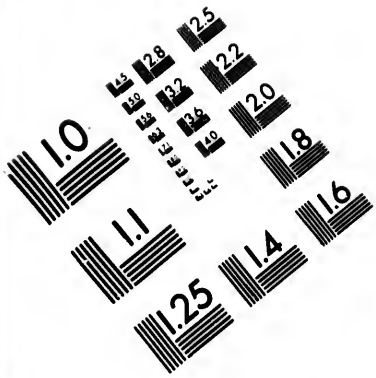

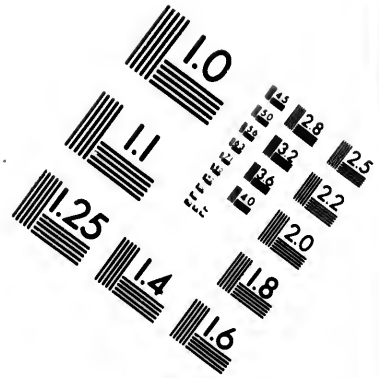

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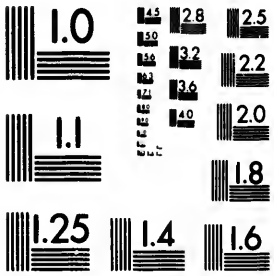

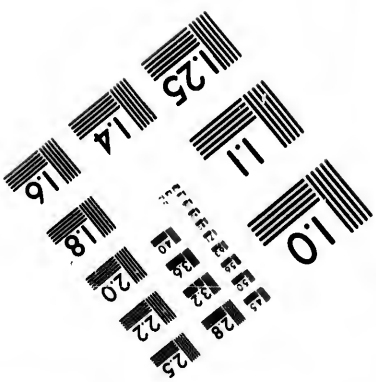

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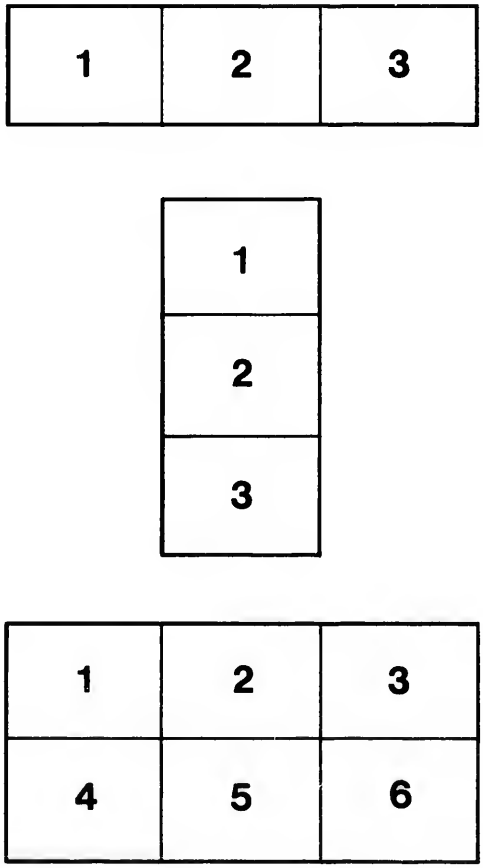

With the Author's Compliments

AGRICULTURAL EDUCATION:

A LECTURE,

DELIVERED

Before the Young Men's Christian Association, Charlottetown, P. E. Island, on Thursday Evening, January 17th, 1884,

BY

HON. DONALD FERGUSON,

PROVINCIAL SECRETARY, &c., &c.

CHARLOTTETOWN:
J. W. MITCHELL, PRINTER, EXAMINER OFFICE,
1884.

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PREFACE.

THE favor which his unpretending lecture on "Agricultural Education" has received, has induced the author to present it to the public in its present shape. His inability, arising from the urgency of his public duties, to comply with invitations to deliver the lecture in different parts of the Province, has also influenced him in publishing it in pamphlet form.

While he duly appreciates the complimentary notices of the Press, and the honor conferred on him by the unsolicited publication of his lecture in some of the Provincial papers, yet, it would seem, that in one or two particulars he has not been clearly understood. His aim is not to pull down the Prince of Wales College, nor to supersede elementary education in our common or graded schools, by agricultural studies. In these respects the language of the lecture is, he thinks, sufficiently explicit. The Prince of Wales College would, in his opinion, be more useful to Prince Edward

Island if a larger place were given within it to the sciences related to agriculture. But in taking this ground nothing could be further from his thoughts than to cast any reflection on the professors of that institution. In our common schools instruction in the elements of agriculture could only be imparted to the pnpils in the advanced grades — not to supersede, as has been unfairly stated, the three R's—reading, writing and arithmetic; but the smattering of Latin, at present taught in these schools.

If these pages shall, in any way, promote the practical education of the class to which he belongs, the author will feel himself amply rewarded for his trouble.

Tulloch, Lot 34, February 5, 1884.

A LECTURE

ON

AGRICULTURAL EDUCATION.

BY HON. DONALD FERGUSON.

THE cultivation of the land has always been regarded as a highly honorable employment. It gives health to the body, energy to the mind, and is favorable to purity of moral character. Painting and poetry have drawn more than one half of their inspiration from the charms of pastoral life. From observing the fall of an apple, Sir Isaac Newton discovered the great law of gravitation; and to the wise men of the east, the shepherds of Chaldea, watching their flocks by night, the star appeared which heralded the world's salvation. Rural populations have always proved the stoutest and truest defenders of free institutions. Liberty, crushed out of existence in the seats of learning and the marts of commerce has lived on in the distant valley and mountain fastness. The Tells and Wallaces and Hampdens of history acquired their love of liberty from their country life, and Cincinnatus and Washington received, in the seclusion of farm employments, that moral and mental training which fitted them to assume the direction of the most momentous movements among men.

