

Maritime Students' Agriculturist

Published By the Students of
The Nova Scotia Agricultural
College. Truro, N. S.



February, 1923

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T H E

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Editorials

This being the first issue of the M. S. A. for 1923, we extend to our readers our very best wishes for health, happiness and prosperity throughout the New Year.

The Two Weeks Short Course.

THE Annual Short Course for farmers and farmer's sons conducted by this institution commenced this year on January 3rd. The attendance enrolled numbered

seventy, which was a large reduction from that of pre-war years. Several reasons have been advanced for this reduction in attendance, and it appears that they are of a fairly universal character.

During January the short courses and experimental union held at Ontario Agricultural College was reported in the press as having been attended by only sixty farmers.

During the past few years the college staff have been conducting short courses thruout the country. The winter courses are conducted at seven different centres of the province, while the summer courses include many more. Correspondence however would indicate that the present financial condition of agriculture, and the high rates of travel and board were a potent influence.

One reason may also be that the novelty which no doubt attracted a large number of students in the earlier short courses has worn off, and that even under normal conditions, such record attendances as from 300 to 400, which were enrolled in pre war years would not have been continued.

Alumni Association Meeting

THE members of the Alumni Association of this college held their annual meeting during the second week of January. Those who attended the meeting pronounced it a marked success in endeavoring to keep the thoughts of college days and friendships from fading from our memories, and I might justly conclude by saying that I would consider it the privilege for senior students when they "go out" if they possibly can, to join the ranks of the "old boys" and help support the association.

Dairymen's Meeting.

THE dairy and creamery men of Nova Scotia held their annual meeting at the college during the third week of January. The main feature of the meeting was the Bluenose contest. In this contest butter from all parts of Canada was entered. The judge made the statement that he never judged so uniform a quality of butter, as was shown by the scores. The Western butter captured the first few prizes, but Nova Scotia butter was not far behind. One of the reasons for Nova Scotia butter falling behind was on account of it being made from winter cream, which, as a rule is not as good for buttermaking, as the winter cream received by the Western creameries.

McDonald Tobacco Co. offers Scholarship.

THE President of the McDonald Co., Ltd., of Montreal, whose founder, Sir William McDonald, established McDonald College, Quebec, has advised the principal of Nova Scotia Agricultural College that the company of which he is president is offering a scholarship to students from every province in the Dominion for post graduate study for the degrees of M. S. A., and Ph. D. at McDonald College. In nominating a student from Nova Scotia, preference is to be given to a B. S. A. who has taken his first two years at N. S. A. C. The faculty of the Nova Scotia Agricultural College are now ready to receive applications from any student of this class who wishes to take advantage of this opportunity for post graduate study.

“Read not to contradict and to confude, nor to believe and take for granted, but to weigh and consider.”—Bacon.

What's a Farmer ?

A Farmer is—

A capitalist that labors.

A man who works eight hours a day twice a day.

A man who has every element of nature to combat every day in the year.

A man who is a biologist, an economist, and a lot more ists.

Who gives more and asks less than any other human being.

Who takes unto himself for his own sustenance and that of his family those of his products that other people will not utilize.

Who gives his boys and girls to the big cities to infuse red blood into a society that is constantly decadent and whose only salvation is the cirility that it draws from the rural sections.

Who sells his products for what the other fellow cares to pay for them and who buys the other fellows products at what the other fellow cares to charge for them.

If I were advising young men as to their future profession I would say that there are greater opportunities in agriculture than in any other profession in our country.

—Ex-President Taft.

If a man empties his purse into his head, no man can take it from him. An investment in knowledge always pays the best interest.

—Franklin.

Government Aid to Farmers.

AT the present time the farmers constitute a militant political organization. Led by a man with an ominously significant name, they hold the balance of power in the Canadian Parliament. Under such circumstances, the question, What can the Government do for the farmers? becomes one of more than passing interest.

There can be little doubt that the Canadian government can do a great deal for agriculture. Conceding, and it should not be a difficult thing to concede, that the farmers are not all fools, they would never have organized a political party did they not realize that the government can help them. Nor would they have organized such a party if they were of the opinion that agriculture was receiving from the old-time parties all the concessions and aids necessary to its successful prosecution.

It is but fitting that our federal government should give the most generous measure of assistance to the farming industry. In my judgment the future success and prosperity of Canada must be sought along the line of agricultural development. A little calm reflection will show this to be correct.

There can be no doubt about it, agriculture is the only sound foundation upon which a newer and better Canada may in course of time be built. The agricultural resources of Canada defy in point of potential wealth a1 effort of imagination or comprehension. Our present agricultural production is but a mere "drop in the bucket" when compared with the possibilities for future development.

In 1915 the total value of Canada's agricultural products was officially estimated at \$1,118,694,000, in 1916 \$1,223,952,000, in 1917, \$1,621,028,000. Prior to the war

Canada's total industrial production including all products of mines and forests amounted to approximately one billion dollars, so that even in its present stage of development agriculture is of paramount importance. In the three prairie provinces alone Canada has an agricultural area of more than half of the total agricultural area of the United States. But the annual value of all farm products in the United States is now over nine billion dollars. These reflections serve to reveal the tremendous development that is possible in Canadian agriculture. How small Canada's vast war debt seems when compared with the value of a season's possible production from our agricultural area.

It would seem then that Canada's future development does not present any problem as serious or important as the development of agriculture. That stands first.

Once agriculture is recognized as our greatest industry the case for government support and assistance is clear. Every government should give special consideration to the nation's paramount industry. We can see that reflected in the legislation enacted by different countries. Switzerland and Italy are frankly concerned with attracting tourist traffic. They are the great holiday countries of Europe. The legislation and administration of these countries is shaped to attract well to do people on pleasure bent.

On the other hand Denmark, Holland, New Zealand Australia, and other countries realize that agriculture and live stock production must always be their chief industries and their legislation is shaped accordingly. It is my opinion that Canada could well take a leaf from some of these countries in the matter of legislation to assist the farmers. One measure which both Denmark and Australia have tried and with signal success is the system of rural credits.

