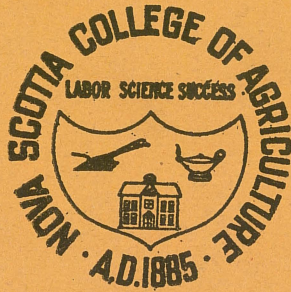


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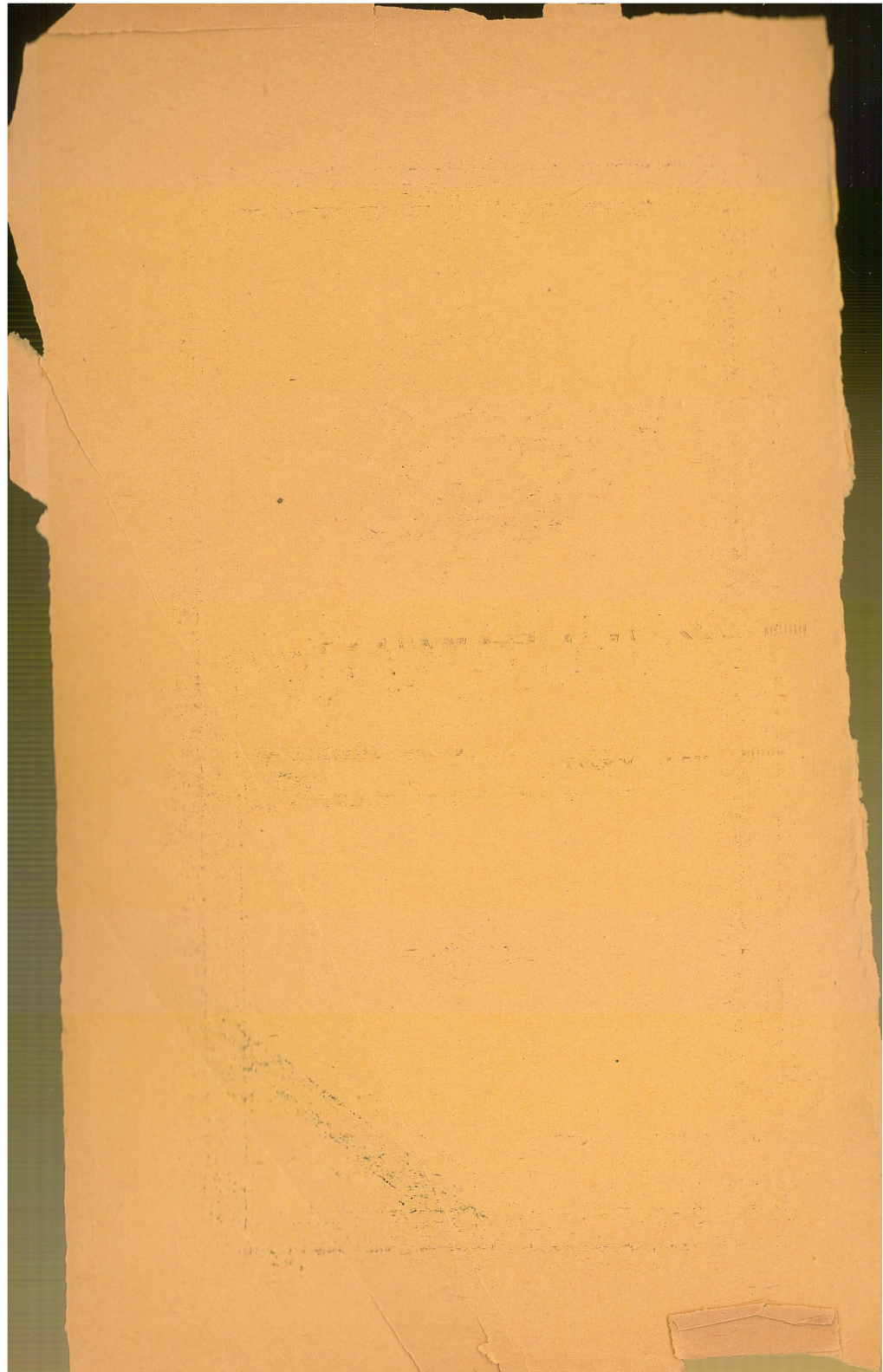
"GATEWAY"