The practice of farming dates back to the creation of the world. After the sea had been divided from the dry land, the greater light placed in the firmament to rule the day, the lesser lights to rule the night, and the brute creation called into existence, the Almighty looked upon the face of all His works and observed a great want. "There was not a man to till the ground," and so Adam was created. We are told that Abel was a keeper of flocks, and Cain was a tiller of the ground, and onward through all the ages the earth has been laid under tribute for the supply of food for the human race. Of the earth, earthy, coming from dust as well as to dust returning, the body of every animal derives its elementary composition from the soil. Science, in this respect, simply corroborates the teachings of revelation, finding in the land, although in different combinations, the same constituents which form the bodies of animals. Hence it follows that animals and their products are just as surely and invariably drawn from the soil as roots and cereals.

While agriculture is the oldest and most honorable of all the arts, while it feeds the teeming millions of the human family, it has been the last of all the industries to receive that recognition and assistance from science which have, within the last two or three centuries, given a new impulse to the employments of men. And yet there is no department of human industry wherein scientific investigation is more urgently required. The farmer finds himself every day of his life surrounded by agencies of whose properties he has no accurate knowledge. He looks at his soil, but he can gather little more from an examination of it than an illiterate man can glean from the pages of a book. He looks at his grain and roots and fattened cattle, but although he may have a well defined idea that in their pro-

duction he has withdrawn valuable substances from his soil, yet he does not know what these substances are, nor how to replace them in the most economical manner. He looks at the plants which deck his pastures, but he knows little of their relative value, either in ameliorating his land, or feeding his stock.

"A primrose by the river's brim,
A yellow primrose is to him,
And it is nothing more."

When we remember that, not only does agriculture feed the world, but that it gives employment to a large proportion of its inhabitants, it will at once be admitted that a knowledge of the departments of science on which it is based will enable the farmer to carry his art to the greatest perfection, and, consequently, the world will be better fed and the tillers of the soil better rewarded. In view, then, of the great interest which all classes have in the success of the venerable art, I have no apology to offer for asking a city audience to turn their thoughts, for a few moments, to the consideration of the best means of educating the farmers of our country. To every Prince Edward Islander the subject should be one of engrossing importance. Having a soil of wonderful fertility, and a climate well suited to the production of roots and cereals (and without other very great resources,) we should, with one heart and one hand, labor to fructify and beautify the noble heritage which God has given us.

The farmer needs the assistance of the State, and the school, and the book, more than any other producer. His life is one of unremitting toil, and the demands upon his time and strength are so great as to leave him but few opportunities of reading, and much of what is offered him to

read, regarding his own profession, is unsuited for the climate of his country, the nature of his soil, or the circumstances by which he is surrounded. All men are more willing to adopt an improvement from personal observation of its benefits than at the mere suggestion of an author, and here is where farmers labor under a serious disadvantage. In some of the other professions there are frequent opportunities of travelling, and personally inspecting the improvements being made by others. But such opportunities rarely occur to the average farmer. Condemned, by the necessities of his calling and through his want of means, to stay at home; mystified in his attempt to master a treatise on agricultural chemistry, by his want of education and the technical terms with which it abounds; misled by the nonsense which he often meets in the agricultural columns of some of the newspapers, and in some so-called agricultural periodicals, the thinking but uneducated farmer finds himself in the position of a man blindfolded and handicapped, and placed within a wide but perfect inclosure.

The thinking farmer finds himself confronted, every day of his life, with questions which he is wholly unable to answer. The peculiarities of soils, the causes of differences in crops, the insects that destroy them, the diseases of his stock, the unproductiveness of his orchard; these and similar things attract his attention, and give rise to questions which he cannot answer. In his mind will be found a latent feeling that it is possible his son may be so taught as to know many things which are beyond his own comprehension. But the large majority of farmers do not belong to the thinking class, at least in the sense now referred to. They see, for instance, the productiveness of their soil becoming less every year, through excessive cropping; and yet they do not adopt an ameliorative system, although they may see its beneficial

effects demonstrated in their own neighborhood. They find their dairies and cattle stalls yield them scarcely any profit; and yet they make no efforts to acquire new methods or improve their breeds. Men of this class will generally laugh at the advocates of scientific farming, and are content to continue to work by the rule of thumb. Such men offer the greatest obstacles to well-considered improvement in their profession, and many of them will never improve until the mortgages on their farms are foreclosed, or they pay the debt of nature.

It must be admitted, on the very threshold of the discussion of the question, that the greatest difficulties in the way of agricultural improvement are placed there by farmers themselves. As a class their prejudices are very strong. To insinuate, in the presence of an average farmer, that his land is not just as well managed as it is possible for any man in his circumstances to manage it, or that his wife does not make the very best butter in the world, would be regarded as a downright insult. Because his father may have practiced certain methods of cultivation is, to his mind, a sufficient reason why these methods should be sacredly followed by him. When he hears of the great sums paid for well-bred animals, or the heavy expense incurred in applying artificial manures to the land, he shrugs his shoulders and concludes that the men who do these things must have more money than brains. When he hears of schools or colleges to train farmers, he remarks that, if people must play at farming, they may as well do it when they are young as at any other time. In view of the hostility to innovation which prevails among farmers, the real question to consider is, not so much what kind of an education farmers need, as what training can they be induced to receive, in order to fit them for their business.

