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The Maritime Students' Agriculturist

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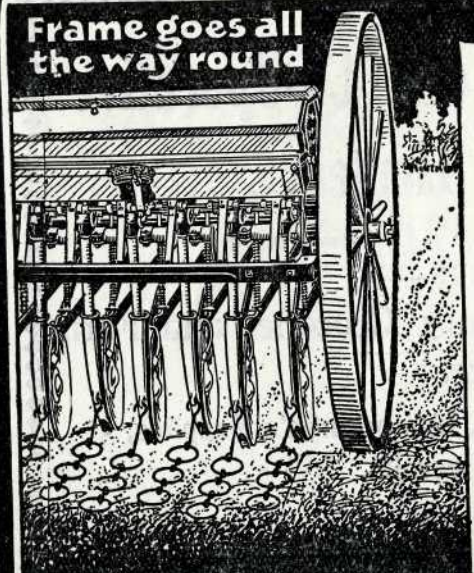

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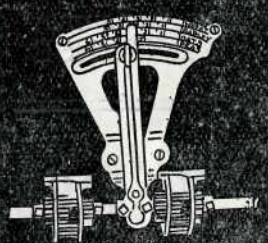

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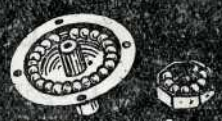

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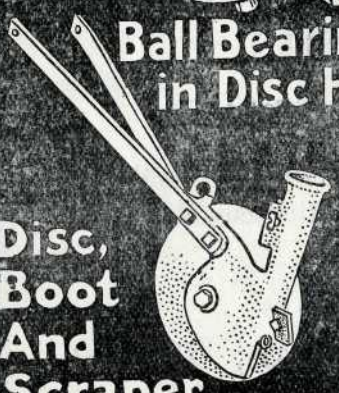

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VOL. 4 MARCH, 1912 NO. 5

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THE

MARITIME STUDENTS' AGRICULTURIST.

Vol. IV. Truro, N. S., March, 1912. No. 5.

H. P. Munro C. M. Dickey E. C. Boulden Cyril Henry
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Editorial.

WHEN this issue of the College Magazine has gone to press, our duties as editor shall have ceased. It is not without regret that we sever this our connection with the staff, the magazine, and the students who have so generously contributed their quota towards making the Maritime Students' Agriculturist a success.

Without the whole hearted support of the student body, and the

unanimous action of the whole staff, we could never have hoped to make the magazine a success. If we have succeeded in placing before our readers a publication meeting their approval, the credit lies, not so much with the chief officer, but with the staff and students who have supported it so loyally.

To our successor we would wish nothing better than as good a staff, and as enthusiastic support from his fellow -students as we have enjoyed. His success is then assured, and the effort expended by him, in the interests of the magazine, will be richly rewarded.

Before parting with our fellow-students, particularly those who graduated from the College this year, we would like to state our impressions, of what the future has in store for us, as graduates of the N. S. A. C.

Graduating as we are from an Agricultural College we will naturally, from this onward, be more closely identified with things agricultural than we have been heretofore. This may be simply in our own community. There we may be the only ones who have had scientific training in Agriculture. Again we may go to other parts of Canada, or perhaps we may pursue our studies in one of the higher Colleges of Agriculture. The place is of little consequence. It remains that if we are engaged in agriculture, we will soon be known as student-graduates from the N. S. A. C. Then our methods, which, by the way, will be regarded as the methods of the college where we received our training, will be noted and criticised. It remains with us then to make this criticism favorable or unfavorable. The number of students from our locality who will attend either the "Short" or "Long Course" at Truro, will be largely determined by the impression we may make. In other words, we can exercise a profound influence over the success of our Alma Mater, purely by the effi ciency of the work we may do in the future.

Let us then, in whatever sphere of life we may be placed, strive to make the best of our opportunities. We should take an active part in the already existing Agricultural Societies, and also endeavor to organize still other Societies, for the improvement of Agriculture, and the advancement of social life. With our advanced knowledge we should be a power in the land, never forgetting that true success lies not so much in the act as in the acting; that there is no greater satisfaction than that arising from benefitting others; and no pleasure like that of giving, without expectation of reward other than that of sincere gratitude.

"There, my blessing with thee!
And these few precepts in thy memory
Look thou character. Give thy thoughts no tongue,
Nor any unproportioned thought his act.
Be thou familiar, but by no means vulgar;
The friends thou hast, and their adoption tried,
Grapple them to thy soul with hoops of steel;
But do not dull thy palm with entertainment
Of each new-hatch'd, unfledg'd comrade."
"This above all: to thine own self be true,
And it must follow, as the night the day,
Thou canst not then be false to any man."

Farm Drainage.

NO observant person can pass through any of our agricultural districts without noticing the great difference in productiveness to be found between different sections of the same country, different farms in the same section, and different seasons on the same farm. Nor can one fail to notice that these differences are greatly modified by the way in which the land is handled, in other words, the kind of farming that is carried on. True, the variation in natural plant food supply, between individual soils, will exert, on the first of these, a great influence; on the second some influence; but, on the third none at all, for the natural supply is the same, be the season what it may.

Looking closer, he will see that the farm, on which the most careful farming is done, is the farm which most prominently stands out over the average in the section. It is also the farm least affected by the season. "The good farmer gets a crop *every* year" is a common expression and as true as common, the difficulty being the realization of it. Similarly, the section, which possesses the largest number of carefully worked farms, stands out from the others in the same country. This fact justifies the assertion that the kind of farming, carried on is a more important factor than natural fertility. The study, of the amounts of plant food elements in soils, bears out this view. Chemical analyses tell us that an average loam contains, in the surface four feet of soil, enough plant food to grow maximum crops for hundreds of years, could it all be used, and that the amount in the poorest soil, does not differ very markedly from that in the most fertile. It thus becomes a question of the condition in which this food material is found, and the ability of the plant to secure it, rather than that of the actual amount present. When the farmer realizes this, application of fertilizers to the soil will be more intelligently made and less relative importance will be attached to it.

What then is the factor, or factors, of great importance in crop production? The answer to this question must undoubtedly be, "The moisture supply." Geologists tell us that soil is composed of rock fragments with, or without, the remains of vegetable or animal life. These remains, if present, must first have been nourished by the soil itself, so soil does not differ essentially from the pile of rock from which it came, nitrogen alone, of all the elements which the plant must secure from the soil, being present in the rock in too small amounts for good growth, and even this is not wholly wanting. Four fifths of the atmosphere is composed of nitrogen. Certain plants, known as "legumes," can make use of this supply. Why would

not *these* plants thrive on the rock pile? Simply because not enough water would be held there to supply their needs, nor could the water, which can act only on the surface of each rock, dissolve plant food fast enough to keep up the supply. As rocks crumble, more and more surface is exposed and plant food is dissolved more and more rapidly. Given proper moisture supply, containing sufficient plant food, plants would grow on the rock piles as well as anywhere. Given rains at exactly right intervals the poorest farmer secures a good crop. Few indeed are the farms which do not produce a good crop in some seasons. Moisture is necessary to the plant, not only as a food in itself, but as a medium by which the plant can obtain other food materials. It has been estimated that, on the average, 300 pounds of water pass into plants through the roots and out through the leaves in order to carry into them sufficient materials to build one pound of dry substance.

With all it's need of moisture, the plant cannot live in a saturated soil. Roots cannot penetrate or, if present, will soon be smothered when the soil becomes waterlogged. Air is necessary as well as water, not only for the plant directly, but because the gases of which it is made up, act in various ways to help break up the rocks and put the store of plant food into available condition. Air is necessary for bacterial action, and the value of soil bacteria, as the helpmates of the plant, is becoming more and more appreciated. Air cannot enter if water fills all the pore space, which it will do up to the level of the free or so-called "hydrostatic" water. Above this level we have "capillary" water which soaks through the soil as in a sponge, and like a sponge, the soil will not be completely saturated, for the larger pores will contain air, while the smaller will be filled with water. It is only in this layer of soil, above the water level, that plant roots and beneficial bacteria thrive, and plant food materials are brought into available form. Soil investigators have found that the best condition for growth is reached, when the soil contains about one-half the amount of water that it could hold by capillarity, that is, the amount held before water would begin to drain from it. It thus requires some drying, after it has drained all it will, in order to be in the best condition.

Again, "wet soils are cold soils." Water is the hardest substance to heat that we find in soils. Pound for pound, water requires nearly ten times as much heat as sand, to raise it's temperature one degree. Then too, evaporation of a pound of water requires as much heat, as would be required to raise over five pounds from the freezing to the boiling point. So the more water we have in our soil to warm and dry out, the more slowly will that soil become warm in Spring. Heat, as well as air and moisture, is necessary for all life, and both bacterial and chemical action are

directly affected by the temperature of the soil.

If then, moisture plays such an important part in crop production, the control of soil moisture must be equally important. This brings us more specifically to the subject of "Drainage," and it may be well to state here that *artificial* drainage is only an adjunct to *natural* drainage, and should be resorted to when the latter is insufficient or wanting, not as a "cure all" for every soil.

Drainage prevents the soil from becoming water-logged since it lowers the level of the free water. It thus admits air with all its usefulness, into the soil, and also permits a more effective interchange of air; "Soil Ventilation."

Drainage lengthens the season both in Spring, by drying and so allowing the soil to become warm, and in Autumn, by keeping soil dry enough to "work" later in the season.

Drainage prevents a heavy soil from baking and cracking, by causing it to crumble into granular form instead of cementing into clods.