VOL. XXIII

NO. 1

MID-YEAR
ISSUE

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AGRICULTURAL
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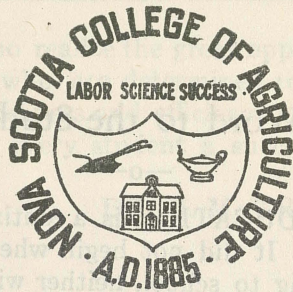
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NO. 1

The
A. C.
"GATEWAY"

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A Word to the Students

—o—



EDUCATION is a continuous process. It did not begin when you started going to school, neither will it end when you finish your course. It began as soon as you were born when unconsciously you began to fit yourself into your environment. Before going to school you had learned to walk and to play and in a certain measure to work. Ever since you began going to school you have been learning not only school lessons, but constantly you have been gaining knowledge of the world and how you must correlate yourself to its conditions.

When you entered college you were old enough to realize that a man's success does not depend alone on the standing he obtains in his studies but also on his general character and on his attitude toward his fellow men. In addition to proficiency in Arts and Science, he needs stability of character. This includes industry, integrity, dependability and a social conscientiousness that recognizes duties to his family, community and to his country. If a man is true to these ideals he cannot be false to the still larger demands of the world community.

I wish for you as students at the Nova Scotia Agricultural College a large vision of your place in the world of the twentieth century. Probably there was never in the history of man greater need

for men who realize the great opportunities before them and who are determined to serve their age with unselfishness and efficiency.

I wish every student a successful life of usefulness.

DR. J. M. TRUEMAN,
Principal.

—o—

Editorial

—o—

THE enrolment at the Nova Scotia College of Agriculture is larger this year than for many years past and it is with a keen sense of pleasure that one sees how well these men have adapted themselves to College Life. Everyone is taking a sincere interest in the different activities making the situation the more pleasant for all—the old quotation “One for all and all for one” is being practically applied and appears to work quite successfully. The interclass relations are particularly pleasant. One Junior was heard to say a few days after classes began; “I was never in a place where everyone was so friendly. I talk with a man here but once and I immediately feel perfectly at home.” Indeed this friendliness is characteristic of the A. C.; it is evident on every hand and we hope it may continue to be one of the crowning features of the Institution.

This year sees changes in the faculty. Mrs. H. V. Longley has discontinued her connection

with the College as teacher of English. Mrs. Longley was held in the highest esteem by the student body and the fact that she still takes part in the social activities of the college and has assured us of her assistance whenever possible, shows that she continues to have our interests at heart. Mr. H. J. Fraser is being welcomed to the Agricultural College as head of the English Department and has already established himself as one of the most admired members of the faculty. Charles V. Marshall who was for some years Assistant Chemist, resigned that position and is at present engaged in the peaceful pursuits of agriculture in Yarmouth County. He has been succeeded by Charles Harlow.

Social activities and sports are receiving their share of attention and up to date have been very successful. Altogether work and play have been combined to the satisfaction and benefit of all and already we are looking upon this as one of the most successful years in the life of the College.

A Brief Outline of Club Work in Nova Scotia

—o—

BOYS' and Girls' club work is not new, in fact it is some twenty-eight years since the first start was made. Starting in the southern part of the United States, it has grown until now it has spread over all that country, as well as our own.

The first clubs in Nova Scotia were started in 1922 when a heifer and a swine club were organized. From this small beginning the work has grown until this year we have in the Province two hundred and twenty-eight clubs, with an enrolment of three thousand three hundred and nineteen club members, an increase of one thousand members over last year. This, together with the fact that five years ago we had only four hundred and thirty four members in the province, shows the rapid growth of this work in Nova Scotia.

Another phase of the growth of club work is shown by the increase of projects, at first, only cattle and swine clubs were organized. This has developed until now there are nine projects offered ranging from calf to lime, from grain to strawberries, from sewing to orchard. Thus it is seen that club work is being adapted to the various diversified agricultural conditions in the province.

The age limit of club members is from ten to twenty years inclusive and a minimum membership of ten members for each club. For the most part, the livestock and orchard clubs are boys'

clubs, but we also have sewing and cooking clubs for the girls.

Benefits to be derived from club work are many and varied; chief among these are the training in leadership, in initiative, in organization, also in better methods of farming, better home making, hence better community making, all of which results in better citizenship. This fact is being recognized by many of the leading business men of our province, and they are giving their wholehearted support in the way of prizes, banquets and trophies to club members.