As in nearly all other reforms, the advocate of agricultural education must centre his hopes on the rising generation, and we have not begun a day too soon to teach the children in our schools the elements of agriculture. When the day has arrived when all our teachers are qualified to give instruction in the elements of agriculture, and when the boys and girls who graduate from our common schools are taught the first principles of the profession which most of them are destined to follow for a living, a bound will be made in the way of progress of which we can now form but little conception, and the public school teacher will rise to the full dignity of his calling. And the work of education commenced in the school will go forward on the farm. The boy who has mastered the first principles of agricultural chemistry at school will be able to understand and appreciate more advanced works with his advancing years. His studies will go on, hand in hand with his work, and as he finds himself able to master difficulties, he will acquire a confidence in himself and a pride in his profession. What is the reason that so large a proportion of the sons and daughters of farmers manifest so strong a distaste for their fathers' calling? It is, I believe, because, with most of them, they are only brought in contact with the most uninteresting and repulsive work of the farm. They see in farm employment nothing but a life of drudgery before them. Teach them that a pure bred Durham, or Jersey, or Ayrshire, well cared for, can be sold as readily for hundreds, or even thousands of dollars, as a scrub can for twenty or thirty; teach them that butter can be made which will sell for fifty cents, or perhaps a dollar per pound, as easily as the common article will bring twenty cents, and with no increase of labor. Teach them that success in farming does not *all* depend on hard work; but that skill will as surely earn

its reward in agriculture as in other callings. When our boys are *thus* taught, they will gladly remain at home, not as mere "cumberers of the ground," but as skilful producers, and then we may hope to see Prince Edward Island take the front rank as an agricultural country, which nature designed that it should occupy.

The object of education is two-fold—the training of intellect and the giving of facilities—and the best system of education is that which turns out in the fields of the world the most skilful workmen, supplied with the best tools. How far does the Public School System of Prince Edward Island accord with this ideal is a subject well worth considering. While it may be admitted that the curriculum of our schools is well adapted for the training of mind, it may well be asked if the education imparted in our higher schools should not partake of a more practical character.

It may be replied that this instruction is eminently practical, inasmuch as it forms part of the educational training of commercial and professional men. Such reply fully admits the force of the objection, and as agriculturists greatly outnumber all other professions put together, in like proportion should the educational training of farmers preponderate in the curricula of our higher schools. A tree is known by its fruits, and systems of education must be judged by their results. And here I must express my conviction that a false idea of life is too often formed in our higher schools, and their tendency is to wean young men away from the farm. The ambition of nineteen-twentieths of the teachers, and the atmosphere of the school, lead in other directions. The result is that a medley of youths, whose natural place is at the plough, or in the workshop, are pitchforked into professions already full to overflowing, there to engage in a

struggle, in which, by this process of "unnatural selection," there is not even the satisfaction arising from being assured of the "survival of the fittest."

But our schools are not wholly responsible for the false idea of life which is presented to the mind of the young. A native of the Island scarcely ever obtains a situation in the United States of greater importance than a school trusteeship with us; but our newspapers proclaim, with many flourishes, the success of another "Islander abroad." If a student from the Island wins a prize in a Dominion or American College, no matter how slight the competition or how impractical the study, the never-failing paragrapher heralds the achievement as a marvellous success.

Even the man at home who, with, it may be, little education and less capital, but a superabundance of cheek, determines to make a living by reckless speculation, is complimented and flattered; while the unassuming producer, who, by his intelligence and industry, adds to the public wealth, is comparatively unnoticed. With such false ideals held out before them, is it any wonder that farmers' sons resolve to leave the Island, or go into more attractive employments? They see nothing before them on the farm but hard, monotonous and unappreciated work, and they want to be doctors, or lawyers, or merchants, or anything that will keep their hands soft and white, and secure for them a respectable position in society.

And those who do remain at home cannot wholly repress the unbidden sigh, as they see their schoolmates and brothers enjoying present riches, and living lives of apparent ease. Time will surely bring its revenges and dispel the glamour through which such distorted views of life are now obtained. The farmer may live to see the merchant bankrupt, the

doctor without patients, and the lawyer pushed aside in his profession by younger and more aspiring rivals. Take my word for it, in the end it will be found that the farmer, who skilfully practices his calling, "has chosen the better part," and that he can most favorably compare notes with even the most successful in the other professions.

It will be noticed that I have used the term higher education as distinguished from mere elementary instruction, and that I regard all higher education in our Province as virtually technical. We have no class in the Dominion of Canada which it is desirable to train for a life of literary leisure. At the plough, on the deck, in the workshop, in the learned professions, in the halls of legislation, Canada presents a life of earnest self-denying work, as the noblest career for every one of her sons. The practical idea should, therefore, permeate every lesson of the school, until master and pupil catch the inspiration and resolve that "in the world's broad field of battle, in the bivouac of life," they shall not "be as dumb-driven cattle, but be heroes in the strife."

There are many different opinions held as to the duty of the state in regard to education. Some of these lie altogether outside of the present subject; others, although closely connected with it, yet time will not allow me to refer to. There are some who contend that the state should support nothing beyond a merely elementary education; that if education is extended further than a mastery of reading, writing, and arithmetic, it should be at private cost, inasmuch as advanced education cannot be shared in by all, and its possession is calculated to gain in the battle of life emoluments which are scarcely within the reach of those whose means limit them to elementary instruction. There are others who admit that it is the duty of the state to encour-

age higher education, but who believe that the place assigned to classics should be greatly limited, and more attention given to industrial or practical sciences.

