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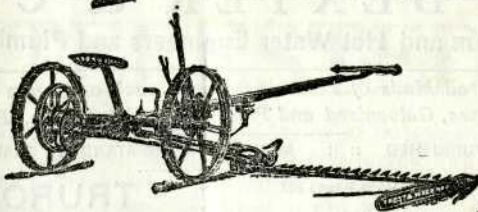
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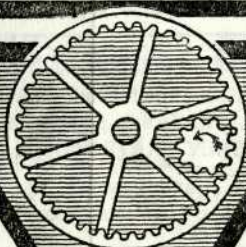
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The

# MARITIME STUDENTS' AGRICULTURIST

Vol. VI.

Truro, N. S., November, 1913

No. 1

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## EDITORIAL.

As the College opens and again the students come together, earnest in their pursuit of knowledge we are met with a great number of essential and minor details which we find make up the greater part of what we call "College Life." Probably the first problem which confronts the student on his arrival at Truro, is that of obtaining suitable board and lodging. It is true that here the seniors have somewhat the advantage over the juniors, most of whom are wholly unacquainted with conditions which make one house preferable to another; but many also of the seniors are taking new boarding places, and, to a certain extent, their future comfort and convenience cannot be known until after their arrival here.

About the College, the new student finds much that is strange to him. Here are nearly a hundred students, of whom it may be that he knows not one. Of their projects and plans, whether individually or collectively, he knows little or nothing. That there will be a meeting of the United Students' Council is interesting but vague. That Mr. So-and-so is manager of the Athletic Association is more to the point, but who is Mr. So-and-so? That some seniors are on the staff of the college paper is all very well, but what is that to us now? It is this.

The Maritime Students' Agriculturist is the organ of the student body of which you are members. In behalf of those members who were members before, the M. S. A. extends to all new members a hearty welcome and bids them not to hesitate to join with the seniors in all matters which concern the student body of the Nova Scotia Agricultural College. The editors are, in a sense, your servants and want to voice the opinion general of the college. We want to make you feel at home here and to impress you with the importance of maintaining a harmonious feeling of loyalty and patriotism. And we ask in turn that you, each and every one, give your paper your support. If you will lend us, the editors, your assistance and co-operation, both by words and deeds, we promise to do all in our power to keep M. S. A. up to the high standard which has hitherto characterized it.

---

AGRICULTURE has been, not only the primeval occupation of man, but a pursuit which men of all ages have followed; it has been and always will be the mainspring of all industry.

Energy and push—these are necessary to attain even moderate success. The man of energy and push controls circumstances otherwise difficult and unfavorable, and creates sources by which he wins honor and wealth. The sailor does not acquire proficiency by sailing on calm seas; it is by combating the tides and the dangers of the storm that this must be accomplished; and so it is only by courage, energy and perseverance in conducting the business of the farm that success worthy of the name can be attained.

Perseverance one of the greatest secrets of success, is in not abandoning an enterprise, considerably engaged in, for another which, for the moment, may seem more promising. It takes a great deal of study and effort to become proficient in any line of business and few can afford to change that line of business at random. Remember that farming, to be made a success, must be conducted, not only on the most liberal, but also the most precise and exact plans of economy in every department; avoid waste; get the full working power of of everything. Everything should be of the very best. This is what finally pays.

—We have with us this year two new professors, Prof. Brittain in the Entomological Department and Prof. Trueman in the Department of Agriculture and Animal Husbandry. The two positions, by the way, were last year in charge of two new men, Profs. Matheson and Stevenson.

Mr. Brittain is a graduate of Macdonald College, where he completed his course in 1911. He immediately accepted a position at Macdonald as Assistant in Biology. But promotion came rapidly with him, for he had not held this position over six months when he went on to take the position of Assistant Botanist in the Seed Branch of the Dominion Department of Agriculture at Ottawa. Here his stay had been even shorter than at Macdonald when he accepted the position of Provincial Entomologist and Plant Pathologist in British Columbia, a position, we may say, of the highest honor and importance. He did very excellent work in British Columbia for two years, and it was there that Principal Cumming found him and engaged him in his present capacity, that of Provincial Entomologist for Nova Scotia and Instructor of Zoology and Entomology in the Nova Scotia Agricultural College.

J. M. Trueman, who has succeeded L. Stevenson as Professor of Agriculture and Farm Superintendent, was born in Point DeBute, Westmorland County, New Brunswick. His father was Howard Trueman, a well-known agriculturist of that place. Mr. Trueman graduated from the then School of Agriculture at Truro in 1892, and continued his course at Cornell University, Ithaca, New York, from which institution he obtained his B. S. A. Degree in 1895. From 1895-87 he held the position of Assistant Agriculturist and Dairyman at South Dakota Agricultural College. From 1897 to 1903, he was Farm Manager on two large dairy farms in Pennsylvania. In 1903 he returned to Cornell where he held the position of instructor in dairying for two years and for the following two years he held the same position at the Illinois Agricultural College. From 1907-13 when he accepted his present position at Truro, Mr. Trueman held the position of Head of the Dairy Department and Professor of Dairying at the Connecticut Agricultural College, Storrs, Connecticut. Mr. Trueman, has, therefore, as-

sumed his present position with a knowledge of the local conditions prevailing in the Maritime Provinces supplemented by twenty years experience in leading institutions and farms in the United States.



### AGRICULTURAL PROGRESS.

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The science of agriculture is yet in its infancy. I suppose the same is true of almost any science, but its truth is strikingly apparent in the case in point. Although agriculture has been practised from very earliest times, and although it has gradually risen with the advance of man's intellect, yet it has, until recent times, been at a considerable disadvantage among the sciences, on account of a vague and irrational prejudice with which it has been viewed by all who had means enough to support them in any other line of enterprise. To work was vulgar; no one worked at hard labor who could possibly avoid doing so; and, as a direct consequence, farms, being nearly devoid of capital and poorly worked, were at a decided discount. Farm mortgages were of little value, as the farms themselves were considered as an encumbrance rather than a real asset or worthy security. The result has been the removal of money from the farm and the neglect of agricultural science in general.

Of late years, however, prejudices in regard to the degradation of work have been largely thrown aside. Public admiration now attaches rather to the industrious poor than to the idle rich, and it is even becoming a matter of honor and credit for a rich man's son to follow occupations involving manual labor—a thing which would have shocked "society" to think of half a century ago. The problems of the high cost of living have suggested a "back to the farm" movement and on every hand, farms, long neglected, are being worked, generally in accordance with modern science and modern improved methods. The West, the development of which so severely drained the East of its supply of young farmers, is no longer such a lure; the population of the Western cities has increased to such an extent that much of the Western produce is consumed at home; and more and more the East has had to look to local agriculture for its supply of farm produce. It is only within the last ten or fifteen years that anything marked has been done to encourage agriculture in the Maritime Provinces, but what has been done within that period has been of such great importance that it seems to mark the very beginning of scientific agriculture.

The institution of the Nova Scotia Agricultural College and others, the establishment of Experiment Stations here and there, and the agricultural extension work, are notable examples of activities very recently begun, while the increased circulation of technical agricultural literatures, text books, government bulletins and reports, etc., shows that the individual farmer is not slow to appreciate the advantages which are offered him through education. The attendance at both long and short courses in this and other provinces bears worthy witness to the fact that the youth of the country realize the value of efficient training in the management of profitable agriculture. Another great factor in building up the farms of the country has been, and is still, the great variety of agricultural implements placed before the farmer to-day as compared with those offered twenty or thirty years ago. There is a tool for every purpose, from a plough to a reaper-thresher, and, although economy forbids maintaining a full stock, yet enough may easily be owned to perform every operation that the average farmer has to face.

Think what the science of bacteriology has done for the farmer within the past few years. It has cleaned his doorway, purified his water and his milk; given him better cheese, butter and other dairy produce; identified for him the dreaded tuberculosis; and enabled him to produce more and better fruit. Indirectly, it has increased the fertility of his fields and the value of his manure; and preserved the health of all who have consumed his produce.

Take another example: entomology. This science has recently, by studying the habits and life histories of innumerable insects, made it possible economically to protect some of the most valuable crops from the otherwise deadly attacks of insect pests. With the aid of entomological research, we are now successfully combating brown-tailed and gypsy moths, tent caterpillars, the potato beetle, and hundreds of others, including house flies and mosquitoes.

And so we might go on through the list. Every science met with in agricultural work is, to-day as never before, doing wonders toward making the actual, hard work of agriculture more highly profitable to the farmer (and indirectly to the



consumer.) The inventor, the soil physicist, the soil chemist, the drainage engineer, and the farmer himself are aiming toward the one great object, namely, the increase of production with the decrease of loss and waste. Even to-day, advanced as we are, our methods are clumsy and wasteful, but, more and more is the scientist teaching the farmer means of conserving and utilizing the otherwise waste by-products of the farm. We are just opening upon an era in which we have marvelous discoveries to make, marvelous accomplishments to achieve, and when, in my opinion, science will more than double the possibilities of the best agriculture of to-day.