It is not my purpose to enter upon a wholesale criticism of our Canadian Banking system. We have been told that that system is the best in the world.

It probably is—for the banks. From the point of view of agriculture it leaves much to be desired. Generally the farmer has difficulty in negotiating a loan. When he does so the interest rate is high and the term of credit so short as to be wholly inadequate for the purposes for which the farmer wants it. Some people claim that the more rigidly the farmer adheres to working on his own capital the more liable he is to succeed. This is not so. In many cases the farmers haven't enough liquid capital to work on. At any rate the contention is short sighted. Many commissions have visited Denmark to investigate the system of financial co-operation so successfully practiced there. I am aware of the fact that the Danish system was condemned by one such royal commission, on the ground that the average per capita debt of the farms there was greater than in any other country in Europe. What that commission failed to recognize was that it is the facility with which the Danish farmer can command capital both short and long terms at low interest rates, which is the fundamental reason for the unprecedented agricultural development and prosperity of that country.

Those who oppose a system of rural credits assume the ridiculous position that a farmer cannot utilize capital as advantageously as a person engaged in other business. I believe he can make far more profitable use of money than any other borrowing class. The widest possible credit at the lowest rate of interest is an essential in agricultural development. Where these conditions prevail agriculture prospers. We are exceedingly short of live stock in Canada. There are many reasons given for this, but the real one is lack of capital. The farmer must purchase foundation stock, provide certain buildings, raise additional fodder crops etc. How can these things be provided? How can our stock be improved? It cannot be done by educational propaganda alone. That improved live stock is desirable almost every sane person will agree. It is self-evident. If there is any immediate solution in

sight it lies in a system of rural credits. If we can couple the problem of generous rural credit as a government measure with the problem of live stock extension and improvement a great work will be effected for the farmers and for Canada.

In the United States measures have been undertaken to provide suitable rural credit. The United States government has established the Farm Loan Bureau to arrange for long term credits to farmers. The Federal Farm Loan Act will enable farmers throughout the United States to borrow from \$100 to \$10,000 at from *five to forty* year periods. The basis adopted in fixing rates is to advance up to 50 per cent. of the land value and 20 per cent. of the value of the permanent insured improvements on land. Twelve great Farm Loan Banks have been established whose operations will extend over the whole of the United States, One of the effects of the system is to enable tenant farmers to secure land.

New Zealand has had a very successful experience in the matter of rural credits. In 1894 legislation was passed by the Parliament of New Zealand entitled "Advances to Settlers Act." Capital was raised in Europe on Government Bonds and loaned to the farmers through a chain of advance to settlers offices. In twenty years over seventy million dollars was loaned on this basis, the rate of interest being 1 per cent. over the actual cost of the money to the government. There have been only 35 foreclosures under this Act since 1894. The result has been particularly felicitious. When this system went into effect the per capita value of domestic products exported annually from New Zealand was \$30.00, in 1912 they had risen to \$111.78 which was then the highest of any country in the world. The number of Savings Accounts and the amount to their credit (in New Zealand) are also supposed to be the largest in the world in proportion to population. As one authority says—"The farmers by means of the Credit System, have built great houses and put larger areas under culti-

vation. Live stock development has received a tremendous impetus, and the introduction of modern sanitary equipment on the New Zealand farms is now almost universal.

Spasmodic efforts have been made in Canada along the lines of rural credit, notably by Manitoba and British Columbia. But what is required is complete federal investigation of the whole subject: not so much along the lines of rural credits in other countries, but to obtain an complete understanding of the particular problems that confront Canadian agriculture. Legislation in this matter should then be passed by the Federal Government based on co-operative effort with the provinces.

—J. C. M. '23

A Suggestion for Farmers.

AT THE commencement of this article it might, perhaps be considered out of place to quote the words of a certain wise and well known saint writing to his fellow christians anent the performance of their affairs in proper and decent order; but certain it is that no better advice could be offered to the farming community at the present day.

Many a farmer raises excellent produce after much trouble and expense, and then for lack of marketing opportunities, becomes disheartened because he is perhaps worse off than his less painstaking neighbor who has poorer produce for sale. This dilemma is often the result of the farmer being dependent on the weather to get his produce away before nature blocks the roads, and consequently being obliged to sell for whatever he can get. Then again

a great many farmers are unable through lack of means to successfully combat high freight charges and other more or less bugbears of the profession. The writer of this article would here like to mention that no implication of inefficiency is intended for those farmers who pride themselves on their own personal business capabilities: rather be it said, (and of this there can be no doubt), that the farming community as a whole would profit by a system of co-operation, created by the farmers themselves and run by themselves, for their own good and the advancement of their own interests. It can only be in this way that difficulties such as those mentioned above, could be removed.

There is a certain proverb which says—"The proof of the pudding is in the eating;" and so the merits of co-operation are proved wherever co-operation is observed. Perhaps the best examples of a co-operative farming system are to be found in the old country. There the National Farmers' Union has the support of the great majority of the farmers in the United Kingdom. The system followed is simple in the extreme and possesses that independent and democratic spirit proper to its uses.

Each county is divided into natural divisions, formed usually around the various market towns and cities. Each division or branch has its president, secretary and executive committee, drawn by vote from farmers in the district who have paid a small yearly subscription to provide for the upkeep of the Union's activities. In most cases these branches form themselves into a co-operative trading company, and members of the Union become shareholders. To this advantage is added the benefits derived from the opportunities presented to handle the produce for sale in large or small quantities as may be desired, rendering the producers independent of markets and buyers where they wish to hold up their sales. Another

important point in favor of the movement is the facilitated purchase of implements, fertilizers, sprays, etc. These can be purchased wholesale by the Union and supplied to individual farmers at low prices. In many cases in the old country where the Union has received the proper and wholehearted support of the farmers steps have been taken to put forward and support Parliamentary candidates bound to the farmer's cause, and to ensure fair legislature in the House of Commons.