On the other hand, a large number of men of liberal culture contend strongly for the utility of the classics; but they freely admit the necessity of modifying college curricula to meet the wants of the age in which we live.

The man who regards mere proficiency in Latin as the Alpha and Omega of liberal education is now looked upon as a literary fossil. The grand test of all human knowledge should be its usefulness to mankind, and the application of this test is fast bringing classical studies within proper bounds, and ushering in the day predicted by the Reverend Sydney Smith, when "The puffed up pedant shall collapse into his proper size, and the mere maker of verses and the rememberer of words shall assume that station which is the lot of those who go up unbidden to the upper places of the feast."

Some of the results of the discussion of these subjects may be found in the more prominent place now assigned to agricultural chemistry and kindred subjects, in even the most conservative of the universities; in the establishment of a large number of colleges all over the world, wholly devoted to industrial education, and in the prescription in many countries—and among them Prince Edward Island—of the elements of agriculture, as a subject of study in the advanced grades of the public schools.

One of the most hopeful signs of the times in which we live is to be found in the very general movement now going on in different countries to place farming on a scientific basis by instructing the farming population in the principles of their profession. Chemistry has lifted the great

veil which has hitherto hidden the face of nature, and walking in the light which has thus been ushered in, the advanced farmers of England, Scotland, Germany and other countries have inaugurated a new era in the cultivation of the soil. Improved breeds of stock have taken the place of scrubs. Exhausted soils have been restored by the use of artificial fertilizers to more than virgin fertility. Great bogs have been drained, and the "desert and the waste place have been made to blossom like the rose."

In considering what means are best adapted for promoting agricultural education in Prince Edward Island, we must glance at the experience of other countries, but in doing so we must bear in mind that the economic condition of agriculture in all European countries differs greatly from ours; and that a difference, although not so great, exists between the rural economy of Prince Edward Island and that of other parts of the Dominion and the United States.

Methods of education, to be most useful, must not only be made to suit the circumstances of the country, but they must be subject to constant improvement, so as to make them meet the ever-changing circumstances aud pursuits of the people. Systems of education, like constitutions, are not made, but grow; and that people will always take the front rank in intelligent and material progress whose education is of the most practical nature.

In most European countries the farms are large, and the profits of farming are divided between three classes, the proprietors, the tenant-farmers, and the laborers. The first of these are large capitalists, and as the leases are generally short, the proprietors share in the permanent improvement of the land. The tenant-farmers are also capitalists. In Prince Edward Island we have only one class, which combines in itself the proprietor, the tenant, and the laborer. The

profits of farming here are enjoyed by the farmer and his family, except when shared in to some extent by laborers. It will at once be seen that collegiate instruction in farming, in a country where it is only necessary to educate one man for the management of, perhaps, thousands of acres of land, can be obtained by means which would prove wholly inadequate where ten, or perhaps fifty, men, require to be trained to produce the same result. The English and Scotch farmers stand less in need of agricultural education than any farmers in the world. Encouraged by the example of men of wealth and education like Alderman Mechi, and stimulated by foreign competition in their home markets, they have been the first to adopt the practice of scientific farming. The system of agriculture which has enabled them to lay by money, after paying enormous rents and maintaining their families, must be particularly good. In fact, it is mainly from observation of the rules and practices of the best English and Scotch farmers, that the Germans and other nations have formed the science of Agronomy, or theoretical agriculture, which is taught in their agricultural colleges. The agricultural colleges of England are used for the education of stewards or farm managers. In Germany, a much larger proportion of the people are taking advantage of the higher education which their 153 agricultural colleges or academies offer. While German agriculture is now in a much less advanced state than that of Great Britain, it is not at all improbable that the tables will be turned before many years. What dairy colleges have done for the dairying interest of Denmark, it is more than probable the agricultural colleges will do for the mixed husbandry of the German Empire. The first of the dairy schools was started at Copenhagen, in 1836, and since that time it has, on an average, granted diplomas to ten dairy-

men and nineteen dairymaids annually. Similar schools have been formed in other parts of Denmark and northern Europe.

These institutions have almost revolutionized the butter trade of the world. A few years ago Denmark was comparatively unknown as a dairy country, but her export of butter has reached thirty-five millions of pounds in one year, or nearly eighteen pounds per head of the population. And what is of still greater significance, Danish butter sells in the English market at higher prices than the best Irish butter, hitherto regarded as the best in the world. By their superior skill in making and curing butter, the Danes are able to send their product to hot countries, and have obtained control of the Brazillian market. The system of dairy education, which has produced such wonderful results in Denmark, could not, however, do as much for Prince Edward Island. In Denmark, the average number of cows kept on a dairy farm is fully twenty times as great as in this Island.

France, like Germany, has a system of agricultural education. The Farm Schools of France were founded on a recommendation of M. Cousin, who became Minister of Public Instruction in 1840. The scheme embraced one of these schools for each of the eighty-six departments into which France is politically divided. The farm schools of France are placed in charge of the best farmer in the departments as director, and with him are associated instructors in the different departments of agricultural education. There are also three Agricultural Colleges in France, in which a higher agricultural education is imparted. When it is borne in mind that a system of peasant proprietorship exists in France, the great bulk of the land being divided into farms of less than seven acres each, it must be evident

that the common school, offers the only feasible medium through which to educate the farmers of the country.