Under drained land is easier on machinery, hence less expensive to cultivate. It is firmer and yet not lumpy and hard, while open ditches and dead furrows are unnecessary.

Drainage actually increases the *size* of the farm; both by allowing the roots to go deeper, and so feed where they never could before; and by its aid to those agencies whose action brings plant food into available condition. The farm is increased in depth, and swampy areas brought under cultivation. Drainage enables a soil to withstand drouth better :—

(1st) Plant roots go deeper and, when drouth comes, they are nearer a water supply and farther from the drying effects of wind and sun's rays.

(2nd) When rain falls on dry soil, the air within the soil will be obliged to find means of escape as fast as the water enters. If this escape must be at the surface, half the pore space of the soil will be filled with escaping air. Thus only one-half as much water can be absorbed during a rain, and more of it will run off, than if the air could be driven downward and out through the drains.

(3rd) The granular condition, already referred to, enables the soil to absorb and hold more water. It is more porous and thus holds more water without becoming "muddy" and unfit to work. Drained soil thus retains more water to tide over a drouth than similiar soil undrained.

The cost of drainage will vary with the amount of *artifiical* drainage needed, the kind of digging, rate of wage, cost of drainage material, etc. and these all vary in different localities. In order to secure thorough and profitable drainage, the underdrain is a necessity, open ditches invariably costing more in the end. Drain-

age *tiles* are generally the cheapest and most efficient material available. Land has been drained with these at a cost of $14.00 per acre; it seldom need exceed $40.00, with $25.00 to $30.00 as an average cost.

The extra return from drained land has been known to pay the cost of drainage in one year. Rarely indeed does it take longer than four or five. It is significant that the strongest advocates of drainage are those men whose farms are drained, and who therefore should know whereof they speak.

The heaviest item of expense in connection with drainage, is the opening of the ditches. An ordinary plow, properly used, will materially reduce the cost of this operation. The "ditching" plow is also of value, and in very stony ground, the "pick" plow is useful. A very good ditching implement can be made from a worn out plow. The "Buck-eye Traction Ditcher" has been recently introduced here and seems likely to stay. One of these machines, owned by the Government of this province, is being operated over as wide an area as possible, in order to demonstrate it's value, and it is probable that at least two others will be brought into the Province this season.

One of the most common objections urged in the past, against taking up this work of improvement, has been "lack of available funds." In order to overcome this difficulty and arrange matters so the drains would "pay for themselves," our Provincial Government has passed a measure entitled "The Tile Drainage Act" whereby a farmer may borrow capital, for this purpose, at a very low rate of interest. The Council of the municipality, in which such farm is situated, is empowered to borrow money from the Government, on debentures, to loan to the farmer. The latter pays a yearly rate of $7.36 on each $100.00 borrowed. At the end of twenty years, interest and principal are paid up. This interest figures out to a rate of about 4 per cent per annum, on this basis. The yearly payments are added to the taxes on the farm and collected as such. Not less than $100,00 nor more than $1000,00 can be obtained, or held in possession, by one man at one time, though he can borrow again as fast as he repays, at the discretion of the Council. Besides the financial aid, any farmer or farm owner in the Province may have a survey of his land made and a plan for a drainage system supplied him, together with such suggestions and advice as can be given regarding the same, free of any charge, except travelling expenses and board of the men sent to do the work. Particulars of this offer will be sent to any one on application to the Agricultural College. Our Prince Edward Island readers are referred to Mr. J. A. Clarke, Superintendent of the Experimental Station at Charlottetown, for the same offer. Ontario and Quebec both carry on this line of work and New Bruns-

wick will undoubtedly do so as well.

Granting the truth of the foregoing results of soil drainage, which scientific investigation and practical experience alike vouch for, with the aid which he can secure and is entitled to, can any farmer afford to waste his labor, his fretilizer, and his land in the production of *less* than a maximum crop, wherever failure to secure such is due to unfavorable moisture conditions?

Pleasant Evenings.

FRIDAY and Saturday evenings Feb. 23rd and 24th, are evenings which will long be remembered by the N. S. A. C. boys, when through the kindness of Principal and Mrs. C u m m i n g, they had a delightful time at their pretty home on Bible Hill. On account of the large number of students, the entertaimnent was spread over two evenings, half of the boys enjoying Mrs. Cumming's hospitality on Friday night, and the other half on Saturday night. One room had been set aside for cards; in another, games of various kinds, especially puzzles, held forth while two rooms had been cleared for dancing to the music of the Principal's fine new pianola. Thus the students found amusement, each after his own special liking. In short we had a most delightful time, and are all truly thankful to Mr. and Mrs. Cumming for their kindness in so acceptably looking after our pleasures. O. S. '12.

The Graduating Class.

By Onlooker and Observer.

IN a short time our course here in Truro will be over, and we will all be scattered here and there over our beautiful country, putting in practise the things we have learned at our only too short stay at the Agricultural College. Some will be going back to the farm; among the Juniors many will be coming back here for a second year; among the Seniors, some will continue their course in other colleges; but all, let us hope, will eventually return to the farm to improve their district and live happy and contented lives away from the bustle and worry of the city. It is therefore only right that we should know a little more about our graduating class than the mere names imply, and we therefore submit a brief sketch of the doings and hopes of the various men of this famous class.

Charles A. Brown,

"Some day something terrible will happen, and he will say 'dam.' "

Born 1885, Glasgow, Scotland; drifted to N. S. in 1910. College debater; future: politician.

C. E. Chute, Waterville, N. S.

"Does sometimes counsel take, and sometimes beer."

Born 1982, Umatila, Flo.; Future: Professor of Horticulture.

C. C. Chappelle, Amherst, N. S.

"Dearly do I love the gentle rough house."

Born in 1892, Tidnish, N. S. Future: wrestler.

H. S. Cunningham (Howe) Tatamagouche.

"Ever and anon a breeze arises and he gives vent to words."

Appeared in Antigonish 1884. College debater and scrapper.

W. Churchill (Church)—Truro, N. S.

"Everyone is as God made him, and oftentimes a great deal worse."

Born in Yarmouth, 1892. A great farmer; Future: father of a large family.

C.M.Dickey (Brutus)—Kentville, N.S.

"No, if I were you, I would not doubt
But give myself a chance to ask a few more questions."

Guy Denton (Guy)—Rossway, N. S.

"Pensive and quiet he sits all day."

Discovered in 1890; Future: minister.

Wm. Chisholm (Bill) —Loch Lomond, C. B.

"You may bank on it, there is no philosophy like bluff."

First tasted milk in 1893. Cup winner, pugilist and hockey star.

A. A. Christie (Andy) —Valley Station, N. S.

"I confess, dear sir, that to be a complete ass, I want nothing but a tail."

Class Clown, and basket-ball star. Future: Comedian.

E. Colpitts—Truro.

"A diller, a dollar,
A ten o'clock scholar,
What makes you come so soon?
You used to come at ten o'clock
But now you come at noon."

Born 1891, Forest Lynn, N. B.

C. A. Crooker—South Brookfield.

"A being of extraordinary and profound silence."

Discovered in 1890.

J. E. Campbell (Rachel)

"No one can boast of ever having taught me anything."

Exploded into Nottingham, England, 1892. Imported to N. S., in 1909. Fusser and Basket-ball player.

V. B. Durling (Ginger)—Lawrencetown.

"A dear happiness to women."

Made his first appearance in 1893. A jolly good natured liar, basket-ball hero. Future: Professor of Domestic Science.

C. Henry—1884.

"And still the wonder grew,
That one small head could carry all he knew."

Imported from Kingston, Jamaica. A product of the Carboniferous age. Future: Principal of the Tropical Agricultural College.

M. Johnson—Upper Stewiacke.

"His only dissipations are his dreams."

Crawled into life 1891. A good dairyman.

Harry Johnson—Upper Stewiacke.

"Swift of foot was Hiawatha."

Bounced into life 1892. Future: Farmer.

A. Macdonald (Mac.) —W. Merigomish.

"Quiet in harness, free from serious vice. His faults are not particularly shady."

Born in 1882. Editor of Magazine. Future: Professor.

D. Moore (Dave)—Shubenacadie.

"A scholar and a gentleman. And withal a good judge of whiskey."

First appearance 1891. Future: Live-Stock man.

J. Shipton (Cuddy) —Round Hill.

"He doth indeed show some sparks that are like wit."

Born in Bridgetown, 1893. Will register in English and Canadian herd books. A confirmed fusser.

M. Stuart—Belle River, P. E. I.

"A pleasing consciousness of his own manly beauty."

Arrived safely in 1892.

W. V. Smythe (Esquire)—Waterville.

"Give him a ball to play with and he is happy."

Found in England, 1892; drifted to Canada 1910.

Otto Schafheitlin (Shaf.)—Canning, N.S.

"Ashy, smiling giant."

Born in Steglitz (Berlin), Germany, 1893. Got side tracked to Canada in 1897. Captain of Basket-ball team. President of Atheletic Society.

The Intercollegiate Debate.

ON Monday, March 18th, at 8 p. m., the debating teams from the Normal and Agricultural Colleges met to try conclusions, and incidentally to decide whether or not Public Utilities should be operated by the municipality or by the private corporation.

A raw misty morning, succeeded by a showery noon, finally gave way to a beautiful evening, with the result that when the meeting was called to order, the hall was filled to overflowing with "Fair women and brave men," each anxious to witness the triumph of the side in which their sympathies were enlisted.