What the old country has proved and found to be beneficial, surely should not be thrown lightly aside by farmers on this side of the ocean whose conditions need improving even more than those of the old country. It is certainly true that farming is possible without inter-cooperation of farmers, but it is just as true to say that farming is benefited an hundred fold by the use of inter-cooperation. The nation that is divided against itself can never prevail against others. Unity is, has been, and always will be the true embodiment of strength. Let us then bind ourselves each to each, community to community, in the advancement not only of our own ends, but the agricultural profession as a whole.

—J. W. S. M. '24

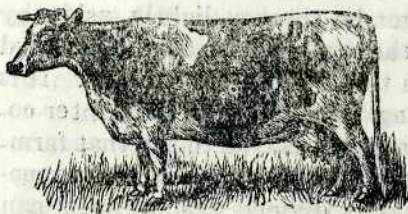
A wise dairy farmer combines the minimum of human labor with the maximum of profitable machine labor and works in co-partnership with the cow and his fellow dairymen.

They met on the bridge at midnight,
 But they'll never meet again,
 For one was a cow—east bound,
 The other a west bound train.

Dairying

Breed, Weed, and Feed

The Dairy Herd in Brief



SUCCESSFUL live-stock production depends upon feed and selection. One is equally as important as the other. As to selection it is false economy to use other than the best pure bred sires available. Ones with good breed type, individuality and ancestry. The more milk behind them the better and the closer the good production is to the individual the better he is, and as for the cows the keeping of milk records will help to give us an idea of what we have.

Let us beef the weeds and keep the ones that come up to our standard. If in this breeding and weeding we aim to get "everytime a little" then we will be making progress in building up good dairy herds.

"Blood" will tell every time. A pure or well bred animal will respond to good feed and treatment where a scrub or poorly bred animal will not.

But the converse is equally as true. If one is not going to feed, then let him keep the scrub—the scrub will do better. I make the statement that the person must keep the scrub, it is quite true, because the scrub won't keep him or itself either.

It is the opinion of some that they can increase pro-

duction by breeding alone. I agree with them if they agree to feed well along with it. That good feeding must go along with good breeding is a cut and dried statement of the successful stock raiser. It is impossible to do otherwise and get good results.

You have the good qualities in the well-bred animal and you must feed to bring them out. With the scrub or poorly bred animal you can feed all you like, but you will get no material response—for the simple reason that there is nothing there to respond. If you don't bring out the good qualities of your animal you don't know what you have. You simply ignore the good breeding which you admire. If you think your animal possesses good qualities, then feed is the test. It is the last statement, "feed is the test" that has helped many a man in the live stock business. They have taken a young or fairly young animal which was somewhat stunted but had the good breeding behind it, and as is often the case with good feed and treatment they were rewarded with an individual entirely different from that with which they started. We can do the same, only let us try to do one better—not to start with a stunted animal. Let us try our level best to develop our young stock, furthermore, let us do it.

Here is a problem;—

Will the results of good breeding hold true thru a period of bad treatment to the individuals ancestors? Suppose you have a well bred cow with a fairly good ancestral record. We get a heifer calf from her which was sired by a good bull. This heifer calf however has become stunted thru lack of feed or some other cause. But we get from her a heifer calf which was sired by a good bull. Now the question, What are the chances of this calf becoming a good cow? Will her breeding prove its value?

I would say that she had fairly good chances of becoming a good cow PROVIDED that she is properly fed and cared for from the start. One drawback however is,

her dam has never been tried. She has never been tested to prove the value of her breeding. Did she breed true? We don't know, but we have the good blood of the calf's sire, the good blood of the dam's sire and dam and the good blood behind the grand dam. In fact our prospective "mortgage lifter" is backed up on all sides by good production blood. Now, taking into consideration the chances of breeding I would venture to say that our chances of having a good cow are good—PROVIDED as I said before that we feed and develop her well. She may prove superior to her grand dam if the grand sire and sire possess superior breeding qualities to that of the grand dam.

This stunting process could go on for several generations provided that the individuals were not weakened enough to weaken the germinal substance. Then the good qualities could be brought to light by proper feed and treatment.

Many a good animal has been spoiled simply due to the fact that it never got the feed when it was young. It is the first year that counts.

Now, in regard to feeding it is impossible to make hard and fast rules. Each and every feeder must feed according to the condition in which he is situated. But the principle is common to all—a well balanced ration, plenty of mineral matter, water, fresh air and sunlight all given with judgment and economy.

We might sum it up in these few words:—The eye of the master fattens his stock. Watch your animals at both ends and in the middle.

—S. S. B. '23

Editors Note:—This topic will be further discussed in the next edition of the M. S. A.

Breed, Weed and Feed

THE START OF IT

Feeding the Calf.

THE raising of dairy calves is one of the large problems confronting the dairy farmer to-day. The value of the calf at birth depends primarily upon the breeding back of it, and only calves from good pure bred sires and dams capable of producing 300 pounds of butter fat per year are worthy of the expense. To produce good cows it is essential to have a good foundation of inheritance and to so raise them in such a way that the full inherited powers are developed. As a matter of practice taking good calves and placing a permanent handicap upon them by poor feeding is as bad management as to ignore their inheritance. The feeding of a strong vigorous calf begins several weeks before it is born. The amount of nutrients required for developing the fetus is small until the last two months, during this time the dam should be dry and well fet. This is very important in having the cow properly fitted for the next lactation period.