Industrial education has received, in the United States, a large share of attention during the last twenty years. Under the American Constitution, as in the Dominion of Canada, education is assigned to the States or Provincial authorities; but in 1862 the United States Congress passed an Act setting aside 9,600,000 acres of the Federal lands for the benefit of agriculture and the mechanic arts, on the basis of thirty thousand acres to each Representative in Congress. The object of the grant is set forth in the fourth section of the Act, which says that the money obtained from the sale of these lands "shall be inviolably appropriated by each State which may take and claim the benefit of this Act to the endowment, support, and maintenance of at least one college, whose leading object shall be (without excluding other scientific and classical studies) to teach such branches of learning as are related to agriculture and the mechanical arts, in such manner as the Legislature of the State may respectively prescribe in order to promote the liberal and practical education of the industrial classes in the several pursuits and professions of life."

Thirty-seven States have taken advantage of this Act, and there are at the present time in the United States forty-four independent colleges or departments in universities supported out of the proceeds of the land grant of 1862. In 1876, or fourteen years after the passing of the Act, the interest from investments from the sale of lands had reached $449,774.

In determining the best mode of placing this princely endowment within the reach of the people for whose benefit it was intended, much difference of opinion arose. The existing universities scrambled for the grant, alleging that

by giving courses in agriculture and mechanics they were complying with the letter of the law. In about one-half of the States this view prevailed, and such seats of learning as Yale, Cornell, and Brown, opened their halls to industrial studies. In the other half of the States independent colleges were started, devoted entirely to the study of sciences related to the farm and the workshop. The industries of each State, the prevailing views regarding education, and the wealth of the people, have influenced the character of the education given in these institutions. In California and Missiouri, States abounding in mineral resources, there are courses in mining and metallurgy provided in the institutions receiving national aid. In manufacturing States the Colleges have generally lent their aid to the prevailing interest. In the great grain-producing States of the far west the Colleges are rarely devoted to agriculture. It does not require skill to obtain remunerative crops from the newly-broken prairie, and it is in the States where the soil is more impoverished, and the rural population more dense, that the need of scientific agriculture is most felt. While it may be admitted that there has been much mis-direction in the use of the national bounty towards mechanical and agricultural education in the United States, yet it is abundantly manifest that great good is being done in the promotion of industrial education by the land grant of 1862. Should we not, in the Dominion of Canada, profit by the example of our wide-awake neighbors? The Local Governments of the Provinces have now more on their hands than they can find money to provide for. Out of the vast areas of fertile lands in the Northwest the Dominion Parliament should set aside a few millions of acres for the endowment of higher industrial schools in all the Provinces. If this is not attended to soon, the lands will be disposed of, and with them will go the last chance for our children to obtain that

training which will enable them to compete with their neighbors in the industrial professions.

Turning to the Dominion, the only college devoted to agriculture is the Ontario Agricultural College, located at Guelph. This institution was opened in 1874, and, as its name implies, is devoted exclusively to teaching agriculture and the sciences on which it is based. It is entirely supported by Government, the net annual expenditure in connection with it being about $20,000, while the expenditure on farm buildings and on permanent improvements had, up to 1880, reached about $200,000. There is in this institution a course of study and a course of apprenticeship, the students being required to work from three-and-a-half to five hours a day, for which they are allowed from four to ten cents per hour, according to the value of their labor. From a statement submitted to the Agricultural Commission of Ontario, in 1880, by Mr. Johnson, late President of the College, we learn that three hundred and thirty students had, up to that time, entered their names on the roll. Of that number two hundred and thirty-eight had left the institution, of whom one hundred and seventy-two were known to be following agriculture, horticulture, or the veterinary profession. There is a farm of five hundred and fifty acres connected with the College, on which experimental farming is being carried on. The number of students vary from one hundred and thirty to two hundred. Admitting that the course of instruction at Guelph is very practical, it would almost appear that the results are disproportionate to the outlay. The expenditure on capital account up to 1880 amounted, as already stated, to $200,000, and the annual expenditure to $20,000, which, at five per cent., represents a capital of $400,000, while in the first six years the college only sent out 172 students who adopted

agricultural, horticultural, or veterinary employments. But this is not a fair way of estimating the good which a school of this kind is effecting. It may be that in the educating influence of their example in farming, in the part which their training enables them to take in agricultural gatherings, and in their contributions to the agricultural press, the students of Guelph are making a return to the Province for the large expenditure incurred in giving them an agricultural education. It must also be observed that, notwithstanding the large outlay on the College, it is still a matter of complaint that the equipment is defective. The library is small, the museum is only a mere beginning, and there is no laboratory worthy the name. Looking at the great wealth of the Province of Ontario, and her vast agricultural resources, it cannot be doubted that a thoroughly equipped agricultural college will, in the end, contribute largely to the improvement of agriculture.

From the hasty glance we have now given at the agricultural colleges of other countries, it must be at once evident that the founding of an agricultural college in this Island, or even the establishment of an efficient department of higher agricultural education in the Prince of Wales College, *by local means*, is something altogether beyond our reach.

It is also, I think, quite plain, that owing to the smallness of our farms, the direct advantage from the establishment of such a college, or department of a college, would be proportionately small. It does not, however, follow that because we cannot undertake the greatest task we are unable to accomplish anything. We can give more time and more prominence to the sciences relating to agriculture in the Prince of Wales College, so that all our teachers may in future be qualified to pass an examination in the elements of agriculture before obtaining a license. We can offer an

inducement to teachers already licensed, so that they can come in for examination in this branch of education. We can, by rigid inspection, provide that the text book on agriculture already prescribed by the Board of Education is thoroughly taught to the pupils in the advanced grades of our schools. When we have done this, it will be found in agriculture, as in general education, that a good elementary instruction for the masses is, after all, far more important than higher attainment placed only within the reach of a few. To make great progress in this direction teachers must *all* be qualified to handle an elementary text-book, and the use of it in our public schools must be made compulsory, as has already been done in the State of Tennessee.