Through the courtesy of Miss Terris, we are able to report the speeches of each debater. We regret however, that owing to the rapidity with which the representatives of the P. N. C. spoke, and our inability to secure notes and figures, their speeches are not fully reported. The leader of the affirmative, Mr. H. S. Cunningham, opening the debate, went on as follows;—

MR. CUNNINGHAM.

Mr. Chairman, ladies and gentlemen:—The question for debate this evening is: *Resolved*—That Municipal Ownership and Operation of Public Utilities is in the Best interests of the People." Myself and my colleagues are speaking in support of the resolution and in the course of our few remarks we hope to prove to you that we are on the right side of the question.

The term "public utility" is applied to such utilities as education, fire and police protection, roads, bridges, telephones, electric lights, gas, water system and street railways, which are necessary in every modern community, but which, in the very nature of things, since it is practically impossible to operate more than one system in any one town or municipality, are liable to become monopolies; and as such they should be owned and operated by the municipality. Until recent years, schools were wholly private affairs. Only the very wealthy classes were able to acquire an education, and there was a great deal of competition between the various schools. Would any of us be willing for a moment to go back to the private schools of former years in preference to the public schools of to-day? Would we be willing to turn our fire brigades and our police forces over to private individuals? Shall the people own the city and its government or shall they be owned by monopolies? Shall 5000,000 or a million people build costly streets and then give them to gas and electric trusts and street railway monopolies for the private profit of a few individuals? Shall the spoils system continue to control appointments to the great confusion and inefficiency of the service? Shall rings and bosses, machines and lobbyists, corporations and monopolists continue to have a large influence in the city government?

If these things are not allowed, by what means may they be controlled? Competition and regulation have both failed to control them. There is only one key to the situation and that is broader ownership. I understand that what is meant by a municipality is a city, town or country, and while in the course of my remarks, I am forced to go beyond these, what has proved effective in larger areas, will prove still more effective in the smaller

Let us consider for a few moments the matter of telephones. Some of the chief advantages to be gained by municipal ownership of these would be cheaper rates, broader and better service, and co-operation. In an investigation not long ago Postmaster General Cresswell of the United States made this statement: "The average Bell telephone charges are from $24 for house 'phone to $75 for a business phone per year, in small places, for service worth $6.00 to $20.00, and from $90.00 to $200.00 for service worth from $30. 00 to $100.00. In comparing the long distance tariff in U. S., under private monopoly, with government tariffs in England and France, both of which are framed on a scale of distance, the English tariff is one-third and the French tariff a good deal less than one-third of the U. S. tariff. A difference far too great to be accounted for by any existing difference in general prices or cost of labor.

Again, Prof. F. Parsons of the University of Boston, a well-known authority on the subject, "states that telephone profits amounting to 12,20 and 30 per cent in towns and smaller cities were quite common, while some charges in our largest cities are sufficient to yield more than 100 per cent. profits. Prof. Parsons also states that the Bell Telephone Co. proper in the year 1901 reports $21,000,000 or two-thirds of its receipts since it began business as clear profits above all expenses, including interest; and for the year 1897 "four-fifths of its gross receipts were profits."

In a New York investigation, the sworn statement of the officers of the Metropolitan Telephone Co. showed that its net profits were 474 per cent in six years on capital invested, while the average rate per phone was $60.00, then raised to $150 00 and again raised to $180.00, the company netted over $2,800,000 in six years on an original cash investment of $600,-000. Does it not look as if under different ownership, these districts could enjoy cheaper rates.?

The city of Montreal has an understanding with the Bell Telephone Co. that they will give them an average rate of $50.00 per phone. Quite recently long-distance mouthpieces were introduced at an extra charge of $5.00. The sworn statement of officers of the company states that the extra charge for the mouthpieces for one year, was more than sufficient to pay them for the cost of the mouthpieces including duty from the United States.

In comparison with this, Prof. Parson states: "The Co-operative 'Phone Co., Grand Rapids, Wisconsin reveals the following situation. They have three hundred lines. Average cost of construction is $42,00. Cost of maintenance and operation about 75c. for each line per month, or $9.00 per year operating expenses

per 'phone; $12.00 to $15.00 total including interest and depreciation. The charge is $2.25 per month for business phone ; $1.00 for house phone. Each subscriber is urged to take one share at $50.00, one and one half per cent. dividends are paid back on these shares amounting to 75c. per month. This reduces the rates to 25c. for a house 'phone and $1.50 for a business 'phone per month. Net charges are $3.00 to $18.00 to which may be added $2.00 to $3.00 for interest, and yet the former Bell company operating there refused to reduce rates saying that they could not afford it." Prof. Parsons also says that in 1894 the Department of Interior, Washington, paid $60.00 to $125.00 for 65 'phones. They employed a lady at a cost of six hundred dollars per year to look after the exchange. The average cost of phones was $75.00. The next year they put in their own phones and $10.25 covered all costs including interests and depreciation. In any given locality with reasonable service,the lowe rther ates,the greater is likely to be the telephone development, and since public ownership tends to lower rates more than does private ownership in the same locality, it would seem reasonable to believe that public ownership tends to enlarge the service. In support of this, I would quote the following statement from Prof. Parsons: "In Rochester, New York, which has a population of close to 200,000 there is an independent 'phone company with rates of $38 to $48 on which 8 per cent. dividends are made on a large body of stock,all of which is watered, as the bonds more than cover the value of the plant. With these rates still too high, there is one subscriber to each 40 persons in comparison to 120 in other private owned systems. Showing that with anything near reasonable rates, subscribers are increased."

Stockholm, Sweden, charges $10 to $22 per phone. It has a metallic circuit, underground wire and interurban communication free within 43 miles. The Bell company formerly operating there, was charging $44.00 for a much inferior service over a smaller area. Competition in telephone systems is absurd. Besides the duplicate systems, each subscriber is compelled to subscribe to both systems in order to communicate with the whole field, and often when systems are unfriendly it is impossible to secure a complete service. We have many instances of this in our own province where there are quite a number of co-operative 'phone companies operating, and in my own experience I have known it to be impossible to get connections, because the telephone companies would not allow others to operate over their wires. While municipal ownership is the aim, it must be in conjunction with government ownership of trunk lines.

In Belgium the telephone is in cooperation with the post-office and telegraph. The same poles are utilized for telegraph and telephone wiring. Mail matter may be telephoned for a small charge sufficient to cover writing of the letters, and telegrams may be phoned free of charge. In this country mail matter cannot be phoned at all while telegrams can only be telephoned by special arrangement. Then

again private telephones go only to the most populous districts where the profits will be large. This is not the case with municipal telephones.

Although I have spent a lot of time on one utility, had I the time at my disposal, I could prove to you that the other utilities which I have mentioned would, in like manner, be better under Municipal ownership than private.

MR. COCHRANE.

Mr. Cochrane, leader of the negative, then arose, and addressed the audience as follows :—

The speaker for the affirmative has paid due attention to municipal ownership. We quite agree that these utilities to which he refers are for the public use, but we must differ with him in that they should be owned by the municipality. Permit me to say in introducing the negative upon which we base our argument, that private ownership of these utilities is for the good of the people. We shall endeavor to show that municipal ownership is financially not a function of government. Municipal ownership is inefficient. Evidently the object of a city is to get better service or to save the tax payers' money, and municipal ownership will bring the profits to the city that are now gained by private corporations. What are the actual profits made by corporations through this country.

First we shall see what has been the result of municipal ownership in America. The actual returns, assuming that all governments are honest, if such profits or dividends *are* paid, should in itself be a strong incentive for private ownership. In the State of Massechusetts, reports were handed to board of gas and electric light commission. These reports are more authentic than most reports. In consulting these reports we find that from 56 electric light and power companies, 24 pay no dividends at all, and the average dividend of the whole 56 is not quite 4 per cent. New York State is quite similar. 77 electric companies average dividends of not quite 3 per cent. and I think this will hold true for all the States. The experience of Philadelphia is interesting, because she has both leased and operated her works. For many years, the city owned and operated its gas works. The poor quality of gas, high prices and political greed became so unbearable that the plant was sold to a private concern thus ridding the people of this drawback which political greed and inefficiency had forced upon them. In course of time the gas works formerly surrounding the municipal plant had progressed so rapidly that an early payment of $650,000 to the municipal sinking fund has been paid which was increased later on by $239,000. Be fore finishing our review, it might be permissible to mention a few of late municipal ownership failures.

In some cases we find the plants had to be leased, some cases sold for 35c. on the dollar, and in others sold for 25 per cent. of the cost. Is this what the affirmative would call the enormous profits?

Following Mr. Cochrane came Mr. Dickie in support of the affirmative.

MR. DICKIE.

Mr. Chairman, ladies and gentlemen:—Our worthy opponent advises and claims that the best way to regulate public utilities is by a board of control. I will now present to you eight reasons why this is not feasible —why it does not work.

1. It does not remove the root of the evil, but only tends to suppress it to a limited extent.

2. It increases the chance of political corruption because there are only three or four members to bribe, while under the present conditions, the corporations have to bribe the whole council in order to gain any favors.

3. Monopolies resent control and are determined to outwit the city.

4. There is also a great chance for lawsuits.

5. The big corporations evade the law.

6. The corporations pay the board members' salaries and usually nominate them.

7. It has failed in Massachusetts notwithstanding the assertion of my opponent. In Massachusetts the demand for municipal control has increased. Why is this if the board of control is not a failure.?