After the calf is born it is usually left with the dam for a day or so. Some prefer to remove the calf as soon as it has nursed once, while others prefer not to let it nurse at all. Feeding three times a day for the first week is preferable. This conforms better with nature's way, as the calf will digest its food better when taken in small quantities and at fairly frequent intervals. The dam's milk should always be given the first week if she remains in normal condition. The time to change the calf to skim milk will depend largely upon the development. By all means it should have a good start. If the calf is thrifty

enough it may be changed to skim milk at the end of the second week. By this time it should be receiving 10 to 12 pounds of milk per day. The change should be made gradually by substituting a small quantity of skim milk for whole milk. To make the change successfully will require a week or ten days. After the calf has been changed from whole to skim milk, it can have more milk, as its appetite and condition warrant, but care must be taken to prevent overfeeding. Up to this stage more harm is generally done by overfeeding than by underfeeding, many making the mistake of increasing the skim milk too rapidly. At 4 to 6 weeks of age the skim milk can be increased to 14 pounds per day and at 2 to 3 months to 16 pounds per day, if plenty is available. When skim milk is very plentiful the mistake is often made by some feeders in giving the calf too much milk, which tends to produce too much paunch, a tendency towards coarseness in the head and neck and a thick, heavy hide. Where whole milk is sold and skim milk is not available or only at a high cost of labor and equipment, under these circumstances diluted whole milk raises good calves at greater convenience and at a lower cost per pound of gain than milk substitutes. Up to two or three weeks of age they should be handled as described for skim milk calves. At this time begin to add clean warm water, gradually reducing the milk day by day and adding an equal amount of water. At about a month old the calf will be getting from four to five pounds of milk daily, which should be continued for at least six months. The reason for adding the water is to better satisfy the calf's appetite. Feeding diluted whole milk eliminates the bother of separating, washing the separator utensils, and marketing cream or butter in addition to the whole milk.

In order that the calves may obtain their best growth it is necessary that their ration contain an abundance of

easily digested, growth promoting constituents, particularly the right kind and amount of protein and mineral matter. Investigations show proteins found in the different feeds to vary in their nutritive value. For example, a pound of protein from cereal is not equal to a pound of protein from milk for growth. It has been found in our common grains that at least 70 per cent. of the proteins are wasted, while only 35 per cent. of the proteins from milk are wasted so far as growth is concerned. This means that much more cereals must be eaten and this is the limiting factor with the young animal. With these facts in mind we can readily see why it is of vital importance to the calf's early life that it be fed plenty of milk. Along with the milk the calf must be supplied with the proper kind of roughage. An ideal grain ration is composed of the following mixture by weight;—2 parts bran, 2 parts ground oats, 1 part cornmeal, and 1 part oilcake meal to be fed dry. Calves will as a rule, commence to eat grain when about two weeks old. No hard and fast rule can be given as to amount each calf should have, this varies somewhat as to individual and breed, but generally a half pound per month increase is about right. That is to say, at the end of the first month the calf will be receiving a half pound of the mixture, which should be gradually increased till at the end of the second month the calf will be getting 1 pound per day, and at six months from 4 to 5 pounds. A liberal supply of fine, well cured hay should be kept in the hay rack where the calves can help themselves.

The important details, of which volumes may be written, such as exercise, fresh air, well bedded pens, clean feeding utensils, and freedom from lice, all unite in the development of the future dairy cow.

—W. R. '15

Benefits of Tile Draining.



A DRAINED soil is more readily freed from excess of water.

Drained soils can be worked many days earlier in the spring.

Less power and labor are required to prepare the soil.

All parts of the field are ready for the plow or harrow at the same time.

Manures and fertilizers are more readily appropriated.

The field is in a condition to plant a week or two earlier in the spring.

The seed germinates quicker and with more certainty. Crops can be cultivated regularly and with less labor. Noxious weeds are more easily exterminated. Protects against damage from wet weather, as well as from dry weather.

The depth of the soil is increased, thus giving a larger feeding ground for the roots of plants. Underdrainage prevents surface washing.

The soil is enriched by the elements of fertility from rainfall.

It gives circulation of air through the soil necessary for plant growth.

Drainage increases the length of the season for maturing crops. It lessens the liability of damage from the early frosts of fall. Crops can be harvested earlier and in better condition.

It increases the crop production as well as improves the quality of the product.

It improves the quality and increases the quantity of the tame grasses.

It greatly benefits the orchard and fruit gardens. Improves the health of live stock, and is a sanitary blessing to man.

It makes the business of farming a certainty, and increases the wealth of the country.

Tile drainage ushers in a new era in agriculture.

—J. D. M. '23

Horticulture

Plant Breeding and Propagation.

PORTIONS of Southern United States present a desolate scene to the eye of the lonely settler. Wide expanses of dry, sandy desert stretch to the horizon covered by a scanty, parched vegetation, and all nature seems to have forsaken the district. What chance has the poor settler to eke out a living from such a prospect? His cattle soon devour the scanty vegetation and grow thinner and weaker day by day. Strange to say in this land of burning suns and parched vegetation one plant flourishes luxuriantly. It is the Cactus with its large, spiny, thick, fleshy succulent stem. The cattle now turn envious eyes on it, but they have learned by experience that though the stem is soft and juicy it also has harsh, sharp spines, and so they let it severely alone.

Let us now turn to another section of the country, where the same climatic conditions prevail, but here we find the cattle plump and contented looking. What is the secret? The settler leads us to his range and we discover the cattle munching cactus contentedly, and behold the spines have disappeared.

This spineless cactus has been originated by scientific breeding methods, through the efforts of Luther Burbank.

This is only one instance of the benefits to civilization that may be derived by the application of science to plant growth.

A little past history may help out here leading up

to the present day methods that are being employed by horticulturists, nursery men, seed growers, etc.

In the first place about the beginning of the 19th century Lamarck advanced his theory of a common descent and he attributed the changes in the character of plants to the influence of their environment. His evidence was scanty and it fell to Darwin to bring forth such an overwhelming mass of evidence that the theory gained recognition. This was a half century later.

Darwin believed that nature produced more animal and plant life than could possibly survive, consequently the ones surviving had adapted themselves to the existing local conditions. The others had failed to do this and had died out. This was nature's method of natural selection, and upheld the theory of the Survival of the Fittest, but, as he also believed that new species were the product of slow changes due to environment, he was puzzled to account for the sudden appearance of new varieties.