But although we must keep our eyes steadfastly fixed on the schools for the dissemination of knowledge on farming, we ought not to slight other instrumentalities already at work advancing the same object, nor neglect efforts for their more general adoption. The agricultural shows have probably done more within the present century to stimulate good farming than any other agency. These shows took their rise from what was known in England as the Holkham Sheep Shearings, which were commenced over one hundred years ago by Mr. Coke, who, as an acknowledgment of his services to agriculture, was created Earl of Leicester. "This annual festival," says Copeland, "will ever claim a page in the history of British agriculture, although in its origin, arrangement, and entire pecuniary support and maintenance, it was strictly a private institution, yet the unbounded public spirit and liberality of its founder gave it a world-wide fame, and drew to its exhibitions men of eminence in every branch of industry, and every station of life, from the globe. Agriculturists, men of science, statesmen, philosophers, merchants, mechanics, manufacturers,

&c., were indiscriminately invited to repair to the noble domain at the appointed time (usually the beginning of June,) where for three days they were entertained, not only by a display of the finest animals the world could produce, but on each day the hall was thrown open to five hundred or six hundred guests. * * * Breeders of cattle and sheep were invited to exhibit their particular products, by which a spirit of emulation was excited, the influence of which will be felt upon agriculture to the remotest ages. * * * At the dinner given at the close of each day, the subjects that had occupied the attention of the company in the morning were freely discussed. There, men of rank and eminence from all parts of the world exchanged information on the different systems of husbandry practiced in different countries and climates. Men of science here began to publicly apply its principles to the practice of husbandry, and to bring home to the mind of the cultivator the importance of a knowledge of the nature of the soil and the products that are raised from it. It was at these gatherings that the embryo Davys and Liebegs first met with that countenance and support which inaugurated the union of practical science with agriculture, and eventually brought forth these systems of agricultural chemistry on which improved farming is now based. All honor to the memory of the man who, more than any one else, assisted in breaking down the barriers which ignorance and prejudice had reared between the cultivator and the man of science, and who prepared the way for that union between them, cemented on principles indestructible, because founded on truth."

The first agricultural society of which we have any account is the Highland and Agricultural Society of Scotland, established in 1784. The institution of the Board of

Agriculture in England followed in 1794. The Highland Society is still in existence, and has exerted a wonderful influence on agriculture in Scotland, and even extending to other countries. Under its auspices premiums have been given for discoveries in every branch of agriculture. In 1848 it took up the work previously carried on by the Agricultural Chemistry Association, and devoted special attention to the analysis of artificial manures, and the prevention, in this way, of the enormous frauds perpetrated on farmers by the manufacture and sale of adulterated fertilizers. The English Board of Agriculture was dissolved in 1819, but the Smithfield Farmers' Club was organized immediately afterwards, and under its auspices new and improved breeds of stock were introduced, and farmers were stimulated to enquiry in their profession.

The establishment, in 1838, of the Royal Agricultural Society of England, under the auspices of the late Prince Albert, may be considered an important era in the history of British Agriculture. The membership of the Society embraces a large number of the most influential men in England; and by its publications, and by the great annual show which is held under its auspices, has done an untold amount of good in improving the stock and general husbandry of England. More recently, agricultural societies have sprung up all over the world, and the fair and cattle show is an institution of every civilized country. Looking at the great benefits arising from agricultural societies, it may well be asked why we have not such an organization in Prince Edward Island? There was at one time an institution of this kind in existence here, but it was allowed to go down for want of adequate support. While it is highly gratifying to note the good results arising from our Provincial and County Shows, as well as from the general ones,

in which our people have recently taken so creditable a part, it cannot be doubted that the effects might be wider and more beneficial if we had an influential society in existence to give direction to, and supplement the efforts of, the Government.

Among the educating agencies now at work amongst us, the butter and cheese factories recently started are deserving of notice. Notwithstanding our excellent pasturage, and the facilities we possess for good winter feeding, it is painfully evident that we are absolutely nowhere in the production of really first-class butter for export. Should the article known as "shop butter" by any possible chance escape unspoilt in the churning or washing on the farm, the finishing touch is given by the storekeeper, who acts generally on the principle that abundance of salt, like the mantle of charity, covereth a multitude of shortcomings. From the smallness of our farms, we can scarcely hope for the early and general adoption of scientific methods of butter and cheese making in private dairies. The factory system will, I believe, do for the dairying interests of Prince Edward Island, what dairy colleges have done for Denmark. The educated or trained hands who operate the factories, will train their customers how to handle their cattle and milk, so as to deliver the latter at the factory in good condition. The butter and cheese, made in the factories of the Island, have already earned a good reputation wherever they have gone, and I hope the day is at hand when Prince Edward Island will have won the reputation of being a large exporter of the choicest dairy products. A novel method of dairy education has been recently tried in Ireland by Canon Bagot, a clergyman of the Irish Church. With a model dairy mounted on wheels, he has travelled through the country, stopping at the farm houses, giving

practical illustrations of scientific butter making with the most approved appliances. The butter dealers of Cork now declare that they can trace Canon Bagot's missionary tour through Ireland, by the superiority of the butter coming from the districts visited by him. There is no reason to doubt that this plan would be productive of much good in this province.