R. M. L. '14.

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## FORESTS AND RAINFALL.

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### **Rocky Mountain Forests Increase Rainfall of the Prairies.**

It is commonly thought that the moisture which forms clouds and falls as rain is almost entirely due to evaporation from the ocean, but scientific investigations show that seven-ninths of the rain which falls over land areas is supplied by evaporation over such areas, the ocean supplying only two ninths of such precipitation. Dr. Raphael Zon, one of the foremost investigators in America, states that "the forest evaporates more water than any vegetable cover and much more than free water surfaces." In fact, it has been estimated by Dr. Fernow, of the University of Toronto Faculty of Forestry, that 75 per cent. of the rainfall over forest areas is returned to the atmosphere as watery vapour, which does much to increase the amount of moisture carried by air currents passing over such forests.

In Canada, the prevailing winds blow from the west and the provinces of Alberta and Saskatchewan are largely dependent for their rain-fall on air-currents which come over the Rocky Mountains. It is a well known fact that winds passing over high mountains become cooled to such an extent that they lose most of their moisture, which falls in the form of rain, and hence

the land areas for many miles to the leeward of such mountains receive so little rain-fall that they are often arid. But if the leeward slopes of these mountains are covered with forests, as is the case in the Rocky Mountains, these forests will evaporate and render again available a large amount of the rain-fall over these mountains, which might otherwise pass off through underground channels, and by reloading with moisture the winds blowing over the prairies, such forests make possible a much greater rain-fall than might otherwise occur. Should the east slope of the Rocky Mountains become denuded of tree-growth, it is likely that much larger areas in Alberta and Saskatchewan would be arid than is now the case.

This is but one of the many reasons why the Dominion Government are preserving the forests on the east slope of the Rockies by the creation of a forest reserve now nearly 20,000 square miles in extent.

#### 1912 LUMBER CUT.

##### **Figures Published for Lumber, Lath, Square Timber and Shingles.**

A bulletin recently compiled by the Forestry Branch, Ottawa, from figures furnished by 2,558 firms, shows that there was cut in Canada in 1912, 4,389,723,000 feet, board measure, of lumber valued at \$69,475,784; 1,578,343,000 shingles, valued at \$3,175,319; 899,016,000 lath, valued at \$2,064,622, and 65,906 tons of square timber valued at \$1,825,154.

There was a decrease of over ten per cent in the cut of lumber from that of 1911, this decrease taking place in every province except Saskatchewan. There are twenty-eight different kinds of wood sawn into lumber, but spruce comprised over one-third of the cut, succeeded in the order named, by white pine, Douglas fir and hemlock.

There was a decrease of 14.1 per cent in the number of shingles cut in 1912. British Columbia cut about one-half the quantity using Western Red Cedar exclusively. The production of lath also showed a decrease of 6.9 per cent, spruce making up over one-third of this product.

The 89.9 per cent increase in the production of square timber is noteworthy, for this is the first increase since 1877. White pine made up 53.5 per cent, and birch 28.5 per cent of

the total amount exported, 79.5 per cent of which went to the United Kingdom, 1.4 per cent to the United States and 1.1 per cent to other countries.

In this connection it might be interesting to note what some eminent authorities have to say about reforestation and the forestry subject in general.

Dr. Fernow says of Nova Scotia:—

Finding that 80 per cent. of the Province—where not barren—is forest country and practically destined to remain so, it would appear rational for government and people to put forth every effort to keep the same in productive condition. Here is a natural resource capable, under proper management, of forever producing, by annual increment, an interest, at least twice as much as is now being cut from capital stock; a resource which, being its value on reasonable rates of growth, both of wood and of wood values, may reasonably be stated as representing a potential capital of at least \$300,000,000. It is now largely in poor condition and is being annually further deteriorated by abuse and injudicious use, because those owning it are mostly not concerned in its future, or do not realize the potentialities. To arrest further deterioration is the present duty of those who have the continued prosperity of the Province at heart."

And again, 'We have shown that the forest resources of Nova Scotia are an important factor of the industrial economy of the Province, that they are liable to exhaustion in the not distant future, that they are capable of being perpetuated by more conservative use, and that it is high time to provide for such perpetuation.

"In conclusion, I may be allowed to say that in no portion of this Continent, and of the Dominion in particular, are the chances for the immediate inauguration of a definite practical forest policy so favorable as in Nova Scotia, and this is because of an intelligent, well-distributed population."

A. Knechtel, Inspector of Dominion Forest Reserves; say in a bulletin of the Forestry Branch of the Department of the Interior.

"Forest history repeats itself. There is first a period of forest destruction, then comes forest conservation, and lastly, generally too long delayed, forest restoration. Canada is now in the second period—that of conservation. Of course, the periods lap somewhat, and even now forest restoration is receiving considerable attention." "In view of the increasing interest in this subject it may be of some benefit to consider the method by which an evergreen forest is established and managed."

He then proceeds to describe in detail the growing of young trees, later to be set out on the land to be reforested. His description is far too lengthy to be given here in full. The Bulletin, however, is probably obtainable from the Department of the Interior, at Ottawa. It is Bulletin No. 2 of the Forestry Branch, and is entitled "Planting and Care of a Forest of Evergreen," and any one interested in this important work would do well to obtain a copy.





# AGRICULTURE



## “THE ADAPTABLE FARMER.”

This article is contributed by Mr. William Arthurs of St. John, N. B., a graduate of the Nova Scotia Agricultural College, and is well worth the careful consideration of any young man who is thinking of leaving the farm.—*Hort. Ed.*

Two men go to a field to plow; one has made his hobby a teamster while the other specializes in plowmanship. A new idea suggests itself to each of these men, that they would like to change their positions; so the teamster takes the plow while the ploughman is to try his skill at the reins. They go on for a little while very smoothly, each enjoying his new position. Suddenly, however, the plow becomes “conflicated” with a boulder; then the fun begins. The plow is thrown out of the ground and before the incapable driver can stop the horses they are twenty feet down the line. From then on they begin to realize the folly of making the change and both are glad and anxious to reassume their old stands.

The same thought is shown in many cases when a man goes farming and is not adapted for it, and in many cases when a man leaves the farm and tries something for which he is not fitted.

You may present two boys of the same environment with two farms. One is wet, mucky, uncleared land, while the other is up-to-date, well equipped with buildings, under-drained and stocked. In many cases in the course of ten years the boy with the unfertile farm will be on the road to prosperity while the other, who has not much liking for nature and animals, is steadily on the decline and not making ends meet. There are, however, lots of the first mentioned boys in the country and the citizens would herald the day when such boys cease to rush to the cities without even considering the splendid opportunities they are leaving behind. Those boys do not realize that a dollar on a real farm is nearly twice as effective as a dollar in the midst of the city.

If a young man rents a farm he also rents a house and has no

home rent to pay. He has eggs, chickens, a garden and fruit and oftentimes firewood. As a by-product he has usually a horse to drive. In fact much of his living is a by-product of the farm.

If the same man were in the city with a salary of say one hundred dollars per month; out of this he must pay rent, and must buy everything he eats. If he rides he must pay car fare; his clothing costs more than the average farmer's, and on every hand he has more temptations to spend money. The man in a city with one thousand dollars per year is poor, and the man with a salary twice as large must look for a very plain street when *he* rents his house. In the real country, one thousand dollars per year net is comfort, and two thousand is an affluence, without even considering the superior health conditions prevailing on the farm, which in many cases is a strong point in favor of a farm. It is a national misfortune that the differing value of the country and city dollar is so misapprehended. Had it been thoroughly grasped primitively, it would have been this instigation of tens of thousands of farmers extra today.

There are people who say farming is drudgery, but remember, only for this fellow who was not cut out for an Agricultural life; and about whom I will speak in my next.

Speaking of persons who are given normal health and enthusiasm, there ought to be some kind of work that every man can fully enjoy and it's up to him to find that work. In Agriculture there is real enjoyment. A man can love it. Some people love farm animals as much as a cultured lady loves a kitty. The agricultural vocation is certainly founded on instinct. Watch a little boy run across a room and seize a pot with a flower in it, and hug and pet it. Isn't this boy showing his bent? You would probably find him, at the age of forty, still working with plants and making a very comfortable livelihood.

It is real felicity for some people to watch and study how plants grow; and those who claim it an insipid, uninteresting life speak from ignorance. Life of some sort interests nearly all of us. Then, aside from the sentimental appeal of plants and animals, the farm can also appeal to man's intellectual side.

## THE MARITIME STUDENTS' AGRICULTURIST

Farming is scientific, stupendously so, much more than manufacturing.

We are on the verge of a new epoch in the agricultural world. Science in this subject is just awakening. Less than thirty years ago the nation recognized the fact that Agriculture, more than any other industry, needed the aid of the Government to assist in the dissemination of the gospel of Agriculture; and in its efforts to apply science effectively, according to statistics I have here, the United States Department of Agriculture created some sixty Agricultural Experiment Stations and scores of Sub-stations and nearly fifty Agricultural Colleges.