Scott later applied the term sport or mutation to these varieties that suddenly sprang up. He theorized that species are derived from one another by small shocks which cause the species to overreach its old limits and so create a new species that remain unchanged, but at the same time the ancestor of these species may remain the same thus supporting the theory of a common origin.

DeVries added to this the idea that these mutations are uniform and constant and may be propagated from seed, hence there would be no intermediate stage between it and its ancestor. On the other hand a hybrid is now considered to be the offspring of distinctly different individuals that have been crossed. These are not constant and will not always propagate from seed. In fact it is usually the rule for these hybrids to be sterile or else to produce offspring entirely different from their parent. To

probogate a hybrid then, it becomes necessary to resort to grafting, budding, etc.

Nature has her own methods of propogating the species and has provided plants with structures to meet their requirements: There is no tendency toward a pre-determined completion of the future form in the organism before life begins. This was an old belief. As nature selects those most fitted to live, the necessity of sex in plants occurs. The species is rejuvenated by the union of the desirable features of two individuals. This produces a hardier offspring that survives. Many plants provide for their survival in different ways. Some produce fertile seed when self-pollinated and when cross-pollinated. Self sterile plants will not produce fertile seed when pollinated by their own pollen. Self fertile plants will but there are other self fertile plants that only produce fruit and no seed, such as the banana.

A variety may be self fertile in one locality and self sterile in another due to the influence of environment. In the corn stamens and pistils are located in different flowers on the same plant while on the willow the stamens and pistil are on different trees. This necessitates cross pollination. Even when both organs are on the same plant they may ripen at different times. When stamens and pistils are on different plants, nature solves the problem of pollination with the aid of insects and the wind. Such plants as the grasses, oaks and pines depend on the wind. This type of plant has small inconspicuous flowers with no showy petals, no odor, no nectar, but with a comparatively large feathery pistil to catch the wind-blown pollen. This, however, is a very wasteful method of pollination. On the other hand an economical method is that of insect pollinated plants in which less pollen is lost. Nature has guarded against self pollination and provided

for cross pollination in this group of plants also. They have large showy flowers, strong perfume and a supply of nectar to attract the insects. The construction of the floral parts is such that cross pollination by insects is necessary as in the violet and ladies slipper. In the primrose two types of plants appear one with a short style and the stamens set up high on the sides of the corolla tube so that the insect must necessarily rub against the pollen in getting the nectar. In the other the style is short and the stamens are set low down on the corolla, hence the insect must rub against the pistil and leave its pollen, but this specialization may be carried to such an extreme that it results in extinction, as is the case when a plant can be only pollinated by a certain species of insect, and if this insect is absent or dies off, the plant also dies.

Artificially man has copied and enlarged on the laws of nature in the production of commercial plants.

The first record of an artificial cross was made in 1719 by Thomas Fairchild who crossed a carnation and a sweet william.

Burbank gives us the largest number of horticultural novelties in the present time. He employed different methods. He planted by the acre and then went through the crop selecting here and there plants that showed desirable qualities or varied from the original type. The rest were discarded. The selected ones were propagated and further selected and so on. He also crossed desirable varieties having in view some special characteristic. This hand crossing is known as emasculation, and consists of removing the stamens before ripe and transplanting to the pistil the pollen of another desirable plant. These organs have to be protected before and after the operation until all danger from impurities of other pollen is over. Further crossing and selection then takes place

with the offspring. In this way he obtained hugh walnut trees 80 feet by 2 ft thick by crossing an English and a California walnut. He also crossed a small unimportant stoneless prune, with a large but stony prune and obtained a desirable medium sized stoneless prune. He also obtained spineless cactus and brambles by selection; crossing, etc. generation after generation.

Natural selection without artificial crossing does a lot toward improving the type, but the stability of the strain depends on the proper selection in the first place, and though it may remain pure under artificial conditions it will revert to type when exposed to competition in natural surroundings, therefore to perpetuate itself as a new strain, the quality for which it is selected must be a dominating factor in the makeup of the plant, or the stronger characteristics will squeeze it out. For instance, if a plant produces one striped flower and the rest are plain the seed may not produce a striped flower, but if nearly all the flowers are striped the chances are in favor of the seed producing striped flowers similarly larger blooms are obtained when seed is saved from plants producing uniformly large flowers than when the seed is selected from a plant that has one exceptionally large bloom and the rest all small ones.

The question of seed selection brings in other factors that require consideration. The vitality of the seed and early maturity with a high percentage of germination is necessary and these qualities are designated more by the shape, size and appearance of the seed than by the blossom hence the selection of large seed often tends to eliminate weakness in germination, vitality etc. A large seed is morn apt to produce a hardy plant than a small one, as the small seed is often immature and the product of a plant too weak to produce larger seeds. This seed selection is known as roguing when practiced in grain fields and consists of the selection of the best heads. Weak

plants, plants showing a tendency to depart from the strain type, and all the undesirable qualities can be eliminated by this method. The further careful selection of this seed year by year will eventually so stabilize the quality and purity that the chances of impurity is reduced to a minimum.

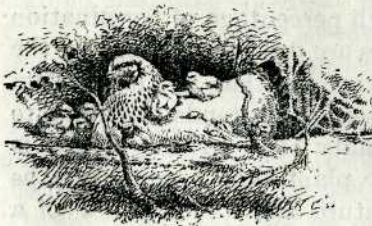
This method is employed by commercial seed growers in supplying the market with a high grade of seed.

In growing the seed of garden flowers where color is the aim care must be taken to destroy those plants which show any tendency toward a color other than the one desired. Roguing is here applied. If the plants showing a variation were allowed to remain the chances are in favor of that variation being intensified in the offspring.

—A. H. McA. '23

Poultry

The Raising of Geese.



seldom attacked by disease, and are never attacked by insects.