8. Corporations still retain an interest in politics under the system he advises.

My worthy colleague has dealt with some instances of public utilities and I am sure that he has convinced you that no intelligent person would think of putting them under private control. Tramways, electric lights, gas plants and water systems are essentially monopolies. There is absolutely no chance for competition. There is no room on our streets for two tram systems, two sets of electric wires or two sets of water pipes. The monopolists therefore fear no competition and may charge rates that allow them enormous profits. I do not say that they always do this, but they have the power and often make use of this power. As a city grows, its profits increase more than proportionately. A street car company can handle 1000 passengers a day for a great deal less than twice what it costs to handle five hundred. The same principle applies to all other public utilities. The profits of the monopolist increase so enormously that the private citizen soon comes to look at the case a good deal in this light :—

A certain corporation has secured control of this monopoly through no very extraordinary efforts of their own. A certain price has been fixed for which a given service is supplied. That price at first, perhaps, yielded only a fair profit, but as the city grows and as the density of the population increases ,the profits increase enormously. The citizens asks himself "Is this just?" Should this corporation reap such returns from the crowding of people into tenement houses and from the migration from rural districts. Should not this profit go into the city treasury for the reduction of taxes ? The citizen sees no way to remedy this evil. Competition has failed. Public opinion has little effect, and the citizen turns to the

municipality to assist him in remedying this evil. To show you that this evil. is real, pick up a daily paper and look at the reports from the stock markets, and you will see that nearly every public utility company's shares are selling at away above par value. Here are a few quotations showing the price of stock of the following companies:

Montreal Street Railway	$233
" Power	192
Winnipeg Railway	261
Ottawa Light	147
Toronto Railway	135
Halifax Tram	150

Now these figures do not represent the real proportion of profits made by these, as the stock is watered to such a tremendous extent that it is very difficult to get at the real profits made. The Winnipeg Street Railway created new stock to the amount of $3,000,000, the rights to which stock was worth $55 per share to every shareholder. The operating expenses of the Toronto Street Railway in 1910 took only 51.6 per cent of the earnings. The other 48.4 per cent. must have made a handsome profit for some one. In 1911 the Halifax Tram Co. had a net surplus of over $212,000 out of a total earnings of $502,000 and after paying $112,000 for the dividends at the rate of 8 per cent. still has $100,000 remaining.

Even these profits look very small when we look at the reports made in some of the larger cities.

In a Cleveland Gas Co. the evidence in court showed that the company was paying $144 per year on every $100 originally invested. Think of it, 144 per cent. per year. Yet the original investor was receiving an innocent looking 6 per cent. on $24,000 worth of stock. When John McIlhinney, a prominent business man of Philadelphia was asked his opinion of this, he said: "That is not an unusual thing. It is about the history of all the prosperous gas works." Mr. E. E. Higgins, one of the foremost of the street railways investigators said "that in cities of from 100,000 to 500,000 inhabitants an actual profit of from 15 per cent. to 25 per cent. might be expected from street railways."

Private monopoly means privilege, unequal rights, congestion of wealth, antagonism of interest between owners and the public, often causing fraud, defiance of law and corruption of government. For example: The North Chicago Railroad is worth $60,000 per mile. It is capitalized at $246,000 per mile. If is assessed at $5,000 per mile.

Ex-Mayor Pingree of Detroit discovered when he became Mayor that the Tram Co. literally owned the city council, body and soul. They would pay $3,000 for a member and actually tried to bribe the Mayor for $75,000. The congestion of wealth is one of the greatest evils of this century. Private monopoly tends to increase this. Do you realize the meaning of all this? Do you perceive that monopoly in private hands means taxation without representation, and that for private purposes?

What then is the remedy? There can be only one answer. The municipality must step in. Think of the immense revenue the municipality would derive, if it could run the public utility plants at the same cost as

is done by the corporations and still continue to sell at the same rate. The leader of the negative claims that a municipality cannot produce as cheaply as a private company. I claim that a municipality can produce cheaper for the following reasons:

1. By combination with other departments of the city service.

2. Less accidents in a service run for safety.

3. Lower rates increase business.

5. Municipalities will not pay the immense salaries awarded by monopolists to themselves.

5. Municipalities can obtain money at interest which is much lower than can be obtained by private concerns. Now I do not ask you to accept these statements from me, without absolute proof in the form of figures, to show that municipalities can produce more cheaply than can private corporations. I have here figures compiled from the reports of the United States Commissioner of Labor. These figures are the average covering over 50 per cent. of the capital invested in gas and light plants and water systems in the United States. The cost of production as given here includes depreciation on plant, taxes, and interest on total investment.

Municipalities produced water at 24.7 per cent., per cent. cheaper than private companies.

Municipalities produced gas at 22.4 per cent. cheaper than private companies.

Municipalities produced light at 32.7 per cent. cheaper than it could be bought from private companies.

Municipalities sold water to private users for 41. 6 per cent. less than did private companies.

Municipalities sold light to private users for 24. 2 per cent. less than did private companies.

Notwithstanding the fact that the leader of the negative states that municipalities cannot produce public utilities as cheaply as private corporations, with these figures we must conclude that it can produce more cheaply, and these figures apply to the United States where graft is more common even than in Canada.

What, then will be the first step of a municipality after taking over a public plant. We find that in over 90 per cent. of the cases, it is a general reduction of the rates. This is usually followed by still more reductions in a short time. A reduction of taxation followed in 42 towns reporting in the United States. The very fact that over 90 per cent. of the municipalities adopting public ownership are enthusiastic over it, is in, itself—a conclusive argument.

There are towns where it has failed through mismanagement, but there are also failures in private business. Many small towns would not enjoy electric lighting if it were not for municipal ownership. Municipal ownership is nearly always followed by better service. This was especially so in the case of the city of Detroit. The municipality aims at good service; the company at big profits. Under this system the people,and not the monopolits receive the profits of the service. Reliable estimates plac the lighting of the streets of Truro at $1000 a year less if it was done by the municipality. The privy council has decided that the city of Winnipeg

has not full control of its streets since it granted a franchise to a street railway company some years ago. Look at Edmonton in contrast with Winnipeg. Edmonton owns its street railway system and its power and light. Its right to do what it likes and when it likes is never disputed. It is rapidly extending its service into the newest parts of the city, and as a municipality the reasonable profits it makes are devoted to the benefit of the city and not to paying dividends on an immense amount of watered stock. Once you give a private corporation a public franchise in a city, you create a public enemy.

I consider now that I have proven that municipal ownership results in the following advantages:

1. Lower rates. 2. Better service. 3. Profits go to the people. 4. Utilities are operated in the interests of the people. 5. True accounts. 6. Increase of business. 7. Tends to more even distribution of wealth. 8. Reduction of taxes.

Mr. Moore, for the Normal, was the next to speak. He went on to say :—

MR. MOORE.

My honored leader has outlined to you some of the arguments whereby we oppose municipal ownership, and which prove that municipal ownership is financially disastrous. In face of these facts, nothing more is needed to prove that municipal ownership is not the advantage which its advocates claim it to be. Municipal ownership is not a function of the government. The municipal government as we are familiar with it in Canada and the United States, is a body to solve the civic problems which come up day by day, problems which tend to the further development of the town morally and educationally, and it would be improper for the municipal government to extend its activity. Many well-thinking men in all towns will advocate municipal ownership of public utilities when the educational difficulties and duties are far from being properly served. Public sentiment must be cultivated. Public education along sound, economic lines should be attended to. When the government has done these duties and solved social and hygienic problems, then the ideal in government will have been reached. The necessary duties of the government are already so burdensome that to increase them would be to destroy its efficiency.

Corporation ownership. The establishment of justice by municipal ownership through a corpo a-tion. The very word corporation has come to have a disagreeable sound. This is unreasonable. The average citizen sees only the abusive side. He imagines himself to be the victim of greed. He forgets that it has been only through the united savings of the poor and wealth of the rich, that these corporations have been successful in establishing and operating numerous enterprises which give employment to millions of people. In the United States there are 23 thousand miles of electric railway carrying from 300 millions to 750 millions of people

yearly. Spoken words are transmitted by more than five million telephones and there are three million miles telegraph wires over which upwards of five billions of messages are transmitted yearly. Thus the corporations have made the country more enterpris ng and energetic than it otherwise could be. They are doing their part in the world's work. Shall we condemn the management of the enterprises which lead to such conditions because one or two have betrayed their trust. If my shoes pinch my feet, I can cast them off and get another pair, but if the trolley line does not suit me, under municipal ownership, I cannot try another one.

Municipal ownership increases government interference in the field of private action. The chief motive of all men in this age is that of self interest in one form or another, and needs only to be guided by sound principles. In the expenditure of capital and selection of enterprise,the men do not work for nothing. The main question is whether men will do better by the investment of their own capital in their own machinery, or with capital supplied them from the town under the control of public officials. Will the public officials put those best qualified to look after these things, and will the men chosen by them remain subject to their authority. Reason and experience give the same answer to this. "Not without paralysing the mainspring of action."

Systematic effort. Such has no political organization. If the public is to supply the capital and take the risk of loss or gain on themselves, and their men paid without reference to results, it stands to reason that there is practically no system there, and experience has verified the dictates of reason in this respect. There has been corruption in corporations by men seeking to benefit themselves, but there are vastly more opportunities for this under political control. These corruptions pal into insignificance in comparison with those of municipal ownership. The motives of self-interest are effective, and any effort that can be made to over-rule it must be for the welfare of the people. Now I do not say that municipal ownership is unsound in theory, but it tends toward radical socialism. Municipal ownership deals a blow to self-interest which should beencouraging. If the facts are properly considered by you, you will agree with me when I say that municipal ownership is not to the best interests of the people.