Trained teachers for these colleges were then almost unattainable but now we have reached the age when there are hundreds of them. Hence we can see that the man with agricultural ability has ample chance to have those innate talents made brighter by the scientific world.

The young man should know that farming now offers numerous opportunities to be of service. The average farm community is not what it should be as a community. It cries aloud for organized activity, for co-operation, and for many things that mean better living for all. Those things come only through leadership, and if the young man fails to be a leader in farming he can at least cooperate.

So far this concerns only the aspect of the adaptable farmer, the advantages and disadvantages of his remaining on the farm or migrating to the cities.

In the next issue the young man who is not adapted to farming will be heard from.

WM. ARTHURS, '13.

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### HOPS.

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In the county of Kent, the "Garden of England," the hop grown on a large scale. A few years ago nearly every farmer grew hops, but three years ago, when the prices went very low and prospects were poor, thousands of acres were grubbed out and other crops were planted in their places. Two years ago

when the German crop failed, the growers in England sold their crop for huge prices, many of them making their fortunes, and now, the acres that were grubbed are being planted up again at a great rate and the hop industry is in a much more flourishing condition that it was but a short time ago. Hop growing takes up a considerable amount of the farmer's time during the growingseason,they require constant attention from spring to fall. As soon as the ground is fit towork in the spring,the hills,which are generally 6 feet 6 inches apart,are opened and the sets are dressed, that is, any remains of the last season's growth and any shoots that are already showing are cut off, quite close to the root,which is then covered with a little new earth. This finished,the operation of poling begins, there are generally two and sometimes three poles to a hill, which are between 12 feet and 16 feet long according to the variety. In some gardens they are grown on wirework instead of poles, wires are strained across poles which are much thicker than in the first case and farther apart. This construction lasts for many years, but is very expensive, costing some \$300 per acre to erect. When single poles are used as in the first case, the stringing is done overhead with single pieces attached to these and tied half way down the adjoining pole in a slanting line, called rifle stringing.

When the hop shoots are about 1' 6" high they are thinned out, allowing about four bines to go up one pole, these are tied to the pole with rushes to give them a start, this is continued till they are out of reach. By this time the cultivator will have begun work and this goes on every fortnight or so until the surface is in good tilth and the weeds have been exterminated. During the hop's growth it is invariable attacked by some vermin, green aphis and red spider are generally the greatest offenders, this necessitates "washing" which has to be continued as long as the vermin keeps appearing, sometimes it means going over the ground nine or ten times,but three or four is more general. After the hops begin to set; "mould" very often sets in and sometimes causes great loss; this disease is controlled by dusting with flowers of sulphur. Picking in most cases starts during September and providing the weather is fine, affords a very pleasant holiday for many thousands of people, the ma-



majority being Londoners, who always look forward to the "opening." The bines are cut and the poles pulled up in most cases, and the hops are picked into bins, a family usually occupying one bin, and as they finish in one place, they move on through the garden. The contents of the bins are measured out at intervals during the day and placed into pokes, which hold ten bushels. The hops are secured with as few leaves as possible as they spoil the sample. The usual price paid for picking is seven or eight bushels for 25 cents, according to how easily the crop is obtained, a good bin will earn \$1.25 per day.

The pokes are loaded on waggons and carried to the vast house, where they are emptied out into the kiln, twenty to twenty four pokes to one kiln, the hops are then spread out evenly over the "hair" which covers the lathes and are dried, the fire being some distance below. This process finished, they are pushed out on to the vast house floor and allowed to cool thoroughly, then the pressing machine comes into requisition. If the hops are pressed when warm, they break up into a powder; it is very essential to keep them whole. They are pushed into the "pocket" which is suspended through a hole in the floor and pressed tightly, when full it is sewn up, marked with the owner's name, etc., and is then ready to be sent to the brewery. A pocket when full and pressed holds 1 1-2 cwt. within a pound or so. When picking is finished the poles are stripped of the bines and made into stacks ready for the following year. The bines are chopped and made into piles in the farmyard and used for bedding during the winter. During the fall and winter, manure is applied to the land, at the rate of forty loads to the acre, this is added every year, the ground is then stuck up with the plough and left until the following spring when the work starts over again. As prices stand at present it is a profitable crop to grow, and it should be for, it costs the farmer between \$150 and \$200 per acre each year, besides the trouble and anxiety that he has in producing it.

W. E. W. '14.

### THE CLEARING OF WOODED LAND FOR CROPS.

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The character and thrift of a farmer may be justly estimated by the appearance of his land. A good plan for the owner of unimproved land is to sell the surplus. If he is a benefactor of mankind who succeeds in making two blades of grass grow where only one grew before, how much more beneficent is the mission of making grass grow where only scrub lumber and bushes were wont to thrive. To cut away young growth which would within reasonable time possess timber value is usually a mistake. To leave scrub bush land idle when it will require fifty or a hundred years for it to develop into salable timber is also a great mistake. The timber consideration is not the only one that enters into the advisability of clearing land. The location of the lot, together with the density and size of the wooded covering, must be considered. Yet it is desirable to open up the home site, connect fields, etc., at an expense greater than any probable direct pecuniary return would warrant.

The farmer who stops to figure whether an overgrown fence row, scrub wind-break of deformed birch bushes or scrub trees growing here and there over his fields, greatly interfering with tillage operations, will never have an attractive farm, or derive from farm life the pleasure it is capable of affording. In many sections of Cumberland and other Counties of this province improvements can be bought for less than cost. Certainly in such cases it is cheaper to purchase improved land than to buy impoverished or wooded tracts with a view to their improvement by clearing. Generally the expense of clearing will exceed the original cost of the land. The cost per acre will vary from \$30 to \$40 or \$50 per acre. On a farm near busy Amherst, Nova Scotia, of which the writer has been farm manager for the past two years, the cost has been about \$45 per acre. A farmer may improve his farm gradually as time and means permit, each year adding a few acres of cleared land. This small annual expenditure of time and money will scarcely be missed in the sum total of the year's accounts. Yet in a short time it will make a most creditable showing. To thus gradually improve the land, is within the reach of all. And then there is a

certain sentimental satisfaction in working out the salvation of one's own place. If for any reason it is decided to clear land, then the method to be employed becomes important. The nature of the soil should receive first consideration. For instance if soft or marshy, the use of heavy stumping machinery would be impracticable, and if stones are thickly imbedded in it great difficulty would be experienced in keeping grubbers sharp. Whether the land is desired for immediate cultivation and a good yield is expected the first or not, are also matters for consideration. It is evident that the wisest method to be pursued depends upon local conditions. When circumstances permit pasturing is undoubtedly the most economical way of clearing land. In fact if the growth is large and the clearing is to be a profitable investment, pasturing is probably the best method to be pursued. The writer has obtained good results from pasturing a number of hogs on a five acre bush lot for three months, the lot being stumped and burned later in the summer. If, however, it is decided to cut the trees or bushes, the cutting should be done in late summer. Hard wood stumps should be immediately removed or some method pursued that will at least keep down the sprouts and prevent objectionable plant growth. usually in clearing land, as in everything else, that policy is best which leaves a finished work. Dynamite is both serviceable and economical; while it will seldom blow the stump out of the ground, it will usually split it in several parts and lay bare the roots, thus enabling the grubber to take out the stumps piece by piece, a method which is less laborious than removing the whole stump. When occasional stumps are scattered over the field, along the roadway, or near the farm buildings, their immediate removal is desirable and for this purpose dynamite is serviceable. The cost of this explosive will not justify its use on stumps under 6 inches in diameter unless they are pine or birch stumps and well anchored into the ground. While it is undoubtedly the cheapest method for removing stumps of large size, it is a question whether it is advisable for general farming to clear land covered with many such stumps. It costs on the average about 10 to 20 cents per stump with dynamite. It is readily seen that if there are some hundreds of these per acre the cost will be too great to justify clear-

ing by this method land destined for general farming. In most instances economy and convenience require that clearing be done gradually, an acre or two being added each year. For such work the grubber is undoubtedly the best adapted tool. When a large tract is to be cleared without intermission, then other methods may be more suitable. In conclusion, who would not prefer to improve his own wooded hills and swampy bottoms of his native province than to exchange them for the golden wheat fields of the West? The love of one's native place is happily a virtue that most of us possess.

R. M. FILLMORE.

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### PROFITS FROM DRAINAGE.

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Does drainage pay? Well, what a foolish question to ask in these enlightened days! But nevertheless, about ninety per cent of the people cannot realize the full value of drainage, or would they not practice more of it?

Not far from my home was a good example of a muck-hole, and therein flourished grasses and reeds of the wildest kind. Water lay in it from spring till autumn. And my! such a chorus of frogs, and toads, that would spring up from that region on a June evening!