AT present there are not many geese raised in Nova Scotia. However, they are a very profitable line of poultry, as there is probably no other line which is so easy to raise, with so little work. They are very

The breeds most popular are Toulouse Embden, and African. Personally I think the African is best suited to Nova Scotia, as they are a good sized goose, hardy and quick growers. The females also are more prolific layers than the other breeds, laying as many as forty eggs in the spring.

Now, supposing one has decided to go into the goose business. The fall is the best time to start out to buy breeding geese. It is best to get year old or older geese if possible, as young geese during their first year seldom lay very well, but geese will continue to lay well until they are 20 or 25 years of age.

Four geese are all that is advisable to keep with one gander. For winter quarters you may put them in a shed or any lean to, provided plenty of straw is kept under them, and that they are dry. Geese will stand extreme cold.

The winter feed may consist of roots or vegetables with one feed of grain a day, or timothy heads make excellent feed. Also supply water.

Toward spring feed fairly well with grain, and supply grit, and oyster shells.

If well fed, geese will start to lay about the first of March. For nests provide plenty of straw in a secluded corner as the goose likes to get out of sight to lay. Provide each goose with a separate nest and gather the eggs each day as laid, putting them in a box with a flannel or woollen cloth around them, and place where they will not get chilled. Turn the eggs every second day. Eggs may be kept in this way for 3 or 4 weeks.

It is best to set the first eggs under hens about 5 or 6 eggs according to size of hens. It will be advisable to turn the eggs every second day, and sprinkle them with luke warm water.

When the goose shows signs of becoming broody by

feathering her nest, and starting to set, and ceases to lay, shut her up in a coop and feed well for 3 or 4 days, when she will soon forget and begin to lay again. In this way 3 or 4 batches of eggs can be obtained. The third batch it is best to let the goose hatch herself.

Try and have the goslings hatched as soon after grass starts as possible, as the young grass is their principle food. Goslings will stand cold far better than heat. When goslings hatch get them out on the grass when about 24 hours old. For the first week give them oatmeal twice a day. When a week old, it may be changed for wheat or buckwheat. They are the better for being fed until then are feathered. Care also should be taken not to let them out in wet grass the first week or two as they are likely to get chilled.

If they are now turned into a good pasture with plenty of water they will look after themselves for the summer. After the grain fields are clean they may be turned on them to clean up any grain that is left.

About 3 or 4 weeks before killing separate the young geese and start to fatten, feeding on corn, barley, or buckwheat, or equal parts of each feed three times daily, and supply water.

A few geese can be kept on every farm with profit, as about 100 goslings can be raised from 4 old geese.

Geese however, should not be allowed to roam over the farm as they will do much damage to crops, and will travel quite a distance.

—E. F. M. '23

They say that Cupid strikes the match
That sets the world aglow,
But where does Cupid strike the match?
That's what I want to know. ?

College Life

N. S. A. C. Alumni Notes

AT the Maritime Winter Fair many former N. S. A. C. students were prominent. Among the number were Cecil Coates '07, Amherst Point, exhibiting Holsteins; W. L. McFarlane '11, Fox Harbor, N. S., exhibiting grain; Harold Laird '14, Kelvin Grove, P. E. I. exhibiting Short-horns; Walter R. Shaw '14 P. E. I., reporting for the United Farmers' Guide; Frank Tinney '18 in charge of the stock exhibited by the Dominion Experimental Farm, Charlottetown; W. A. Flemming '16 exhibiting Holsteins, standing high in the milking competition; P. R. L. Fairweather of Rothsay, N. B., was one of the directors of the Maritime Stock Breeders' Association, and therefore on the Executive of the Winter Fair.

Pearl C. Stanford, '15, was married to Mr. Paul St. Pierre, at Moose Jaw, Sask. on January 2nd. We extend congratulations and best wishes.

Clarence Smith, '13, writes that he has just completed a new two-story ten room house. He is successfully farming at Hoyt, N. B.

Geo. L. Cox, '16, Cambridge, N. S., was elected President of the N. S. A. C. Alumni Association, on January 9th, 1923.

W. A. Flemming, '16 Truro, N. S., was elected President of the new Live Stock Improvement Association, organized at Truro on January 15th. "Bill" is also receiving congratulations upon the second visit from the stork.

W. R. Kinsman, '18, who is completing his course at the O. A. C., Guelph, spent Christmas at his home in Onslow.

Edwin Morash, '13, has recently taken unto himself a wife and has moved to Pleasant St., Dartmouth, N. S.

Social Life

The Students "At Home"

OVER two hundred guests were present at the Students annual "At Home" held in the College Hall, on Thursday evening, February 8th. The hall was prettily decorated for the occasion with streamers of blue and gold, the college colors.

This yearly event is always looked forward to by many with a great deal of pleasurable anticipation, and it is not extravagant language to say that on this occasion the function fulfilled in every particular all that was expected of it.

A short musical program was arranged which included in addition to some vocal numbers rendered by

students, two violin selections by Miss Lusby, of Truro, which were exceptionally good.

Fraser's Orchestra furnished the music for a varied program of dances which concluded the celebration.

Refreshments were served by Miss Macdougall, of the Domestic Science Department, assisted by a committee of students.

The chaperons were Mrs. (Dr.) Cumming, Mrs. P. J. Shaw, and Miss Helen Macdougall.

Altogether the function was a delightful success and reflects much credit on the committee in charge of arrangements.

The following words were composed by Prof. Trueman, and to the air of "The Bells of St. Mary's." They were sung as a chorus by the students.—

We'll sing you a song of the man on the farm
 Who works in the open, where nature can charm.
 He's never a slacker for how could he be?
 He's growing our rations for you and for me.

Chorus.

Then drink to the farmer in the land of the Bluenose
 And drink to our province that lies by the sea
 And drink to our college where science is calling
 Its message shall ring out, ring out for you and me.

There's plowing and mowing and curing the hay
 There's work for long hours and short time for play
 The farmer's not downcast, he's strong and he's free
 He's growing our rations for you and for me.