C. A. BROWN.

Next in order came Mr. Brown, speaking for the Agricultural College he said :—

My associates in debate have dealt with the subject in a broad way and it remains for me to demonstrate specifically the benefits of Municipal over Private Ownership.

Phones—In the first place let me draw your attention to the Telephone system of Glasgow in the old country. For many years the National Tele-

phone Co.—a private corporation—had practically a monopoly in telephones throughout Great Britain. *Glasgow,* dissatisfied with the service, started and operated one of its own. Rates were reduced, and an enormous number of subscribers obtained who a short time before did not dream of having a telephone. The improvement in the efficiency of the service, and the stimulus to business was evidenced in the number of subscribers being nearly doubled.

It has been pointed out that there is really no room within the same. Municipality for two private corporations engaged in running any one of the services alluded to. That sooner or later one will predominate. I give the following incident in support of this:

When in Boston I had the pleasure of seeing through one of the New England Telephone Co's Exchanges, and of having a talk with one of the Departmental heads. I asked him "Has this company a monopoly ?" He answered "No! *But* our company "is so powerful that any other con-"cern starting now would have but "little chance in competition. So that "to all intents and purposes our busi-"ness is a monoply."

Telephone Rents—A comparison of rates paid for telephone services are convincing. Glasgow owns her own telephone system. Boston does not. In Glasgow you may have a private telephone for $25 *per Annum* or a *party line* telephone for $6 per annum, and that with many thousands of subscribers within call. *You cannot obtain* any kind of a telephone *in Boston* for much less than $50 per year. But, Mr. Chairman, we have *in Canada,* ample evidence of the benefits of Municipal management. What about Guelph? That city owns and operates its own *Street* railroads, Gas and Electric power systems. And what do we find? Guelf's management of these is most exemplary and successful, and it's rate of assessment the lowest of any city in Canada.

We shall now have a little talk about Gas—a subject in which everybody is interested.

Gas.—In the United States an average was taken of the cost of gas supplied by Municipality and Privately owned plants.

Private plants charged per 1000 cubic feet $1.04; the other 92c. Twelve cents (per 1000 cub. ft.) in favor of Municipal Ownership. It is a well established principle that the larger the output, the cheaper the product—but examination showed that*private plants had double the* output. But someone says that this low rate is possible only at a loss. Yet in the instance referred to, the Municipal plants gave a profit of 29c per 1000 cub. ft.

Now as Gas is somewhat played out I must ask you to transfer your attention to the question of *Water Supply.*

Water.—Professor Parson's of Boston University has compared Glasgow's water supply with that of London, the latter's supply being given by a private corporation—the former Municipally owned.

Glasgow's allowance of water per head per day is figured at 50 gallons. London's allowance 30 gallons. In the Scottish town that water may be used

for all purposes. In the Metropolis extra charges are made for bath supplies, etc.

In Glasgow the assessment on a certain rental is $7.25 per annum. In London $19.18 on the same rental. *Two and one half times the cost for two-fifths of the water supply.*

Birmingham is situated on a plateau 600 feet above sea level. Private enterprise failed there and Municipal ownership was a complete success.

In case anyone should think that all or even the majority of cities own their own water supply, it is worth mentioning that 47 per cent. of the systems throughout the United States are privately owned.

Now Ladies and Gentlemen I appreciate the fact that many of you dislike having to walk home on Monday nights—Truro is such a long way off on Institute evenings and therefore the Street Railroads side of this question should interest you. Just think of it, if we had a street railroad running past this College—I am speaking to the men—you could (under a municipal system) take your young lady for a drive on the car from here to the other end of Truro for a couple of cents. Under private ownership it would cost you 5c. each.

Street Railroad.—In the year 1894, the city of Glasgow bought up the private companies working there.. and replaced the horse power system with Electricity. The mileage has since been rapidly and greatly extended. Fares are unbeaten for cheapness. For one cent you can travel over one half a mile. We are told that in New York you may travel 50 miles for 5 cents; in Glasgow 8 miles for 4c. That may be true and New York's system is operated and owned by a private company. But you cannot travel in N. Y. at all for less than 5c. Why is it that in New York you can travel *so far* and so cheaply by street car? Is it not because part of the price of carrying the long distance passenger is paid for by the short distance traveller? What consolation is it to the short distance traveller that he can travel so far, if he only wishes to go a short distance. The average figure paid per trip per passenger in Glasgow is about 2 cents. In a year this difference in the fares would amount to a considerable sum.

Glasgow's Income and Expenditure from its cars for 1902 were as follows:

Income	$ 3,052,000
Expenditure	2,015,000
Surplus	$ 1,037,000

Under Municipal ownership it is possible to apply profits to the reduction of the rates—a very desirable feature.

Again the Labor conditions are worthy of consideration. What is that impresses one on entering any of the business premises, stations, etc. owned by the Municipality . Is it not the spaciousness, the good lighting, ventilation and general comfort for the worker.

Socialism and Plutocracy. — Mr. Chairman, Ladies and Gentlemen, it is inconceivable to me how, after consideration of this question in its length, breadth and depth, we can come to any other conclusion than that Municipal is infinitely su-

perior to Private ownership and operation of Public Utilities.

The effort of Municipal ownership always has been and will be to appease virulent socialism and at the same time to break up the conspiracies of wealthy corporations against the public interest.

MR. TITUS.

Mr.Titus, for the P.N.C. closed the argument for the Normal.

I just want to call attention to a few statements made by our worthy opponent. In the first place: "the big corporations avoid the law." A certain fact. If the governments are not efficient enough to keep these corporations under control, would they be efficient enough to control them themselves. It is not possible for two tramway companies to introduce a competition on our streets, but the municipality itself is in direct competition with the private companies, and I am glad to say the private company gives the best service. The city once owned the line which now the private company controls, and the end will be that they will have to give over their subways as well. Again, one of our opponents said that the negative advises the cities to give a franchise to private corporations, which oppress the people. Is the government, then, not intelligent enough to instruct those corporations so that they cannot oppress the people. All the arguments that have been brought up regarding the greed of private corporations can also be made against government officials, and this will always be so, so long as we have spasmodic government. Political appointments are to be condemned because they are political appointments, because a man is not appointed according to his knowledge or record of merits; therefore, it is desirous to limit the number of public offices. If all public utilities were owned and operated, especially in the large cities, more public offices would be necessary. Municipality must mean protection and power for the people. Citizens in political and public life are robbed by unscrupulous men. I say that municipalities can do much to alleviate these conditions. When we have reached the ideal, the millennium,in this respect, municipal ownership of public utilities will be practicable, but not before. Canadian cities and cities of the United States do not perform efficiently what they have already been given to do. The police service of our larger cities, and policemen are men chosen from among men not fitted to look after such work, the fire service is poorly equipped and poorly paid; laws are not enforced, and vice and crime are carried on with impunity If governments cannot control these, its necessary functions, properly, are they ready to take on more responsibility?

Municipalities are not efficient for this kind of work because they do not offer sufficient inducements for good, skilful men. The opportunities are altogether too meagre. If a good man is hired, he is not certain of his position. He is liable

to be turned out of office because a change of government has taken place. This being the state of affairs, a man does not stand much chance of advancement in political service. Business men are beginning to realize that they cannot meet the demand of public office without absolute disregard to their own private affairs. A determination to have good service leads to extra work. Public business is everybody's business, and everybody's business is nobody's business, and little things are found undone when it is too late under municipal ownership. When these facts are properly presented to the jury of Canadian public opinion, I am sure that they will agree with us, when we say that municipal ownership is not for the interests of the people.

REBUTTAL.

MR. CUNNINGHAM.

The Leader of the Affirmative, Mr. Cunningham, now closed the debate for his side with the following rebuttal :—

Our worthy opponents have tried to convince us by their facts and figures that public ownership is not as effective as it should be. I hardly think they have given us enough to convince us. I could manufacture figures from now until morning but what authority could I quote? Myself and my colleagues have given our authority, and if necessary, we can give more, while our opponements have given no authority for other statements. Then, again, they tell us that, the proper function of government is not to look after these public utilities. I take it that the government's function is to look after all that is for the people and to do it in the best way. If it is not their business to look after public utilities, if their business is only restraint, what benefit are they to us? Then, again,they say it is impossibel to get men of the proper calibre in the service. As Ex Premier Jenkins, South Australia says: "With municipal ownership the best brains of the country go into the work." Now, I would like to know if we people here in Canada think for one moment that our status is any lower than that of Australia. Do we think for one minute that we have not men in this country who are capable of managing our affairs as well as people in other countries. They have quoted a great many failures of public utilities. Well, myself and my colleagues could have quoted a great many failures of private ownership utilities, and we do not for one moment deny that public utilities have failed in some cases under municipal ownership, nor do we claim that all private utilities have failed. We advocate that it should be under a board of control. He quotes corruption to us. What has caused the corruption in the United States? It is not private ownership corporations that has caused all the corruption in the government. When, "If the leader of the negative says they are not capable of not being bribbed;" he forgets that it is the heads of the government not the

municipalities that are bribed, and politics is more far-reaching than municipalities. Then, again, he says that education will be neglected in our municipalities if our councils are over-burdened. He has not given us any authority from which he can quote his reasons. I cannot see why any government, any council, should be overburdened with looking after a few public utilities. We generally find that our council men are not overworked. If they don't look after police and fire protection, it is not because they are overworked, but because they don't work at all. Then again, he says that municipal ownership will not encourage invention. I would like to know if throughout the countries of United States, France, Germany and Canada, the municipal plants have not the same up-to-date machinery and in a great many cases, far more up-to-date machinery than have the private corporations, for the very simple reason that they are not after the profits, but the best service for the people. In all cases this will be proved out. Again he says that every change of government makes a change in office. Perhaps it does but what has the influence in that case. It is the corporation with the money that makes the change in government. Again he says that municipal enterprises do not give employment. I would like to know if they do not, how do they run them? They pay as high wages and higher than the majority of private ownership plants. They do that and give the men, as a rule, shorter hours and are better in every way.