Well, one summer an underdrain was laid from an adjoining field through the hole, and in about two years, the scene had gradually changed. Clover and finer grasses had sprung up, and tunes of crickets and grasshoppers had replaced those of the frogs.

Now the hollow, with considerable grading, has been converted into a lawn, and cultivated flowers and shrubs flourish there. To the west of the once frog pond, which was kept in an unfruitful condition, by its proximity, now flourishes what promises to be a large yield of strawberries next season; and what is more the land adjoining the underdrain is not nearly so hard to keep free of weeds as it was a few years ago. The soil is deeper, and consequently the plants have much deeper roots,

giving a larger area from which to extract a living. Something else, the crop that is the farthest away from the drain, is not nearly so good as that near. Yes, drainage pays whether it be natural or artificial.

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### POTATO BLIGHT.

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"What about spraying those potatoes, Jane," said Farmer Brown to his wife.

"Well, I'd just like to know what you would want, spraying potatoes this year. There's no bugs, is there?" asked the economical wife, "all you want to do is to spray potatoes because those authorities at Ottawa say potatoes ought to be sprayed with Bird-Bur-Burrow-whatever-you-call-it mixture, simply because they likely make a little out of it. Let me tell you there's no need of spraying potatoes this year, it's a heap of nonsense, it is."

Mr. Brown was somewhat overcome by this sudden explosion of words and calmly walked out of the house, resolving that he wouldn't spray this year, that perhaps the lads at the "Head" farm didn't know it all anyway, and only talked thus because they had nothing else to do.

Well, all went well, till digging time. One or two odd potatoes were found to be a little rotten, "but nuthin' to hurt." About a hundred barrels were put in the cellar, and it wasn't a great while till Jane became aware that she had to bring up quite a large quantity of potatoes before she could get enough sound ones for dinner. That was strange, she thought, it was the first time for ever so long that they had had so many rotten potatoes. She soon made known her observations to Mr. Brown, who calmly replied, "Now, who knows the most about spraying potatoes, Mr. Maccoun or you?" and though terribly against women's nature, she replied. "Well, we'll know better next year."

This is only one case, but I venture to say that many incidents like the above, have happened this past season in the

Maritime Provinces, which could have all been avoided by a little education, and careful previous observation, or to put it a little more concretely, by using Bordeaux mixture.

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**PERSEVERANCE.**

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We must not hope to be mowers,  
And to gather the ripe, golden ears,  
Unless we have first been sowers,  
And watered the flowers with tears.

It is not just as we take it,  
This wonderful world of ours:  
Life's field will yield as we make it  
A harvest of thorns or of flowers.

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**PITTING TURNIPS.**

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It often becomes necessary, when the crops on a farm increase more rapidly than does the store room, to pit some of the bulky roots in the field.

The turnip crop is one that can be quite easily handled in this way. The locality of the pit is a very important consideration. Of course for convenience it is always desirable to have the pit in the field, but it often happens that the field is too wet, for a dry place should be selected, therefore get a dry place as near the crop as possible, and also one that will be convenient in future, when removing the turnips.

Having selected the spot, the next thing is to dig the pit. This is most conveniently done by using a horse and scraper, and scraping crossways, taking the material which is being excavated to form the sides or walls. When the desired depth is reached, which is usually from a foot to eighteen inches, the scraper is run lengthwise in the pit, to level the bottom, and to straighten the sides.

Now the pit is ready to be filled.

The easiest way to do this is to haul in with the ordinary dump cart. A man should be kept at the pit to keep the pile "snugged" up.

One of the most important features in the pitting of turnips, and one that is nearly always overlooked, is ventilation. To accomplish this, about ten feet from the end toward the centre of the pile, stakes are driven, in a circle of about twenty inches diameter. These are driven just close enough together to exclude the turnips, and are allowed to come to an apex at the top.

Several of these may be put in according as the pile lengthens, and they should be about fifteen feet apart.

The pile is built up around these stakes and when it is complete, box ventilators, as are commonly used on sheds, about eight inches square, are placed over the stakes, down on the pile of turnips. Thus the foul air from beneath has a chance to work up through the stakes, then up through the ventilator, and escape.

Now comes covering. First throw the earth from the pit up around the sides of the pile, about fifteen inches thick, as far as it will go. Then over the rest of the pile, place brush or straw. When using brush care should be taken to arrange it to shed rain. On top of the brush put about six inches of earth, and on top of this, place another layer of brush to catch the snow.

Now your turnips are safe for the winter.



## THE CONTROL OF NOXIOUS WEEDS.

Crop rotation is of utmost importance in dealing with weeds. Some short rotation should be adopted which will allow of the frequent use of the cultivator, the cutting of the weeds before seeding and the introduction of another crop. Nobody can recommend a system of cropping which will be suitable to all kinds of farming. Each farmer must select the

rotation most suitable to his conditions, keeping in mind those features which will enable him to control the particular weeds with which he has to contend. The most effective rotation in regard to destroying weeds is one of three years duration, namely, clover followed by roots or corn, the land plowed shallow in the fall and sown to grain the next spring.

**Hoed Crops.**—The growing of such crops as potatoes, corn and roots, provides a means by which any weeds may be kept under control.

**Summer Fallowing.**—This method is approved of by some farmers in dealing with all sorts of weeds, even including the Perennial Sow Thistle. A bare fallow should be given sufficient cultivation to prevent weeds from reproducing themselves by seeds or roots. The chief objection of fallowing is the lying idle of the field for a season.

**Seeding Down.**—Fields overrun with weeds, particularly annuals, may be cleaned by seeding down to clover. Cutting the hay crop early will prevent most weeds from maturing any quantity of seeds.

**Sheep destroy weeds.**—A flock of sheep will do a lot to keep a farm free from weeds. It is deplorable that so few sheep are kept on the farms of the Maritime Provinces.

**Smothering.**—The object of this method is to deprive weeds of light and air by getting some quick growing crops, as rape or buckwheat, to grow on the land. The result is that the smother crop occupies all the land and forms a dense shade, the weeds cannot continue to grow.

A. ILLINGWORTH, '14.

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### FARMING IN NEW BRUNSWICK.

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That there is a steady increase not only in the interest taken in farming, but also in the output of the farms in New Brunswick is a matter beyond doubt. To see this to the best advantage one had only to pay a visit to the Exhibitions at Frederic-



ton and Chatham in September, and compare the exhibits with those of previous Exhibitions.

Suppose you had visited the shows in New Brunswick six years ago, and left the country. Then you came back in time to go to the above mentioned fairs in September. What would you see that you didn't see before?—Well here are some of them.

One of the first things that would take your eye, would have been the increased quantity of farm products. Every square inch of available space taken up! But it wasn't so six years ago. What does this show?—It shows one of two things, and perhaps both—That either those who were exhibiting before are producing more variety or perhaps more people are becoming interested now. As a matter of fact both are true. More people are taking interest in Exhibitions, and these fall shows are certainly doing their share to awaken people to see what really can be done on a farm, and that improved methods mean greater yield, and more quality—What did I say:—More quality:—"Ay, there's the rub." If there's one thing that the Exhibition at Chatham, this fall is famous for, it certainly is for the quality of its farm produce, especially vegetables! . "Why?" exclaimed the judge, "I don't believe I ever saw such a fine exhibit of roots, and as for potatoes, I can't for the life of me, see how you can improve the quality of these tubers; they are grand!" Of course I don't mean to say that the exhibition of vegetables at the last mentioned fair have reached an ideal,—not at all—but just to show that they are awake to the fact that quality counts more than most people are aware of. Another thing that would have caught your eye was the manner in which things were displayed. Everything shown to the best advantage, showing that farmers are beginning to introduce *system* into the work.

"That's very good," you say, "but that doesn't show that the output of the farm is increasing, to show that the exhibits at an exhibition are increasing."

Well, I admit that, but I'll compare circumstances as they exist now, and as they existed a few years ago.

About five years ago,—speaking now of one large town—a

great deal of the demand for produce was supplied by schooners bringing produce from Prince Edward Island. Now that has stopped. The townspeople no longer have to depend on the "Garden in the Gulf." Early in the Spring it was quite a usual thing for a car or two of potatoes to come into this particular district to supply the demand, now the opposite is the case—several cars of potatoes and turnips being annually shipped to remote markets.

This is only one section of the Province, but you have only to resort to the agricultural reports to find out that agriculture is rapidly progressing throughout the Provinces.

Not only is this true of New Brunswick, but also of the other Maritime Provinces, and the time is not far remote, when the outstanding feature in the Maritime Provinces will be agriculture. Let us all, all us farmers, do our best to increase the output of the farm and surely at the end, we can proudly say "We have not lived in vain."