We're sons of the men who have cleared up the land
 To lighten their labors we'll take a firm stand
 We're proud of their work and their long pedigree
 They're growing our rations for you and for me.

We're here to seek knowledge, you may think it tame
 We hope it will help us to play the right game
 We'll boost all our lives for the N. S. A. C.
 And grow better rations for you and for me.

These words were sung to the air of "There's a long long trail awinding" as an encore:—

There's a long, long trail a winding into the land of our dream

Where the hens are always laying and the milk's all cream
 There's a long, long time of waiting until our dreams all come true,

When the hired man does all the work and we spend all day with you.

Report of Debating Society

THE second debate of the Fall term was held in room 1, on Dec. 6th. The subject was;—"Resolved, that the country furnishes more opportunities for social enjoyment than the city does." The speakers were:—

Affirmative	Negative
Gow '23	Phillips '23
Prosser '24	Warren '24
Banks '24	Wright '24

Mr. MacLeod was critic for the evening. Professor Shaw acted as Judge and gave the decision slightly in favor of the negative.

The first debate for 1923 was held in room 1, Jan. 24th. The subject of the debate was—"Resolved, that Canada should encourage Foreign Immigration." The speakers were

Affirmative	Negative
MacDougall '23	Anderson '23

Mansell '24	Ells '24
MacSween '23	Blanchard '23

There was some controversy on the part of the speakers as to the wording of the debate. Had it read restricted immigration as the affirmatives upheld, they would have received the decision, while if it had read unrestricted immigration, the negative would have received the decision. Professor Trueman acted as judge and critic. It was pronounced one of the best debates ever held in the college.

On February 15th there was a debate between three Normal College students and three junior A. C. students. It was held at the Normal College. The subject was;—“Resolved, that the world owes more to navigation than it does to Railways.” The speakers for the affirmative were Messrs Prosser, Mansell and Warren, who were our representatives from N. S. A. C. The negative side of the argument was upheld by Mr. Dunlap, Miss Trueman and Mr. Humble. Mr. Marshall was critic for the evening. The judges were Rev. Mr. Mutch, Rev. Mr. Fraser, Rev. Mr. Jones, Professor Benoit, of the Normal College, and Dr. Briton, of N. S. A. C. They awarded the decision in favor of the affirmative. It was pronounced a very interesting debate.

Our second debate for 1923 was held in room 1, Feb. 16th. The subject was;—“Resolved, that Canada would be benefitted by annexation with the United States.” The speakers were:

Affirmative	Negative
Mustard '23	MacPhee '23
Scott '23	Holder '23
Cossmann '24	Lowe '24

Mr. Blanchard was critic for the evening. Doctor Sinclair acted as Judge and gave the decision in favor of the negative.

Report of Athletic Association

THE N. S. A. C. started its basketball season with a victory over the Normal school. The score was very low being 8-6 and was not an indication of the playing. The A. C. boys had the advantage of the play all through the game but lacked the scoring ability. Their combination was a feature of the game, and resulted in their controlling the ball most of the time, and the great aim now should be to cultivate scoring ability.

On Saturday night, Feb. 17th. the N. S. A. C. met and defeated a quintette from the Y. M. C. A. in a hard fought and exciting battle. The score ended 14-13, and until the whistle blew the game was in doubt. Though the Y. M. were not organized, their players were old hands and gave the college team all they could handle. The combination of the hayseeds saved the day again, and they deserve great credit for the improvement they have made. The rooters were a feature of this game, and their cheers put the pep in the boys at critical moments. We would like to know if Peel has that spot in the corner marked where he shoots from.

The following Saturday the A. C. and Y. M. met again, the latter having a new line up. The redoubtable McPhail and Spencer, the Academy star graced the ranks of the Y. M. team this time. Earl Wilson; McConnell and Abbot completed the team, with Baird as spare.

Judging from the noise the game was exciting. First period ended 3-2 in favor of A. C. The game was rough in spots much to the enjoyment of the spectators. It ended 10-6 in favor of the college.

The team lined up Harper, Mustard, MacAndrews, Scott, Delong Phillips and Banks for all these games.

Exchange

We acknowledge with thanks the Dalhousie Gazette
Acadia Athenaeum, King's College Record, The Univer-
sity Monthly, and Mount Allison Argosy.

Apple Valley Milks

Her teats were big as Baldwin trees
Oh, she was hard I vow
I'd never milked a drop at all
Before I struck that cow.

I stuck until perhaps I had
A quart or may be three
My shoulders creaked, my elbows squeaked
My hands were numb as could be.

I persevered, and after a while
My pail was almost full
The brute she lifted up her foot
And knocked me off the stool.

It sure was then a woeful sight
Presented to the view
The foreman hurried up and said
" Now what in H—'s struck you.

I haven't quit, I'm at at yet
Each morn the clock strikes five
Until the spring comes round again
I'll milk if I'm alive.

I'm nearly grown up you know
I'm in the Junior "B"

There's not a man in all the class
That's quite as big as me.

I'm rather good at poetry
And making funny songs
So if you see one straying round
You'll know where it belongs.

There's something else that sets me up
And lends me quite a splash;
I'm the only man in the whole darn clan
That sports a real moustache !

Is This Right ?

Wright, can Wright write Wright right ?
Yes, Wright can write Wright right.
Well Wright, is it right to write this:—
If Wright can write Wright right
Wright can possibly write rite right,
But it is not right to write
If Wright can possibly write rite right that
Wright can write Wright right.
But if Wright can write Wright right
Then it is right to write that Wright can possibly write
rite right
All right, if Wright can write Wright right
wright can write rite allright.

Change! Change! Change!

Change! Change! Change!
Now what ~~can be saying thee?~~
I would that my tongue might utter
The thoughts that arise in me.

O, pity our poor professors,
 As they rush and tear around
 Oh! I pity my fellow students
 Whom this time table doth confound.

So the weary weeks drag on
 With time tables many and varied;
 But we must not blame Prof. Smith
 When he has such a load to be carried.