The educating power of the newspaper Press is, no doubt, very great, and its assistance, in disseminating information regarding farming interests, is freely and cheerfully rendered. The great want of agricultural education is, however, quite as often and keenly felt by the intelligent editor as by the intelligent farmer. A theoretical and practical acquaintance with the principles of agriculture, would enable an editor to rise to the full stature of his position as a public educator in an agricultural country like Prince Edward Island. Besides the power which it would give him to write original articles, bearing on our own methods of farming, it would enable him to use the scissors with better effect than is often done. Mark Twain, as an agricultural editor, strongly advising the farmers to pick their turnips from the trees with their hands, as the fruit is often injured by being knocked down with a stick, is a very good caricature of the flippant confidence with which persons, wholly ignorant of farming, will undertake to write upon it. The prejudice existing among farmers against "book farming," is often strengthened by reading agricultural items in our papers containing advice wholly unsuited to our soil, climate, and staple crops.

The publication of a really first-class paper, devoted to the discussion of agricultural questions from a Prince Edward Island standpoint, would do great good, but it is useless to talk of this. Our constituency is too small to sup-

port a periodical of that kind, and we should, therefore, make the best possible use of the facilities really within our reach.

If farmers' clubs were generally instituted, at the meetings of which, the most intelligent and practical farmers would read papers on questions affecting our husbandry, a spirit of enquiry would be stimulated, and the newspapers would gladly publish any part of the proceedings of these meetings which might possess sufficient merit. But at the base of all agricultural improvements, must lie the instruction of the common school. When the work, now beginning to be done in the schoolroom, shall come to bear fruit, there will not be wanting intelligent farmers to discuss the most intricate questions relating to agriculture, nor newspaper editors to lead the way in the paths of higher investigation.

The agricultural history of Prince Edward Island naturally divides itself into three periods. In the first place there is the period of settlement coming down to 1850. During this period, improvement was not very rapid, yet considering the difficulties of clearing the land, the barriers to progress in our geographical separation from the mainland, and the injurious land system by which the settlers' energies were shackled, it must be admitted that fairly satisfactory progress was made. Roads were laid out, schools opened, and churches erected. The wants of the farmer were few, and the means of supplying them limited in proportion. The neighbor *kaleeing* with neighbor, of a winter evening, enjoying a friendly chat before the fire of blazing logs; the young men and maidens combining the stumping and spinning frolics in the summer, and the thickening frolic in the early winter, constituted the social enjoyment of the people. A ready cash market for oats had not yet presented itself to tempt the farmer to exhaust his land. Part of the energy, which, at a later period, was

directed to raising oats to meet a foreign demand, was then applied to the cultivation of wheat, and the farmer had no difficulty in raising his own bread from a soil still abounding in the elements of original fertility. Science in farming did not count for much in those days. Strong arms to fell the forest, swing the scythe, and ply the flail, were the requisites for success on a farm.

The second period extended from 1850 to 1874, and may be called the period of growth. It was ushered in by the concession of Responsible Government to the Island, which was followed by the adoption of a practical system of common education. The establishment of Reciprocity with the United States, the waging of the Russian and American wars, and the construction of the Prince Edward Island Railway caused a great demand for our staple products, arousing the industrial life of our people. This was a period of unprecedented growth, but it was a growth at the expense of vital force, because, under the stimulus of an active demand, the farmers sowed their lands to oats, year after year, without making a suitable return to the soil, to keep up its fertility.

The third period, extending from 1874 to the present time, may be called the period of consolidation. For some years previous to this, the farmers began to see the folly of raising oats, year after year, without adequate manure. After a hard winter's subsistence on straw, cattle were wont to leave the stables mere walking skeletons, to eke out a summer's existence on fields yielding little but sorrel and natural grass. It was at this juncture, that attention was directed to the deposits of mussel and oyster shells in the beds of our bays and rivers, and means were devised to bring this fertilizing substance to the surface, and make it available for manure. The presence of this valuable

fertilizer at our very doors, rich in the elements of which our soil is most deficient, illustrates in a striking manner, the care with which Providence bestows its blessings. The great benefits, arising from the application of mussel mud to the land, are evident to-day all over Prince Edward Island. These benefits, however, would be much greater, had it been in the power of the farmers to obtain analysis of their soils, and of the different qualities of mud in their vicinity. They would then have used that which was most suitable for their soils, and they would have been guided as to the proper quantities to apply under different circumstances. As it is, the application of carbonate of lime in the form of mussel mud, has transformed our formerly dry and unproductive pastures into a closely set sward of the sweetest and most nutritious grasses, and by increasing almost ten-fold the bulk of our hay crop, it has made our province a first-class stock and dairy country.

We should not, however, allow ourselves to be carried away by present favorable results. There never was a time when our farmers needed scientific guidance in feeding their land, more than they do to-day. While lime, in all its forms, is to some extent a food for plants, yet its most important action is in decomposing organic matter already in the soil, and making it available as plant food. It therefore follows that the continual use of lime will, through time, thoroughly exhaust the soil unless organic matter is supplied in some other form. If the growing of oats for export was bad farming before the application of mussel mud was commenced, it is downright madness now, when the lime in the mud has made the land, generous almost to a fault, ready to part with all the organic matter which it contains. The old adage is strictly true,—

"The use of lime without manure,
Will make the farm and farmer poor."