# HORTICULTURE

## THE STRAWBERRY.

The strawberry is not only the most delicious and wholesome of all berries, but when intelligently grown, it is one of the most profitable of crops. The main points in growing strawberries are good soil fairly well adapted for them; good plants well set for a good start are indispensable; thorough tillage, as strawberries will not stand neglect or weeds; good protection by a covering of some kind during the winter; and varieties best adapted to the soil, providing however, that the grower knows how to pick and sell to good advantage. Any soil that is reasonably fertile, exposed to the light, and well drained, will produce strawberries. They reach the highest degree of perfection, however, when grown on a rich, sandy loam. A southern slope will produce earlier fruit, a northern the reverse. It is always best to set strawberries on clean land. They are almost always grown in matted rows; not because that is the best method but the easiest.

The best results are obtained by the use of commercial fertilizers, those high in potash and bone phosphate are the best. Hardwood ashes used as a top dressing are also beneficial. If manure is used, the land should be manured and plowed several months before the time of setting plants, in order that the manure may become well incorporated with the soil; before planting, plough again, subsoiling if possible; then harrow until the surface is smooth and fine. This should be done in the Spring as early as the ground can be worked. The writer has obtained good results by planting in rows three and one-half feet apart, and fifteen to eighteen inches apart in the rows. We use for setting, ordinary iron dibbles, each man keeping a tight basket along with him containing the plants with the roots straightened out and dipped in water. By having the basket tight, the wind is kept from the roots, and by not taking too many at a time, they do not dry off much. The man takes the dibble in his right hand, inserts it the full length at a right angle, draws it towards him, and at the same time takes a

plant from the basket, and with a motion of the fingers spreads the roots and slips them down in the opening. He then withdraws the dibble and presses the soil back being careful to have the crown on a level with the top of the ground. The cultivator may be started immediately after the plants are set; and should be kept going, never waiting for the weeds to show above the ground. In October when hard frosts may be expected, the whole surface between the plants should be covered with manure, cut straw or any short litter that will keep the ground from freezing. A month later, or when cold weather comes, the whole bed, foliage and all should be well covered with straw, swamp hay or any coarse litter. There is no danger of covering too heavily if the straw is removed early enough in the Spring. Upon the approach of warm weather in the spring the strawberry bed should be uncovered, the coarse material that is being raked off being stacked in a convenient place near by. Paths should be made between the beds, and any weeds that were overlooked in the fall should be removed. If possible, the soil about the plants should be stirred with a light hoe, and a coating of wood ashes, ground bone, well rotted compost or other fertilizer scattered among them, even where the land is already rich. Such a treatment will increase the quantity and improve the quality of the fruit. In the latter part of May or the first of June the path should be mulched with material that was used for covering the plants in winter. This keeps the soil moist and the fruit clean. In order to be effectual this work must be done with care. The mulch should be scattered along the paths and then worked under the leaves and fruit stalks with the hands. It requires time to do this, but the improvement in the quality of the fruit is well worth the trouble. After fruiting the mulch in the paths should be removed and the ground thoroughly worked. If the plants are very thick the beds are improved by thinning. A coating of fertilizer can be profitably applied at this time. It insures a vigorous growth of the plants and the formation of strong crowns for the next season's growth. As to the kinds of strawberries, that is a matter so much of local preference and circumstances, that it would be out of place and needless to attempt any discussion of it in so limited an article as this.

## A FEW COMMON INSECTS AFFECTING APPLE TREES AND METHODS OF CONTROL.

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The insects injurious to apple trees are too numerous to be all mentioned here so only a few of the more common ones will be dealt with.

The insects that the fruit grower has to contend with can be divided into two classes, namely; biting or chewing insects and sucking insects.

The Bud Moth, Codling Moth and Brown-tail Moth belong to the first, while the Apple Aphis, San Jose Scale and Oyster Shell Bark Louse belong to the latter.

The biting insects feed by biting off and actually taking into their bodies portions of the food plant, so that in many cases an orchard may be completely stripped of its leaves. For this reason, these insects can only be controlled by a stomach poison spray such as Arsenate of Lead or Paris Green.

The sucking insects live by inserting their beaks into the bark of the trees and sucking the juices, which may eventually lead to the death of the tree. These have to be controlled by a spray that kills by contact such as "Black Leaf 40" or Soap Solution.

We will deal first with the biting insects:—

*The Bud Moth.* The eggs are laid about midsummer and hatch out in a few days, the larvae feeding upon the leaves and skeletonizing them. In the fall they crawl to the ends of the limbs and spin small hibernating cases beneath the old scales of the buds or in small crevices in the bark. They live there as larvae until the spring, when they leave their winter quarters, as the buds begin to open, and eat their way into the heart of the buds, thus doing a great deal of damage. These insects can be controlled by the use of a poisoned spray made up of Arsenate of Lead, to 40 gals. of water, and applied early in the spring just as the buds begin to open.

*The Codling Moth.*—This is one of the most injurious of the apple pests. The adults appear during the late spring or early

summer and deposit their eggs on the small fruit or nearby leaves. In a few days these hatch and some of the young larvae may feed for a time on the leaves but eventually the greater number make their way to the calyx end of the apple and take their first meal inside the calyx cup. It then eats its way to the core of the apple and feeds there for about four weeks and then eats its way out through the side of the apple. It then hides itself beneath rough bark or rubbish or in crevices in the tree and spins a small silken case in which it passes the winter as a larva. In the early spring it pupates in the case and the adult emerges in from two to three weeks.

This insect can be controlled in the same way as the Bud Moth except that the spray must be applied when about 95 per cent of the blossoms have fallen and again about ten days later before the calyx of the apple has closed.

*Brown-tail Moth.*—The eggs of this moth are laid during late summer upon the terminal leaves of both fruit and ornamental trees. They are laid in brown patches covered with fine hairs, the eggs hatching in about three weeks, and the young caterpillars feed upon the nearby leaves, which they begin to draw together with silken threads, thus forming their winter nests, which hang to the tree throughout the winter. As soon as the buds begin to open in the spring, the caterpillars leave their winter quarters and commence feeding upon the leaves, often stripping the tree when they are abundant. They feed for about six weeks, then spin a loose silken cocoon and pupate. In about three weeks the adults appear.

This insect can be controlled by picking off and burning the winter nests which are easily seen, or by using a spray of three to four pounds of Arsenate of Lead to fifty gallons of water. Apply the spray about three or four times during the spring and early summer.

The sucking insects:

*Apple Aphis:* The eggs of this pest are laid on the twigs of the trees during the fall. In the spring these hatch out to wingless females which give birth to living young, throughout the summer and increase very rapidly. They are mostly found on the young growing twigs sucking the juices from them.

These can only be controlled by a spray that kills by contact. Two good sprays are given below:

*First* :

Hard Soap.....	$\frac{1}{2}$ lb.
Hot Water.....	1 gal.
Kerosene.....	2 gals.

Dissolve the soap in the boiling water and then add the kerosene and mix thoroughly until the emulsion is formed. This is a stock solution and can be used on trees in the dormant state by diluting it, one part to five or six parts of water, or one part to ten parts of water for trees in leaf.

The *Second* spray is made up of

Black Leaf 40.....	1 fluid ounce.
Water.....	8 1-3 gals.
Soap at the rate of three or four pounds per 100 gallons of water.	

San Jose Scale and Oyster Shell Bark Louse can be controlled by using Lime-sulphur, dormant strength, 1-9, or by spraying with Black Leaf 40 before the young settle down and form scales. This would be in the early summer for Oyster Shell and about three times during the summer for San Jose Scale.

C. B. GOODERHAM, '13.

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## PROPAGATION OF PLANTS.

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By propagation of plants we mean obtaining new plants from old ones. This can be done in about five different ways, namely; by seeds, separation and division, layers, cuttings and grafts.

*By seeds.*--The following are the requirements for the germination of seeds; moisture, free oxygen and a definite temperature. These three factors are demanded in different proportion by seeds of different species of plants. The supply of air usually regulates itself, providing the seeds are not planted too deep and the soil is fairly porous. Temperature and moisture need to be carefully regulated.

Moisture is the most important factor in the propagation by seed. It is usually applied to the seeds through some medium, soil being the most common one. Seeds should be watered carefully, the soil merely being kept moist. Avoid drenching as this is apt to pack the soil too closely and weaken or destroy the seeds. A good plan for small or weak seeds is to sow them in a pot of loose soil, which is then set in a larger one. The space between the two is then filled in with moss and the water applied to the moss. The water soaks through the inner pot and thus keeps the soil moist. Pieces of broken pots or clinkers placed in the bottom of the pot will provide good drainage.

*Temperature.*—Different soils require different degrees of temperature, and needing only from 50 degrees to 75 degrees while others like tropical or stove plants require from 75 degrees to 95 degrees. The temperature should be kept as nearly uniform as possible, because it is poor practice to place seed boxes in full sunlight. They should be shaded, as this prevents too great heat and also helps to regulate the temperature.

*Separation and Division.*—By separation we mean the multiplication of plants by natural detachable organs, either by bulbs, bulbels, bulb scales or bulblets.