Break! Break! Break!
 To as far as you like, Oh sea
 But a permanent time table in the college
 Is something that never can be.

Hayseeds



Ques.—Who gets to college first M...s...r...d or Miss F...l...er?

Answer—well, M...s...r...d at first was always last, but later he began to get earlier, till at last he was first, tho before he had always been behind. He soon got late again, though of late he has been sooner, but at last he got behind as before, But I expect he will be getting earlier sooner or later.

H...l...er—Emptying his mouth as fast as possible replied to Prof. Smith's question—'I haven't finished apple packing yet sir.'

Who "punched" the seniors at the banquet and made them so "sore" the next morning ?

Normal, coming and singing softly;—I'm coming, I'm coming, for my head is bending Lowe.

When Bl...nch...d learns to use the gloves he might be able to make a hit.

Wa...r...n—What is the use of the journal ?

Prof. Quin—It is what might be called a "catch-all"

H...r...er—It caught me all right.

Prof. Ma...th...ws—This is a very difficult problem, watch the board closely while I go through it.

H...l...er, presenting Prof. H— with an inorganic specimen composed of quartz, sandstone, granite, diorite and concrete in the presence of an absent audience.—"Sir could you identify this rock for me ?"

Prof. H—after a pause "I am not familiar with it but I would judge it to be a specimen of Shamrock'.

The Normal dance was on Tuesday. Why were Merritts ears blue on Wednesday morning ?

False Argument—Studying Botany is better than nothing, Nothing is better than a dance at the Normal, therefore studying Botany is better than a dance at the Normal.

Question among Seniors—What breed of sheep is the Hydraulic Ram ?

Dr. Cumming, leaving Senior B at apple packing "Now boys get all you can out of this"

Senior B's in chorus;—We will sir.

It will be a big stake when M...k...n...bets on his boots.

Junior—Dr. Sinclair's Lectures are very entertaining.

Senior—I don't know. How is that?

Junior—Why because they are an organ recital.

Junior A—I have an idea to make a fortune.

Senior A—How is that?

Junior A—I am going to remove cerebelliums and then people can get drunk and nobody will know it.

Question—Where did Ells get the white cap?

Professor S. to Pender, who is studying with his feet on the table—"I see Mr. Pender, you have raised your understanding as high as it will go."

Mr. W. B. P...o...s...r in gallery of "Strand" having his view obstructed by the head-dress of a rather shady damsel ventured to protest.

"See here madam" he said leaning over, "I want to look as well as you."

"Oh! is that so?" she replied "den youse bettah run home an' change youah face."

Two farmers met after church as usual and had this conversation:—"Sold your pig Jim?"

"Yes."

"What d'ye get?"

"Thirteen dollars."

"What'd it cost ye to raise it?"

"Paid \$3.00 for the shoat, \$5.00 for the lumber in the pen and house, and five more for the feed."

"Didn't make much, did ye?"

"No, but I had the use of the pig all summer."

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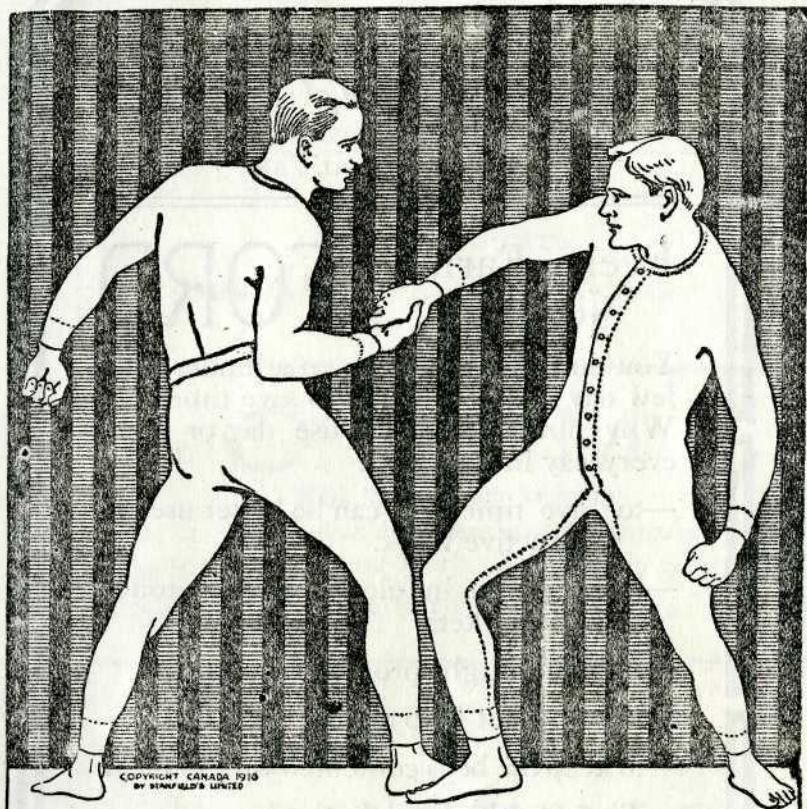
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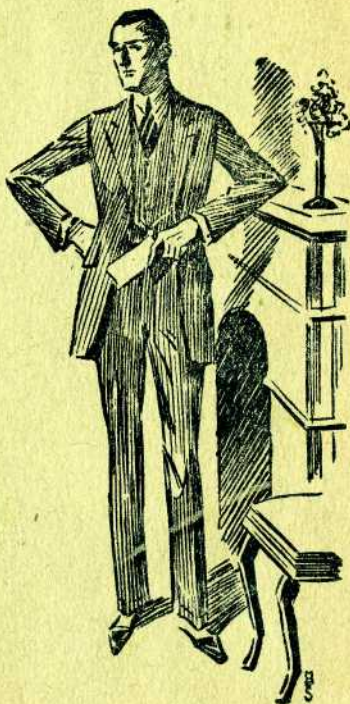
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