There are other substances, such as phosphates, potash, and ammonia, which neither mussel mud nor ordinary manure can supply to the land in sufficient quantities to maintain fertility, and which it must be necessary to apply in the form of commercial fertilizers. To do this effectually and with profit is the great agricultural problem of the near future. It was thought, until a short time ago, that a farmer might submit a sample of his soil to a chemist, who could, by a simple analysis, determine what its elementary constituents were, and who could give, in the form of a prescription, a list of the substances required to produce from it the best crops. If this were so, the common farmer needs education in his profession no more than every man requires to be a physician. But the chemist cannot, by analysis alone, arrive at full and positive conclusions as to the fertility of soils. He can, it is true, resolve them into their elements, and ascertain the proportions of each which they contain; but he cannot distinguish, by analysis, between substances which are active, and those which are dormant in the ground. The land may contain all the elements in abundance which are necessary to ensure fertility, but these substances may not be in a condition to be used as plant food, and the soil may be comparatively barren. The intelligent farmer, who has studied agricultural chemistry, having obtained an analysis of his soil, can conduct experiments in the use of fertilizers, which will lead to sure and positive conclusions. The investigations and experiments, made by M. Georges Ville on the experimental agricultural farm at Vincennes, in France, have thrown a flood of light on this subject. The chemist in his laboratory cannot finally settle agricultural problems. It is only when the man of science and the practical farmer work hand in hand, or better still, when theory and practice are united in the same individual, that the best results are

obtained. Without education, the farmer cannot accurately conduct necessary experiments, nor protect himself against fraud in purchasing commercial manures.

To understand the distinct or relative functions performed by the soil and the atmosphere in the growing of crops, and to be able to apply to the work of the farm, with discrimination, the lessons of chemistry under varying circumstances and different soils, demand a training of mind, and a power of observation as great as the requirements of the learned professions.

The decline of wooden shipbuilding all over the world, and the consequent loss of cheap facilities for the transmission of bulky products to the European markets, have brought our people face to face with the question: In what market, and what form, are we to find sale for the products of our soil? The answer which every intelligent man has given to this enquiry, cannot be better expressed than in the heading, adopted by the Honorable Daniel Davies, to some excellent letters to the press, some two or three years ago—"*We must improve the quality of our exports.*" Instead of sending away large quantities of roots and cereals with little intrinsic value, it is our interest to increase their value by skilful manipulation, giving our countrymen the benefit of the employment arising from the process, and leaving, as far as practicable, the manurial properties on the farm. In this way, we are now, far more than formerly, turning oats, potatoes, and hay, into horses, cattle, starch, butter, cheese, and eggs. In this matter, we are moving in the line of true progress, but we are not moving fast enough, and our people require to be taught that the transition which is now going on is a most wholesome and beneficial one. They must be educated, to understand that the people, who continue mere exporters of the raw products of agriculture,

will ever remain hewers of wood and drawers of water to their more skilful and intelligent rivals. "We must improve the quality of our exports," but to do so effectually, we must first improve, and make more practical, the education of our people.

The markets of the world are becoming more fastidious every day. It is not merely necessary that articles of food should be of good quality, but they must be put up in an attractive manner. The form of the package, its convenience as regards size, and above all, its perfect cleanliness, are important considerations in giving value to all the different articles of human food. To study the markets of the world and know how to meet their wants, to be acquainted with the advancement made in agricultural productions in other countries, and to be able to appreciate and adopt important improvements, require knowledge and intellectual training. The times are changing, and we must keep pace with the change. The watchword of agricultural progress must be "Educate!" "Educate!" In the world's markets, we have to meet the productions of the vast praries of the West and Northwest, yielding good crops for many years without manure, or the expense of clearing the land. We have to compete with the cheap labor of Europe, operated by large capital, and directed, to a great extent, by men of practical education. We cannot appropriate the prairies of the West, nor do we want them. We cannot apply the capital to the cultivation of the land which farmers of other countries do, but we can, if we go in earnest to work, vie with them, and excel them in the skill which we may bring to bear on the practice of our leading industry.

The farming of to-day, like nearly every other business, stands more in need of mental training, than that of the

past. Machinery has changed the routine of farm work. When the grain was sowed with the hand, reaped with the scythe, and threshed with the flail, muscle was more important than brains, but the seeder, the reaper, and threshing machine, require skill to guide them. The extended application of machinery is, I believe, destined in all the industries, to supersede the unskilled labor of man. The day is evidently fast approaching, when all kinds of work, which require little besides strength for their execution, will be done by machinery. Man's part, in the industries of the future, will be more in the inventing and working of labor-saving machinery, than in manual labor. How important, then, that we should endeavor to save our children from being among the last of the civilized sons of Adam to suffer the full penalty of earning their bread by the sweat of their brow.

The extraordinary facilities now possessed by man for quickly transmitting to great distances the products of the earth, and the general competition thus induced, demand the exercise of the greatest possible intelligence by the producing classes. It is not very long since a local market absolutely belonged to the local producer. The want of crop reports made it impossible to anticipate a scarcity, and when it did occur, the time and expense required to draw a supply from outside were almost equivalent to prohibition. These things are all changed. While the yellow grain is still bending before the reaper, the statistician has, with the aid of electricity, measured the crops of the world. While agricultural science has made two grains of wheat to grow where only one was grown before, the triumph of mechanical science and commercial enterprise has been to bring those grains within the reach of the hungry. Steam has annihilated space, and the markets of the world have be-

come the common property of all producers. In these markets, the best products only will be wanted, the fittest will survive. In our small way, we are competitors in the world's market, and who are the people with whom we have to compete? The trained dairymen, the scientific farmers, and the intelligent stock raisers of Britain, Germany, Denmark, the United States, and the sister Provinces of the Dominion. If we are to hold our own in this competition, we must educate our producers, otherwise we will be in the position of a mob, armed with bows and arrows, venturing to engage a disciplined army supplied with repeating rifles.