There are two classes of bulbs, one with large scales as in the onion, the other with narrow scales as in the Easter Lily. Bulbs generally divide themselves into two. Bulblets are young bulbs and generally form around the base of the parent bulb, as in the Hyacinth, and can be taken off and planted the same as larger bulbs although it is desirable to give them careful attention during the first year.

Multiplication by bulb scales is used with bulbs like the Easter Lily by taking good healthy scales and planting them in sandy soil in flats or pots. Small bulbets will form at the base of the scales and these can be taken off at the end of the year and treated as bulbels.

Multiplication by bulblets can be used with plants like the tiger lily. At the axil of the leaf there is a specialized bud. This can be taken off and treated in the same manner as bulbels.



Division is used on plants such as rhubarb, dahlias and other plants where the crown can be divided into a number of small crowns. Division is commonly applied to that phase of separation in which the parts are cut or broken into pieces and where we can get a new plant for every good bud. All perennial herbs can be multiplied more or less by division.

*Multiplication by Layers.*—Plants whose branches can be brought to the ground and will take root can be multiplied by layers. The gooseberry, raspberry and grapevine can be used as examples. The black cap raspberry can be bent over and the tip placed in the ground and pegged there. The tip will then send out roots the following year, when it can be separated from the parent plant.

Serpentine layering is often practised with the grapevine. A vine is laid along on the ground and fastened down with pegs or stones, whereupon roots will be sent out at each joint. As soon as it has firm root hold to the ground the vine can be severed from the parent plant, and we thus have several plants from the one vine.

Mound layering is done by placing earth around the base of the old plants and allowing it to remain there for a considerable length of time, when it is removed. The buds that have been covered with the earth will be found to have sent out roots. These buds can be removed and each bud will give a new plant.

*Multiplication by Cuttings.* This is carried on mostly with green house plants. A moist uniform atmosphere and a porous soil is necessary for the best results. Soil for cuttings should be porous, free from vegetable matter and one that does not bake. A clean sharp sand is the best. There are four classes of cuttings, namely tuber, root, stem and leaf cuttings.

The potato is an example of a tuber cutting. Horse radish, raspberry, blackberry are root cuttings. Stem cuttings are divided into two classes,—hardwood and greenwood cuttings. Hardwood are those taken in the fall in the dormant state and kept in moist sand or sawdust in a cool place during the winter

to allow them to callous over. They should not be allowed to strike root till the following spring. The currant and gooseberry are examples.

Greenwood cuttings are generally taken from house plants. They will grow more readily than hardwood cuttings and more species can be propagated by this means. They should be planted as soon as taken from the plants and shaded from bright sunlight to prevent them from withering. Roses can be propagated both by greenwood and hardwood cuttings.

Plants that have thick leaves like the Begonia can be multiplied by leaf cuttings. A leaf with its ribs broken can be planted on soil and pegged down and a new plant will form at each break. Or a leaf with the stem attached can be planted in the soil and a new plant will come up at the place where the stem joins the leaf. Usually stronger plants are obtained by this method.

*Grafting.*—This is carried on mostly with fruit trees. There are several methods of grafting; the more common ones used are the cleft, whip and bud grafting.

Budding is mostly carried on in the nurseries on young two year stock. The bud stalks are taken in the fall from the same year's growth of wood. Only good, healthy, mature buds are used. The bud is cut from the stock with a keen knife and placed in a T-shaped slit about two inches from the ground in the bark of the stock to be budded. It is then bound tight with raffia grass.

Root grafting is also carried on mostly in nurseries upon one year old roots. A short piece of root is taken and a scion taken from the previous summer's growth is whip grafted on to it and bound with wax paper. The grafted roots are then placed in damp moss or sawdust for the winter and planted out the following spring. The advantage of root grafting is that it can be done during the winter.

Cleft grafting is commonly used for large stocks up to about 2 or 3 inches in diameter and for top grafting. The stock is cut off at the desired height and split down to allow the

scion to be placed in. The butt end of the scion should be cut wedge shaped and placed in the stock. The wound is then covered with grafting wax to exclude the air. Be sure that the inner bark or cambium of the stock and scion meet, or failure will be the result.

If the stock to be grafted is too large to be split easily it can be bark grafted, by trimming the scion, inserting it between the wood and bark, and covering the exposed surface with wax. All scions should be of the previous year's growth. Apple trees should be grafted in the spring before the buds begin to open (about May). Stone fruits, such as cherries and plums should be done earlier.

C. B. GOODERHAM, '13.



# Dairying and Poultry

## THE NEW CATTLE

The college has purchased some new cattle to build up the herd. These cattle came from Ontario, where they were purchased by Professor Trueman. He bought seven Holsteins, three Ayrshires, one short-horn cow with six-months calf at foot, and a short horn bull. Two of the Holsteins were bought from J. W. Richardson, of Caledonia; and one from N. F. Patterson, of Alford Junction. The others were bought from small breeders. The cows bought from Richardson and Patterson are mature cows of large size and great substance. They are due to freshen in the early winter and are expected to make excellent records. The names of the two cows bought from Mr. Richardson are Jemima Wayne Sarcastic, No. 7208; and Emma of Evergreen, 2nd, No. 10645. The cow bought from Mr. Patterson is Spink's Buttergirl No. 8635. The other Holsteins are Victoria Calamity Clay, No. 6175, her daughter Victoria Pauline Clay, No. 16397; Mechthilde de Pride, No. 10569; and Tidy Posch DeKol, No. 20999.

Jemima Wayne Sarcastic, purchased from Richardson, is a half sister of Flora Wayne, of Riverside, the well-known Holstein cow owned in the College herd that produced in one year 10,000 lbs. of milk and gave  $97\frac{1}{2}$  lbs. of milk in one day from three teats. A two year old daughter of Flora Wayne, bred and owned on the College Farm, has just completed a week's test in which she produced 14.668 lbs. of butter fat, equal to 18.33 lbs of butter, and 393.7 lbs. of milk. The full sister of Flora Wayne looks at least as good and promises to make a splendid record in the College herd.

The Ayrshire cows are good average Ayrshire stock. Their names are Scottie's White Floss, No. 25691; Jessie 2nd, No. 37503 and White Bessie, No. 30885. One of them is a heifer and the other two are mature cows.

The short-horn cow, Boyne Lady 3rd, No. 83648, is a

very fine milker and at the same time has great quality and substance. She is an ideal example of the milking shorthorn. Her calf is a well developed calf for its age and shows excellent beef qualities. The shorthorn bull is Brilliant Morning, No. 83759, and is a half brother of Lady Boyne 3rd. The bull comes from a milking strain and it is hoped that he will sustain these qualities.

A Holstein bull has also been purchased from R. E. Buell, of Wallingford, Connecticut. His name is College Johanna Lad, No. 17758 (A. H. F. H. B. 117375). This calf carries a large amount of the blood of Colantha 4th's Johanna, the cow that held the world's championship for several years.

### IMPROVEMENTS IN THE DAIRY BUILDING.

The lecture room of the dairy building has been converted into a dairy laboratory. The old seats have been removed and a first-class cement floor laid over the whole room. The brick walls have been covered with a fine quality of sealing boards, leaving an air space between the bricks and the boards. This will keep the room dry by preventing the steam from condensing on the walls. The room is fitted up with milk tables for milk testing, and with various other dairy appliances.

A 15 H. P. boiler has been ordered to take the place of the old and to furnish heat as well as power for the building. The milk from the barns is now brought directly to the creamery where it is pasteurized and then separated. In this way all the cream is pasteurized for butter making and all the skim milk for feeding.

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### THE BANGS SYSTEM AT THE COLLEGE.

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As announced in the Annual Report of the College in December 1912, the College herd has been put under the Bangs System with the idea of building up a herd of cattle that will not even react to the tuberculin test. At the present time the cattle which have not reacted to this test, are stabled in the

main College barn and those which have reacted have been placed in two barns on outlying parts of the farm, over one-half mile distant from the main buildings, these two barns having been remodelled for the purpose. The "McKenzie" Barn, where all of these cattle that are giving milk have been placed, has been fitted up in a way that is almost a model for the average farmer. The fittings are inexpensive and there is nothing in the whole stable but which could be duplicated by a farmer of average means. The barn will accommodate twenty-two head of cattle in stanchions and has in addition three roomy box stalls. The King system of ventilation has been installed and the students will have a splendid opportunity for observing the working of this system which has given such good results in the United States. The College management are extremely anxious that visitors who have time should inspect this stable and make full enquiry in regard to the high importance they attach to the tuberculin test and the most up to date method which they have adopted of building up a non-reacting herd.

The milk for these reacting cows is taken to the dairy building where it is pasteurized and then separated. The calves born from these cows are removed from their dams immediately after birth, put in a separate barn, and fed sterilized milk. This is the Bangs system which is in force in the most up to date stables in Europe and many parts of America. In this way it is possible to keep the valuable blood of the old cattle for breeding purposes and to build up a young herd that will not even react to tuberculin test. In order to make the system as effective as possible and to remove the work from any possibility of lack of thoroughness which might possibly occur from the owners fancying particular cattle, the testing and separating of the cattle has been placed entirely in the hands of the Veterinary Director General's Department at Ottawa. Dr. Townsend of that Division is carrying out the details of the work, the results of which will be published from time to time. The working out of this system will prove a most valuable demonstration to the students at the College and to the farmers generally who, in future years, may seek by means of the tuberculin test to absolutely eradicate bovine tuberculosis from the country.

