addition to these something is required which will bring closer to the people facilities for acquiring information as to the most improved methods of dairying. The recognition by the Commissioners of schools where facilities exist for the teaching of dairying, and the payment of results fees for such teaching, is a movement in this direction. During the past year two schools have been recognised where dairying may be taught as an "extra branch;" and at one of them, the Navan Convent School, forty-three children were presented for examination in dairying. Of these, forty-two passed the examination, being 97·7 per cent. At the other, the Ballaghadereen Convent School, the children have not yet been examined. The managers of this school have taken up the subject very warmly, and provided efficient means for instruction. I have no doubt that much good will result to this poor locality, in which a very large quantity of inferior butter is now made. I desire earnestly to see a large extension of means for instruction in this important industry, and I trust that the country will duly appreciate and utilise the provisions of our national system of education in promoting and extending this most useful branch of technical instruction.

At the present time there is a great change in the requirements of the meat-markets as compared with former years. An entirely different class of animal is now required. Whilst formerly large animals of all kinds, carrying an enormous quantity of fat, were found to be the most profitable, the demand of recent years is for animals having a larger proportion of lean meat. In years past butchers could sell the offal fat at a high price; now, in consequence of the discovery and extensive use of mineral oil for lighting purposes and the general use of vegetable fats for many manufactures, the price of animal offal fat is very materially reduced. The price of large fat animals of all kinds is thereby much depreciated, so that it would appear the time has come when it is advisable to develop a race of animals suited to the exigencies of the meat-market. Again, there is great room for improvement in the breeds of our dairy cattle. Of all European countries Ireland has paid least attention to cultivating native breeds, so that we have a very mixed lot of cattle in Ireland. Ireland will always take a prominent part in dairy produce. Improvement in her dairy herds is peculiarly desirable. The farms of the Commissioners might be made very useful in maintaining the best breed of animals. (This matter will form the subject of a recommendation by me in the coming year.)

In conclusion, I may be permitted to express a hope that in the coming year we may find a fuller development of our system of agricultural education. The prospect is undoubtedly brightening, and there are elements in operation that should insure success. These may be shortly stated to be: (1.) The apparent desire on the part of the agricultural population to take advantage of what they consider will be serviceable to them in the theory and practice of agriculture. (2.) The co-operation afforded by national and local agricultural societies. The system of primary education, embracing as it now does in all rural schools for boys instruction in the principles of agriculture, will certainly animate in the young generation a growing desire for progress in the great national industry.

I have, &c.,

THOS. CARROLL.

[*Approximate Cost of Paper.*—Preparation, nil; printing (1,450 copies), £9 1s.]

By Authority: GEORGE DIDSBURY, Government Printer, Wellington.—1889.