Now, I think that myself and my colleagues have covered this ground pretty well and I think we have shown very conclusively that public ownership of private utilities is the one thing whicd we would have for the people.

On the conclusion of the debate, the judges retired to form their decision. During the interim several promenades were indulged in, and many and various were the "College Yells" given by the supporters of either side. On one hand could be heard the boys of the Normal College lauding the praises of the P. N. C. ably assisted by the melodious voices of their numerous associates of the fair sex; again , as if in answer to the challenge, the husky voices of the "Farmers," made the old "Assembly Hall" ring with shouts of N. S. A. C., "Yes siree."

Finally the judges appeared, and the Rev. Mr. Dix, after a few moments skilful word play, in which he alternately raised and lowered the hopes of each side to the highest heavens, only to dash them to the ground in the next sentence, finally awarded the decision to the N. S. A. C.

Pandemonium reigned supreme.! A raid was made upon the successful speakers and they were re "bounced" in good style. When sufficient order could be restored, the National Anthem was sung and all dispersed, thoroughly pleased with the debate, in which each side had conducted itself to the honor of the institution it represented. A. M. D. '12.

The Thinning of Apples

THE practice of thinning fruit is one which is as yet practically unknown in Nova Scotia, at present being practiced by only a very few of the more progressive fruit growers. It is however, a practice which is bound to be adopted, if the fruit growers of Nova Scotia are going to compete profitably with their more progressive brothers of the West, who, we are forced to admit, have been more progressive along the finer lines of fruit growing,namely spraying, pruning, heating and thinning, as well as the developing of a market for their fruit.

Thinning of fruit has been known theoretically, to the apple growers of the East for thirty years, but has not yet become generally practiced. The peach growers of the famous Niagara district have been practicing thinning for fully twenty years, and they report a marked increase in quality with no decrease in quantity.

Thinning may be done in several ways. One method which has been advised is that of Spring pruning, paying closer attention to the thinning of the fruit spurs, than to the removal of any great quantity of wood. The other method is that of actually thinning the apples; this also may be done in two ways: First by removing all diseased, deformed and undersized fruit, and then thinning to from four to six inches apart; secondly by removing all diseased, deformed and undersized fruit, then thinning to one apple in a place. The practice of thinning the fruit spurs is not as effective as the actual thinning of the apples, as there are bound to be some poor apples, also they will probably be in clusters of from two to four or five, and they cannot mature or colour evenly this way. By the actual thinning of the apples, all diseased, deformed and small fruit is removed, and the remainder sometimes thinned to four or six inches apart. The common practice however is to thin just to one apple in a place. The former method of thinning to four inches, might be all right for Western lands, where the moisture can be controlled by irrigation, but for Eastern conditions the only method which would seem to be practical, is that of thinning to one apple on a fruit spur.

The proper time to thin is just after the "June drop," beginning with the Gravenstein and going right on through the other early varieties; going to the winter apples as soon as the season of drop is over.

Only experienced men should be put at this work, as a careless, cheap man will destroy more fruit, by the careless manipulation of his ladder, also by not paying strict enough attention to the individual apple, than the difference in wages a good many times over.

Some advocate, in removing the apple, that it be done just as when picking, but this seems to be rather a risky method, for a man, be he as careful as he may, will pull off more apples than he intends, by this method. Several growers in the Annapolis Valley the past season, purchased orange clippers for this work, and they report complete satisfaction from the use of them. These clippers are made with a comparatively thin blade which works between two sheathes exactly as a knife blade closes between the sides of the handle. The point of this blade as well as that of the sheath is well rounded so as to prevent injuring the fruit. It might be added that these clippers may be purchased from the Russel & Irwin Mfg. Co., New York, for fifty cents per pair, F. O. B.

The apples removed may be gathered for feed or may be left on the ground. However, apples by the middle of July contain altogether too much acid to make them of very much value as a feed. If left on the ground they will be practically withered up by the time the remainder of the crop is ripe, so will give very little if any trouble.

Some men are not willing to admit that any benefit is to be derived from thinning, but these men have only to go into an orchard where thinning has been practiced, along with some trees left as checks, to be convinced that it actually is a benefit. Men who have been practicing this in other districts report very favorably as to the benefits derived from this system. They report that the actual quantity was not decreased, even though there were a great many less apples, but these were of such excellent quality as to make up for the deficiency in numbers. These men have given figures to prove that in other years, when they did not thin, their apples ran about one half "ones," the remainder "twos" and "threes," while in years when they have thinned the "ones" ran up to three quarters of the total with the remainder practically all "twos." Thinned apples beside being more uniform in size, will have more uniform colour and will mature more evenly.

It has been argued against the practice, that the cost is so great that it will not pay to thin. By actual figures, quoted from various stations in America, it has been shown that the cost per tree never exceeds fifty cents. The writer knows from personal experience that four men will thin from fifteen to seventeen full sized trees in a day, trees that would average from six to eight barrels, thus costing slightly over thirty-five cents per tree of several barrels.

Now it does not take a very learned person to draw a comparison between the quantity of good fruit unthinned, versus the quantity of good fruit thinned. Nor when noting the increase in returns, to see the practice is certainly a very profitable one.

Therefore, Nova Scotians, be up and doing! Let us take the in-

itiative in these progressive measures, rather than be followers as we have, to quite an extent, been in the past. For it is only the fruit grower who keeps in touch with all the latest developments of his chosen profession, who can hope to compete successfully in the markets of to-day.

C. E. C. '12.

Loose Smut of Oats.

(*Ustilago Avenae.*)

THIS plant disease is very common in the Maritime Provinces and is found wherever oats are grown. It does not seem to be much affected by climatic conditions, It causes enormous loss to the farmers; the average loss due to smut being estimated at least eight per cent.

Smut is a fungus disease belonging to the class, *Basidionaycetes.* The grain and more or less of the chaff are replaced by a powdery black mass of spores, which are set free in large masses when mature, about the time the grain is in flower. Usually all the spikelets of a head, and all the heads of a plant are affected.

Infection nearly always takes place through the seed and the smut develops in the plant throughout the season, but only becoming visible at about the time grain is in flower. A cross section of the stem examined under the microscope shows very plainly the presence of the smut.

Some varieties of oats seem to be more resistant to smut than others and some good may result from seed selection. But the most efficient remedy now known is the *formalin treatment.* Probably the easiest method of applying this for the average farmer is as follows:

Sprinkle the grain to be used for seed with a solution of 1 oz. formalin to 3 gallons of water using about 1 gallon to a bushel of seed. Mix thoroughly so as to wet all the grain. Keep in the fumes by covering with an old blanket, and leave about 12 hours It may then be sown at once or spread out to dry. Formalin costs about 90 cents per pound, so the cost per bushel only amounts to about 2 cents neglecting labor which is not much. This treatment has proven very efficient where used, and should be taken up by all grain growers who are taxed by this disease.

C. A. C. '12.

The Complexity of Scientific Terms and Expressions.

By far the greatest stumbling block in the acquisition of knowledge by the ordinary layman and student, to my mind, is the vagueness, inexactness and obscurity in which scientific terms are oftimes clothed by authors of various texts. To place oneself in opposition to acknowledged learned and cultured is a daring thing to do. That to me is of little import, for my object in writing this is not to attempt to palm off on my readers a show of learning such as natural vanity impels, authors not excepted, but to enter a plea for greater simplicity on the part of those who essay to instruct the unlearned.

Why, may I ask, should certain authors and instructors use as it were coded telegrams by attempting to convey information through the medium of five and six syllable words? Why should the learner be overburdened with technical terms and scientific ideas in such unpalatable forms, quite apt to provoke mental dyspepsia, as are served up to us these days! The grandiloquent effusions of Samuel Johnson, the abstruse ideas of Davenport, and the wellnigh incomprehensible terms of Duggar are simple instances of this evil. True one must admit that some technical terms are necessary evils, but I contend that the use of high-sounding words tend to kill the pace at which knowledge should spread. Why, in such an age as this when more publications are issued within one hour each day than there are minutes to the hour, we should be as wise as Socrates, or the world should reckon great men by the thousands, but the average layman dare not openly evince his inability to grasp the many ambiguous and bombastic expressions crammed up to him by the all wise authors. No, he must truckle to the authors and appear well learned, or quick to understand. But it may be argued that the matter is up to the learner, that he is not forced to accept what he does not understand, and that certain books especially, scientific works are not intended for the masses (the unscientific). Quite true, but often as is the general case with students they have no choice in the selection of the writers of their texts, and of their instructors. To them the present evil must be saddled on the backs of the authors.

Really I am inclined to believe that too many authors often rush into print before fully completing their investigations. If a man knows what he wishes to say—for example if he wants to describe a thing as being round or square, he would say so in plain English, but no, he masks ignorance in a few Greek or Latin terms which gives his expositions a touch of profundity. Such vagueness and

ignorance on the part of the author is bound to produce a corresponding looseness of knowledge in both instructor and student.