## BEEF BREEDING CATTLE.

Before taking up the subject of beef-breeding cattle or beef-breeding, it may not be amiss to first give a few introductory remarks on this important phase of Live Stock Farming. Beef-cattle are divided for practical purposes into three general classes:—*Butchering, Feeding or Breeding*. Since this classification depends largely upon the purpose for which they are to be used, and the ultimate end of all Beef animals is the butcher's block, it follows that the feeder and breeder, must strive to produce the animal that is the *ideal* of the butcher.

As our subject deals mostly with beef-breeding, we omit the stock feeder for the present, and try to see what the breeder must do. It is obvious that he must bear in mind two important principles, first that in selecting his breeding stock, he must not only select a good killing animal—demanded by the butcher—and the quick fattening animal desired by the feeder but in addition to the killing and the feeding qualities, he should look for indications of its being a good breeder as well. This is a point often overlooked, and the result is, today we find "That most beef-breeding animals are in need of an extra nursing cow." Is it that stock raisers are over stepping the limit of beef production in beef breeding, by neglecting the indications that show good breeding characteristics? To breeders who sell young stock at say up to one year old; will find that it pays to have a beef-breeding animal that will suckle her calf; as that calf will in all probability show increased gain for its age over some other calf raised from the pail of another cow.

Some may argue that we cannot find many cows that will show good beef conformation, and yet give a fair quantity of milk. There are such, and I say, if stock-breeders in selection, would not go quite so much after beef production alone but for beef and breeding characteristics combined, they would be doing something toward diminishing the cost of raising stock from an extra nursing cow.

It is clear that the main essential toward this end is to know what to look for, so as to combine beef and beef-breeding characteristics, and accordingly:

1st. We must have the true beef form present in a marked degree, as in feeders or fat steers, indicated by the same deep, broad and thick set animal. To combine the feeding type and the breeding type here is synonymous. We look for qualities indicating early maturity and easy fattening. To get at these indications we look for a short refined head and neck, deep, broad body, straight top and underline, low flanks and short legs.

2nd. The handling condition of Breeding stock should be as in feeding cattle, flesh should be thick, smooth, firm, skin soft, mellow and elastic.

3rd. For Breeding purposes attention should be paid not only to requirements of feeder and butcher, but to any indications that will point to such good qualities as an animal possesses being transmitted to its off-spring. In other words he or she must have not only the physical ability as shown by constitution and vigor to produce good off-spring, but also the propotency (which is shown by sex development and breed characters) to impress these good qualities on off-spring.

In the female we look for refinement in all parts of the body. Head should be free from burly heavy appearance, as seen in the bull, forehead should be broad and full, but not heavy, fine horns neck more refined and thinner, entirely free from crest, greater development in the hips, which should be wider and more prominent than in bull. In bulls we look chiefly for masculinity, not coarseness, or a refined appearance indicating the presence of greatest amount of quality associated with masculinity and sexual development. Whenever we see propotency, we find adherence to breed type, and in order to add value to the breeding herd we like to find Uniformity.

H. A. BUTLER, '14.



**REVISED.**

That oft asked query I'll repeat,  
"Why does a chicken cross the street?"  
You'll answer in the same old way  
That jokers did in days of old.

You're wrong. The chicken I've in mind,  
Upon the gay Broadway you will find.  
Across the crowded street she'll glide,  
Because upon the other side  
She sees a millinery store.

—Judge.

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**AMERICAN STANDARD OF PERFECTION.**

The important feature at the last meeting of the American Poultry Association recently held at Atlantic City, N. J., was the revising of the Standard.

This Association is an important one in the poultry world and has a membership of 5000, from all parts of United States and Canada.

The American Standard of Perfection is a law book. It lays down the rules as to what a fowl must be in order to win in its class. It is the book by which fowls are judged.

Hundreds of changes were made in this book. Among the changes were the elimination of "stag" and "rooster" from the glossary of technical terms.

Formerly the word "stag" was defined as: "A term used for a young male, chiefly employed by game fanciers." The Standard does not recognize pit games and accordingly removed "stag" out of the text-book.

It has long been the custom in all parts of the country to call a male bird a rooster. The Standard defined it as: "A term commonly applied to a cockerel or cock, but not used by fan-

ciers." Much discussion was held at the meeting regarding this term but it was finally agreed to eliminate it from the book.

A. S. P.

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### POULTRY NOTES OF THE MONTH.

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November is, on the whole, a bad month for market fowls and chickens, but nevertheless room should be made for the egg producers and everything except the breeders should be sent to the market as the markets during the end of the month are seldom satisfactory except for large birds. Turkeys during the holiday season have the right of way. "I love my chicken but oh you turkey" is what counts in November. This is the time to put on the finishing touches for remember turkeys bring high prices and extra ounces in weight will more than pay for attention given them.

You know that when the hens are laying life looks a lot different than when they are loafing. If you have not done so get busy and give your hens some of the individual attention which will put them in condition for laying.

Compare the way we ran our poultry yard yesterday with that of today. Years ago we were up early in the morning preparing the cooked mash and spent a lot of time lugging it around every morning. We had air tight houses, roosting closets, shutters for the windows and warmed the water and grain. Today we save our steps by filling the food hoppers with dry mash once a week, open front houses and cold water. The birds are a lot healthier and profits are increased.

March and April pullets should be starting in to lay. Keep the different ages by themselves so that the younger ones are not run on by the elders. Kept separated they will mature much faster.

Letting your birds out on the cold ground, walking around in the snow and slush, damp litters, all keep your birds from laying. Don't try to keep them warm, but keep them dry at any cost. Keep them scratching.

The man who is on intimate terms with his fowls, so that he can pick the hens up at any time, is the one who gets the large egg yield. Study the individual.

Do not put the windows in because it is cold. Remember that your birds have better overcoats than the best of us can buy and they cannot take them off when the room is too hot. mean cold houses day and night, and maintain a much higher Plenty of windows make hot houses of your buildings in bright sunny days and zero conditions at night. Open front houses make cold houses day and night and maintain a much higher standard of health in your flocks. But remember with open front houses the other three sides must be air tight so as to avoid draughts which bring on colds, croup, etc.

For best results one-third or one-quarter of south side open, according to local conditions, 365 days in every year.

Also see that your house is banked up around the bottom.

July and August chickens should be by this month well feathered out and able to care for themselves if properly housed.

A simple and easy way of getting eggs in the fall and early winter is: Early hatched, well matured pullets or yearling hens that moult in airy houses, without glass windows or draughts; plenty of litter on the floor; birds kept confined to the house, fed on a well balanced dry mash and scratch food; kept busy scratching and healthy fresh air, good water and plenty of mineral food.

You often notice when birds are let run at this time of the-year they do not keep active all the time. They generally get in the warm sun and spend most of their time doing nothing. Keep them in the houses with a good litter to scratch in and they are bound to be more active and vigorous.

# ATHLETICS

## ATHLETICS.

The first annual meeting of the N. S. A. C. A. A. was held on Nov. 6th. At this meeting Weldon Flemming was appointed business manager of basket ball team. Basket ball was started soon after college opened. The students are taking great interest this year, all the practises being well attended. The College expects to have a good team this year to put in the league, as we have a lot of good material to pick from.

As our gymnasium has been equipped we are able to get in a good many practises. Interclass games have begun. The first game was played off on Nov. 17th. The teams faced each other at 8.30 both confident of victory. The game was close and fast throughout. When the whistle blew at half time the score was Seniors-10, Juniors-5. During the second half the score mounted up to Seniors-20, Juniors -16.

Morrison of Normal College refereed.

The line up for both teams was:

Seniors.		Juniors.
Spicer	Forwards	Fairweather.
Schafheitlin		Trueman.
J. MacLean	Centre	Holman.
C. Starr	Defence	Congdon.
Buckley		Ervine.

A great deal of the material for the team this year will be found in the Junior class.



# College Life



## COLLEGE OPENING.

The enrollment of students in the College this term is not quite as large as last. When we consider, however, that agricultural schools have been established elsewhere, we can not but feel that the attendance is very good. The number is about equally divided between the senior and junior years, and both the classes are starting in their studies under very favorable circumstances. A number of the rooms which were under construction last term are now in excellent shape and add much to the convenience and ease of study. A new reading room is of especial value, as the journals with which it is stocked enable the student to keep in touch with the latest issues of the day, along agricultural and other lines.

## THE U. S. C.

During the closing week of last term, a number of officers were elected by the council to carry on the business at the first regular meeting of the present term.