Take the subject of Geology. One can readily see by the numerous long-winded terms employed that the whole subject is largely one of conjectures. Too often the word dynamic which has a definite meaning in physics is often loosely used in Geology. Again, the term stratified and sedimentary are often mixed, the same as in Chemistry where we often have the synonymous use of certain terms i.e.proteids and nitrogenous compounds. Another author would speak of 'drinking' water and later on of "potable" water, both meaning the same, but clearly confusion is a likely result in the mind of the pupil. The foregoing may be somewhat away from the point I have in mind, but the reader no doubt can recall at will certain expressions which when shorn of their scientific fringes become commonplace indeed. The following story aptly describes the point I have in view:

"A mining engineer described a famous lode as traversing 'on the one hand a feldspathic trufaceous rock, and on the other hand metamorphic matrix of a somewhat argillo-arenaceous composition. To make the story short, the translation simply means a changed matter of a sandy-clayey composition or in other words m-u-d."

Here for instance is a typical passage from Duggar's text. Speaking of a certain fungi he says— "The mycelium upon the production of spores may disappear by a gelatinization process. Reproduction is seldom by means of conidia produced on the external portion of the host as in Entyloma, and typically by means of agglutinated chlamydospores formed within interstital or terminal cells of hyphae. Save us! No one would say that Iriving, Huxley and Ruskin were unlettered men yet their works bear fitting testimony to the sound and lucid way in which ideas abstract and scientific can be expressed, thus unfolding to us humble students the true delights in acquiring knowledge without let and hindrance.

C. H. '12

Soft Cheese Making.

THE art of soft cheese making was not known in Canada until a comparatively recent date, but in some provinces, it has made great progress, and some of the many varieties are beginning to be looked upon as a desirable addition to the bill of fare. Few people, however, realize its high food value, though this gives it an even greater claim upon our attention than does its desirability as a delicacy.

In this respect it will perhaps be sufficient to say that one coulommier cheese contains all the constituents of half a gallon of milk, with the exception of the milk sugar and albumen which are carried off in the whey.

Being therefore mostly composed of casein and fat, it's flesh forming and energy producing qualities are high, while it's appetitizing flavor, by stimulating the digestive juices, helps in the digestion of other food partaken of at the same meal.

The manufacture of soft cheese is chiefly characterized by its simplicity, the limited equipment, and the small amount of pressure given to it. It offers an easy and attractive method for the disposal of comparatively small quantities of surplus milk, which might otherwise not be utilized; and where a market can be found for it, quick and good returns and an easy way of adding to the house-keeping income by its sale.

The two kinds now being made at the College are Coulommier and Cream cheese.

The equipment for two Coulommier would cost about $2.00 all told, but much of it consists of things which are largely used in the kitchen so that the cost would probably be much less.

No pressure is required for it.

For Cream cheese, only draining towels of huck-a-buck and boards are necessary. The small amount of pressure required can be applied by bricks; i. e., ten pounds to the gallon.

As with all other milk products, a supply of pure, uncontaminated milk, well-strained, and scrupulous cleanliness in all the operations is of the first importance. Milk which has acquired bad odors or flavors can be improved, as in butter-making, by the use of starter, but prevention is always better than cure, and if precautions are taken in the care of the milk from the time of milking until the cheese is manufactured, no difficulty should be experienced in producing a very high class article at little cost.

One gallon of milk yields two Coulommier cheese weighing about fourteen ounces. These sell for 15c. each.

One gallon 15 per cent. cream yields ten cream cheese weighing four ounces; these also sell for 15 cents each.

Both kinds are packed for market in parchment paper and cartons or in tin-foil, if preferred.

If a good demand could be created for it in Nova Scotia, the making of soft cheese would without doubt prove a lucrative and not at all laborious branch of dairying. Indeed this has been true in the States where it finds a ready sale, and where it is much used for salads, sandwiches and other dainties.

C. P. M. TOD.

The Value of Keeping Records.

ONE of the great causes why many farmers fail to get profitable returns from their business, is that they do not apply business principals. They work on blindly, year after year, not knowing where they gain or where they lose. It is surprising how many farmers have no system of book-keeping. Who would think of trying to run any other business, say a grocery store, without keeping a record of his transactions? I think he would fail oftener than the farmer. A man will take a far greater interest in his live stock if he knows how much profit they are giving, for we are in the business primarily for money. The man who keeps no milk record for his dairy herd, has no definite means of knowing which of his cows are giving a profit, and which are free boarders.

It often happens, that two or three poor cows in a small herd, will so cut down the profits from the good ones, that the owner cannot afford to feed them (the good ones) as he could, did he know which ones were the best. A small milk scale costs little, and the extra labor is many times repaid in the extra care which will be given to the profitable animal, and in the disposal of the unprofitable. The farmer is also able by this means to select the highest producers for breeding, and so increase the productiveness of the herd. At the Cornell experiment station a herd of 20 cows was taken averaging about 3000 lbs. milk per cow per year. A careful record was kept for 17 years, the progeny from the best being selected for breeding. At the end of this time the average milk yield had increased to more than 7,000 pounds. The best cow in the herd produced 100 pounds of milk for less than one-third what it cost from the poorest one, and butter fat for one -half. This shows that even with good well fed herds, it is of the highest importance to study the feed consumption, and milk and fat production of each individual, in order that only the best cows and their progeny may be retained.

I believe that Agriculture requires more study than almost any other business or profession, and we should keep in touch with what is going on in other places

Some years ago "Hoard's Dairyman"sent out trained representatives to study the returns from 100 dairy herds in Northern Illinois. The average returns over cost of feed, for 61 herds whose owners read dairy papers was $12.91. While in the case of 39 herds whose owners did not read dairy papers there was an average loss of $2.16 per cow. This does not mean that a man can not make a profit without reading dairy papers, but a man who is trying to give his best care and attention to his business should surely have interest enough to read a farm paper, if only for the market and live stock reports.

C. A. CROOKER, '12.

Farming in New Brunswick.

HAVING joined the N. S. A. C. I believe it is up to me to contribute something to the college magazine. I might say something about my native province, New Brunswick.

The farmer there has his herd of about fifteen cows. He has pasture in abundance on which he must labour to keep bushes from growing. The cows are managed so that they freshen in the fall months and in this way the farmer can give them more attention than in the busy season of haying, also the cows give a good flow in the winter, and in the spring the flow of milk is helped up by fresh pasture. In this way the milking period is prolonged, and the calves have a better chance as the skim milk fed to them in cold weather makes them hardier. The farmer ships his cream to St. John and receives pay for butter-fat, the test being made by Babcock tester. He ships half to one and half to the other company and so he keeps "tab" on both of them.

The farmer has some well bred cattle owing to the fact that the Agricultural Societies, which receive a grant from the Provincial Government, buy pure bred stock, and sell it much cheaper than the farmer could purchase for himself.

The farmer raises a few pigs, but makes no mistake: he is not willing to invest money enough in them to keep them growing and fattening from the time of weaning. He gets fair prices for pork although in 1911, owing to a pork combine in the Maritime Provinces he received below average prices.

The sheep industry is on the decline in New Brunswick owing to dogs roaming at large and the difficulty of keeping sheep-tight fences.

The farmer has at least one good breeding mare and she raises, one colt nearly every year in adeition to doing the farm work. He raises enough grain for his horses and a little to spare for the cows. He also buys milk-feeds by the ton for his cows during the winter months. The root-cellar is well filled with turnips and mangels besides what is sold in the fall to dealers in St. John or Boston.

Fruit growing is receiving a great impetus owing to a company being formed for purpose of developing fruit growing lands in the valley of the St. John, and selling them to immigrants from the Old World. Taking it all together, I think, as far as size and population are concerned New Brunswick leads them all.

C. B. SMITH, '13.

Farewell.

The time is drawing nearer,
When we must say farewell
To our dear old Alma Mater,
By the river, on the hill.

We're very loath to leave her,
But most of us must go;
For we feel that Spring is coming,
And we're almost out of dough.

Some, that are going to leave us
Will never more return;
But they'll be at other Colleges,
And there the arts will learn.

They all are splendid classmates,
And always used us well;
And we wish that they could stay with us,
In our college on the hill.

There's Howe and Carl and Andy,
Great actors they will be;
And we hope they'll deck the footlights
As they did while here with me.

There's Shaf. and Jack and Durling,
Who starred at basket-ball;
And Eddy S. and Myron,
Best dancers of us all.

Next Chap. and Billy Chisholm,
Great hockey players they;
And Henry and McDonald,
Who made our "paper" pay.

There's Brown and Harry Johnson,
Both good at a debate;
And Church and E. D. Colpitts,
Who loved "to recitate."

Goodbye to Smythe and Denton,
Who always plugged so well.
Good bye to Moore and Crooker,
Of whom, we much could tell.

And then, there's from the Island
That stalwart lad named Stewart;
And Chute from down the Valley,
Who was our College sport.

These are our old companions,
Whom we have loved so well and true;
And when they leave our College,
We hope they well will do.

And when the term is ended,
And we must say farewell;
Let Sophs and Freshmen join their hands
And with one voice all yell—

Rickety ! Rackety ! Ric, Rac, Ree,
Bacteria, Zoo, and Biology.
Gee Gamililio, Gee, Haw, Gee !
Farmers, Farmers, Don't you see
Rip ! Rap ! Rah !
Rip ! Rap ! Ree !
N. S. A. C. Yes, Siree !

Sir Nigel (A. G. D.)

College Life.

IN February, the Rhetorical Rustics again met for a very pleasant entertainment; the pro gramme , liberally filled out with promenades, was as follows:—

Quartette—Messrs. Dustan, Morash, Hunt and Munro.

Reading—Mr. J. Landells.

Violin Solo—Mr. O. Schafheitlin.

Reading—Mr. Colpitts.

Cornet Duet—Messrs. Young and Munro.

Reading—Miss Landells.

Mouthorgan and Violin Duett—Messrs. Christie and Schafheitlin.

After this the floor was cleared for a short dance, for which several of the ladies present kindly played. The meeting closed shortly after ten o'clock.

The Debating Society again met on March 4th, the subject of the evening being a debate: "*Resolved* —That Canada Should Have a Navy." The speakers of the evening were:—Affirmative: Messrs. Churchill, Secord, Tattrie; *Negative*—Woodman, Smith, Whitehouse. The debate was very well rendered, and hotly contested; and the judges,Messrs Macdonald, Brown and Crooker, gave their decision in favor of the negative. Prof. Smith then criticised the speakers in a very pleasing manner, after which Mr. Henson favored the audience with a fine vocal solo. The meeting closed with the National Anthem.

On March 11th the Society met for the following programme:—

Vocal Duet—Messrs. Arthurs and Morash.

Reading—Mr. Henry.

Mouthorgan and Violin Duett—Messrs Munro and Henry.

After this well rendered program the meeting closed with a short dance.

The Intercollegiate Debate took the place of the regular meeting of the Rhetorical Rustic Society on March 18th, 1912, the subject being:—"*Resolved*—That the Municipal Ownership and Operation of Public Utilities would be to the Best Interests of the people." The N. S. A. C. boys having the choice of sides took the Affirmative; the P. N. C. boys who had the privilege of choosing the subject, ably holding up the Negative. The speakers were:—P. N. C. (Neg.) Messrs. Cochrane, Moore and Titus. N. S. A. C. (Aff.) H. S. Cunningham, C. M. Dickey and C. A. Brown. The judges were: Messrs. W. R. Campbell, DeWolfe, and the Rev. G. M. Dix. Principal Cumming kindly acted as chairman. As this debate has already been discussed in another column of this paper I will only mention that not only did the N. S. A. C. boys win the debate, but Mr. Dickey received especial mention as the best speaker of the evening.

More honor to the "Farmers."

O. S. '12.

Athletics.

HOCKEY.

The hockey team has now finished the games on its schedule for this year. The team has played seven games in all, winning 4 and losing 3.

The final game between the Normal College and N. S. A. C. was played in the Metropolitan Rink. The game ended in favor of the N. S. A. C., score: Normal 0, N. S. A. C. 4. The line up for N. S. A. C. was: Morash, goal; Chisholm, point; Cox, cover point; Keenan, rover (Capt.); Dunstan, center; Chapell,L. wing; Boulden, R. wing.

The game against the Bankers of Truro ended to the tune of 6 to 1 in the Bankers' favor. The first half of the game ended with the score Bankers, 2, N. S. A. C. 1. The College team had no difficulty whatever to hold their own against the much heavier team during the first half. In the second period however their combination seemed to go "all

Roy Dickson R. D. Bligh W. M. Chisholm
Manager
E. C. Boulden Wm. Keenan J. B. Cox
Gerald Hubbard Edwin Morash A. G. Dustan

to the bad" and the Bankers had no difficulty in scoring. The line up for the College was: Morash goal; Chisholm, point; Cox, cover point;Keenan, rover; MacDonald, center; Dickson, L. win; Boulden, R. wing.

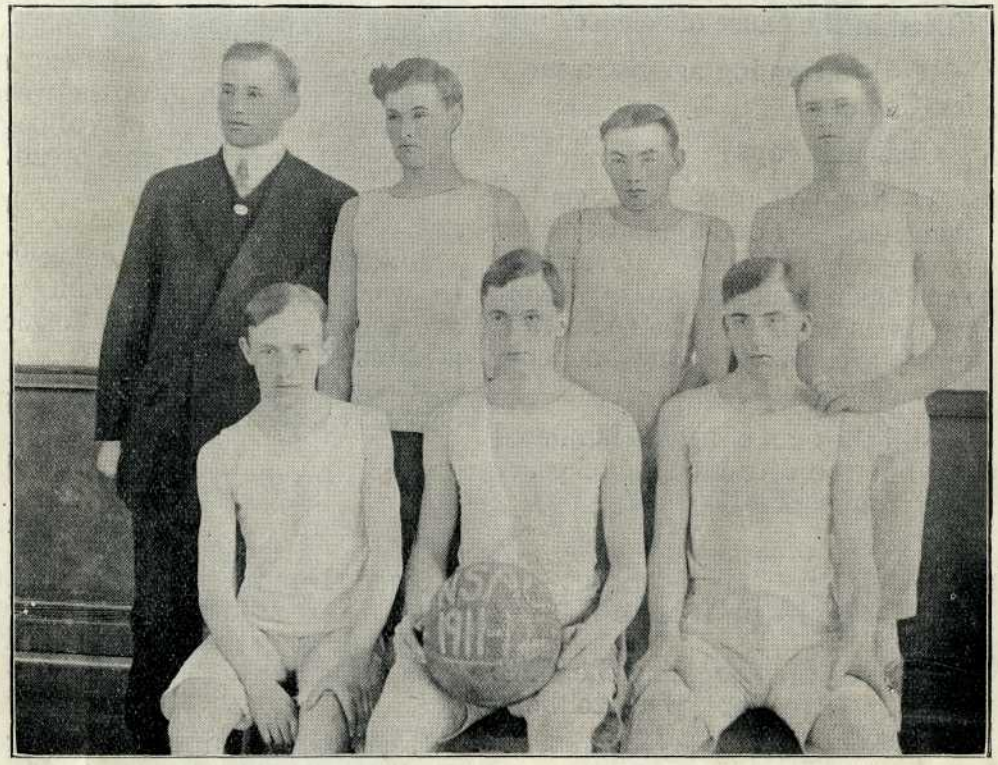
BASKET BALL

The basketball team has also completed their schedule and are now champions of the city league. They have played 15 games, winning 12 and losing 3. Their success in coming out on top is a matter of deep satisfaction to the entire student body. This is the first year that the College has put a basketball team in the city league.

The future for Athletics at N. S. A. C. has a very bright outlook at present. The hockey team was made up of juniors but one, and the new class that will come in is sure to be much larger than any preceding class, at least this is to be hoped for, not only for the good of the school but also for the new material it will furnish for athletics.

If the boys have as much success with their work after they leave the school, as they have had with Athletics, there will be many much more profitable farms in the Maritime Provinces.

E. H. '13



H. L. Dickson V. B. Durling B. Miller J. E. Campbell
Clyde Peterson O. Schaffeitlin A C. Christie

GRINDS.

Obituary Notice.

Died after a long and painful operation for "acute" caponitis Mr. Jack Cockrel, surrounded by a large group of sorrowing savants "Died in the cause of science."

W--d--n arguing against a navy for Canada.

Chairman raps - - -.

W--d--n—"Ladies and gentlemen., etc."— (loud applause)"War is improbable, etc." (Chairman raps again, loud applause) "Now as I was saying" (Chairman raps more vigorously, long and continued applause.)

Still the man of peace thundered on, but the dreadnought of peace was irrepressible.

Feminine Wisdom.

"So you are attending the N. S. A. C. Are you going to be a farmer ?"

She—"No, but if I ever get married I want to be able to teach my husband a few things in case of emergency."

Prof. A.—"The beef from this animal would be much leaner."

M-ll-r—(Waking up) —"Who said *Lena ?*

Latest Receipt from Science School—Club Sandwich.

Select a firm, fresh hickory club. Put it on in hard water to boil till soft. Pound it with a pestle and mortar. (Ordinary sand mortar will do). When it is cold cut in cube shapes. Pile it up between equilaterial triangles of cabbage salad, beef steak and stale bread.

Miller's digestive tract seems to work more rapidly than the average, for of late he has formed a habit of bringing a little lunch to College which he eats between classes (in the cellar, usually).

As heard at the Reception.

Sweet Damsel—(to rustic looking College student)—"Ah, what do you do after milking the cows?"

It has been rumored that "Sunny Jim" has been offered a position in a "School of Expression" in one of our prominent western cities. Oh you elocutionist ! !

Prof. Harlow—"What is a normal solution?"

S-----d— " Antimony." (*Antimoney*).

Dr. H. S-----d having concluded his investigations of *short ribs* now offers to the public, professional experience in the use of *German Remedy*. Cures all "normal" affections of the heart, etc. Office hours 5.00 to 6.00 a. m. Telephone in office.

An editor's job is a cinch. All you have to do is to sit at a desk 6 days a week, 4 weeks in a month, 12 months in a year and "edit" such stuff as this:

While harnessing his horse the other day, Hiram Strong of Whipple Creek was kicked just south of the corn crib.

While chopping wood last week Abe Hamilton of Hardscrabble let the axe slip and cut himself in the cellar.

Escorting Miss Tight home from a dance last Tuesday, Deacon Woodman was attacked by a savage dog and was bitten on the village green.

Last week while opening a can of tomatoes, Mrs. Squash of East Wallop Center let the knife slip and cut herself in the pantry.

The Louden Bulletin.

SERIES A. GUELPH, MARCH 1912. No. 3

Educated Farmers.

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