Mr. W. R. Shaw was elected President and Mr. R. Schafheitlan, Secretary. The meeting was called in the Assembly Hall, on Nov. 8th. On the position of Vice-President being declared vacant, Mr. Notting, of the junior class, was unanimously elected to fill it. As there was very little business brought up, adjournment soon took place. Perhaps a marked feature of the gathering was the excellent order. It is to be hoped that this good order will prevail at every meeting during the present session. Every student should feel more or less responsibility in upholding propriety and decorum, so that our business may be carried on in as expeditious a manner as possible.

## THE SENIOR CLASS.

A good majority of the last year's junior class have returned to take up second year work. No meeting has yet been

held for the purpose of organization. As debates between classes are being contemplated, this organization must necessarily soon take place. No doubt when these debates take place, the juniors will make the seniors sit up and take notice.

### THE JUNIOR CLASS.

The junior class is composed of about the same number of students as the senior. The class is more conspicuous perhaps on account of having in it a lady student. A meeting for organization purposes was held on Nov. 17th, and the following officers were elected for the term. Mr. Trueman, President; Miss Stanford, Secretary-Treasurer. Mr. Holman was appointed captain of basket-ball team. Meeting adjourned.

### THE DEBATING SOCIETY.

The first regular meeting of the debating society was held on Monday, Nov. 16th, Mr. Buckley, Vice-President from last term, occupied the chair. The following officers were selected for the present term. Mr. Buckley, President; Mr. Trueman, Vice-President; Mr. Bremner, Secretary; Mr. Swan, Treas.; and Mr. Notting, Sergt. at Arms. It was decided to conduct the society along lines somewhat similar to that of last term, that is one night every two weeks open for visitors, and one night for debating purposes, exclusively for N. S. A. C. students.

The first open night was held on Monday, Nov. 23rd, and a committee consisting of the Executive Committee along with Messrs. MacLean, Congdon and Lewis, were appointed to arrange programme, etc.

In regard to our debates, it is to be hoped that students will consider them a very necessary part of their education here. Last term, they were not, unfortunately, patronized to such an extent as they should have been. We come to this institution from widely separated sections of the Provinces. The people of those sections are watching our progress. When we return home they will be expecting something of us, and

we cannot tell the moment, when, at public meetings and elsewhere, we are going to be asked to speak. Here and now is the time to prepare for that moment. We have exceptional opportunities in this College Society for educating and schooling ourselves in public speaking. Let us one and all boost and patronize the Society. Attend and take part in the debates, and by so doing cultivate our gifts, and to a certain extent at least gain that confidence and ease that are requisite in an orator and public speaker.

In conclusion, many thanks are due Prof. Landells, for his great interest in our Debating Club. We trust he may be able to be present with us at all our regular meetings.

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### P. N. C. "AT HOME."

The most enjoyable event of the social season to date was held on the evening of November 13th, when the P. N. C. Literary Institute was "At Home" to the "Farmers". A high class programme was rendered, and dainty refreshments served. The P. N. C. Institute is to be complimented on the attractiveness of their entertainments, and our most fitting thanks would be the return of the compliment at an early date.

We have also had socials held under the auspices of several of the churches to welcome the students of this College to the town. They were all very pleasant events, and testify to the feelings of the people of Truro to the stranger in their midst.

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### MARCHING THROUGH TRURO.

On Friday night, of Nov. 7th, at about 11.30 o'clock, the good people of Truro were somewhat alarmed, on beholding a body of men marching through the town. Both the leader and the followers were arranged in garbs of a rather original nature, yet none the less imposing on that account. A band composed of numerous instruments, also very original, headed

the procession, playing various selections with a persistency and determination that was highly commendable. It might here be mentioned that the marchers were never out of step with the music. Frequent stops were made along the line of march at which high-class demonstrations of vocal powers were given. Some of the more venturesome of the younger citizens followed in the rear of the party, and although they tried their utmost to find out the mission of the intruders, they were treated with total indifference by the white robed figures. After parading the principal streets of the town, the little army with a final "Hip-hip-hip-hooray" disappeared in the darkness beyond the city limits, where it is said they were guided through the night by a Starr.

It was remarked by the laundry men of Truro next day, that a great number of the N. S. A. C. students were having their night gowns done over.





# Alumni and Exchange

H. S. Cunningham '12, is employed at the College this season.

H. E. Woodman '13, the energetic promoter of many entertainments is at present putting theory into practise at Canning.

Alan G. Dunstan '13, is specializing in microscopy and making the insect life in Guelph miserable.

J. G. Archibald '13, is taking his third year at Guelph, and it is said that few of the professors there catch him asleep.

R. Donaldson '13, is shining with the athletic luminaries in Guelph.

R. D. L. Bligh '13, at Guelph is lighting up the social and scholarly circles, and doing good steady work.

H. G. Grawford '13, is heading toward the biology option at Guelph, and will doubtless advertise Darwin far and wide some day.

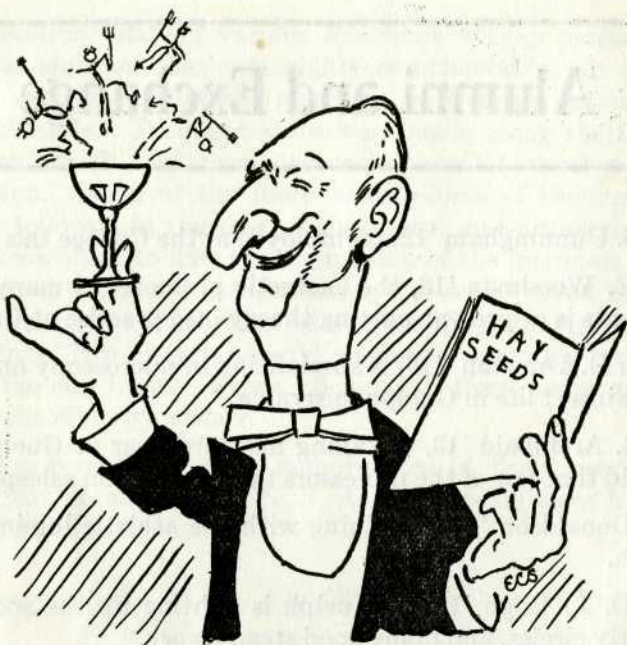
E. Morash '13, is in retreat at Woodlawn, of which Halifax is a suburb, and expects to attend college next year.

W. Arthurs '13, is in St. John, finishing up his year's market gardening, and also expects to take third year next year.

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## EXCHANGE.

On our exchange list this month we wish to acknowledge the U. N. B. "Monthly," Mt. A. Argosy, and O. A. C. Review, and King's College Record.



Prof.Sm-th to class.—“Why were the middle ages known as the Dark Ages?”

Hog-n (from rear).—“Because there were so many knights.”

MacK-n - e to Prof. C-n-o--y.—“Is it valid for minors to contract a marriage?”

(It was noticed by every one since that Mac's face wears a smile that will never come off).

Edith and Flora were spending their summer vacation in the country. “Do you know,” said Edith, “that young farmer tried to kiss me. He told me that he had never kissed any girl before.” “What did you say to him?” asked Flora. “Why,” replied Edith “I told him I was no agricultural experiment station.”

M-rch.—“What is a grass widow?”

F- - rw- - Th r.—“A married woman that has left her husband.”

M-rch.—“I know a woman who has been married six times and left her husband.”

F- - rw- -the-r.—“She must be a bale of hay.”

Junior.—“I'm going to get a hat that suits my head.”

Senior.—“You had better get a soft one.”

Junior.—Advertising a pig.—“Any one wanting a pig come out and see me.”

Sch-f.—“I was down to see my girl last night. She told me that I reminded her of their parlor lamp. I wonder what she meant.”

Student.—“She meant that she turned you down, and you wouldn't go out.”

Student (in restaurant).—“Chicken croquettes, please.”

Waiter (lustily).—“Fowl ball.”

A school paper's a great invention,

The staff gets all the fame,

The printer gets the money

And the Editor gets the blame.

*Ex.*

Normalite.—“Do you know how to dance?”

Junior.—“Well, I know the holds, but I don't know the steps.—*Ex.*”

Senior.—“You've been drinking, I can smell your breath.”

Junior.—“Nope. I've been eating frog's legs. You must smell the hops.”—*Ex.*

The juniors have nothing on the seniors this year, that's Sutton. However, that's Notting.

Principal.—“What do you think of this cow? Mr.H-g-a-n?”

Mr. H.—“She’s too heavy forward and too light aft, sir.”

Voice from rear.—“Starboard!”

Needless to say Mr. H. was given a fresh score-card to study terms.

F- -rw- -th-r.—“How much does it cost to telephone from here to Amherst?”

W- - dr- -fe.—“Fifty cents?”

F- - rw- - th-r.—“Why in St. John we can telephone to H-des for that.”

W-dr- - fe.—“Well that’s within the city limits.”



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**Hockey Season**

**A Special Offer to Students**

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