The livestock projects are conducted under the supervision of the Federal and Provincial Departments of Agriculture, through the Agricultural Representatives and Federal live stock promoters. Other projects, as orchard, garden sewing, cooking, lime, strawberry, are carried on by the Provincial Department of Agriculture, through the Agricultural Representatives and girl's club supervisors.

Through the Provincial Department of Agriculture, arrangements are made to have club members attend the Provincial Exhibition at Halifax, and from the two hundred and twenty-eight clubs there were at the Provincial Exhibition this year one hundred and forty club members, as compared with forty-four, three years ago. Transportation is paid by the Provincial Department of Agriculture, on one member and his or her exhibit from each of the calf, poultry and garden clubs. Here their exhibits are shown and prizes given to all winners. Fifteen demonstration teams also

took part in the demonstration contest. No club member is eligible for transportation in the same project the second year, thus a practically new group is selected each year.

All clubs have their local fairs at which their club exhibits are shown. These fairs are sometimes held separate, and sometimes in connection with the County Exhibition; premiums are here given to club members on their respective exhibits, according to the merits of each. This gives the members training in preparing and showing their respective exhibits. Also trips are given to club members making it possible for some of them to attend the Maritime Winter Fair held at Amherst; the selection of teams for this trip is based on ability in judging and oral questions given at the respective club shows in each of the calf, sheep, swine and poultry clubs. The Provincial winners in the calf and swine clubs are given a free trip to the Royal Winter Fair at Toronto; the selection of these teams is also based on ability in judging and oral questions. This year there were one hundred and nineteen club members from Nova Scotia at Amherst. The winners of the trip to the Royal were as follows:

In the calf clubs, Fred Rose and Walter Perry of Yarmouth.

In the swine clubs, Roy Moore and Garnet Fisher of Shinimicas.

This is a very coveted reward and those winning it get something that is really worth while. These National Competitions are now under the

auspices of the Canadian Council of Boys' and Girls' Club Work.

Beside this there is the Seed Show and Short Course held at Truro. This was started two years ago. Last year there were ten teams in the potato judging, and eight teams in the grain judging competitions, in attendance.

That club work is really worth while is again shown by the organizing during the past year through the direction of the Honourable Robert Weir, Dominion Minister of Agriculture, a body known as "The Canadian Council of Boys' and Girls' Club Work" already referred to. The preliminary report of this Council shows a rather interesting comparison of club work between the different provinces of Canada. Nova Scotia coming second only to Ontario in the total number of clubs, having one hundred and forty-two as compared to one hundred and forty-three for the latter, and having an equal number of projects, thus tying for first place, and being only third in total membership, surpassed only by Ontario and Quebec.

Thus it is seen that Nova Scotia is well to the fore in this new work, which speaks well for the co-operation and determination of club members and leaders.

H.G.L. '33

The Forest Nursery

—o—

THE writer wishes to apologize for offering a forestry topic in an agricultural magazine, but having worked two seasons in a forest nursery, he has been asked to write on the Forest Nursery work. The Forest Nursery has a duofold purpose: (1) growing transplants for reforestation; (2) for research.

By 1911 it became evident that direct seeding could not be used with success, and it was then that the development of nursery and planting practice began.

At first it appeared that the essential was simply to raise the trees and set them in the field. The first planting experiments were made in 1911, but serious obstacles were encountered in nursery practice. Thus it became clearly recognized that before extensive plantings could be made with assurance of success systematic and detailed research would be required. The first and even later failures, as well as the difficulties yet to be solved, by no means prove that planting is an impossible task. Planting can be done successfully on all potential timberlands.

The site of a forest-tree nursery should be within the region in which the trees are to be planted. Level land is more easily cultivated and irrigated than rolling land. For propagating coniferous seedlings and young transplants for forest

planting stock sandy loam is better than heavy soils. Fibrous root systems of the coniferous seedlings develop more readily in fine textured soils. The tree stems rise through the light soil individually without causing long cracks in the surface. The soil does not bake and crack, exposing the tender embryos just breaking through the seed coats.

The nursery is divided into a convenient number of compartments, to facilitate the handling of crop rotations; the planning of permanent improvements and record keeping. A history is kept of all treatments given the soil and transplants in the nursery. Orderly rotation and clearly defined compartments are necessary to such record keeping. As a matter of fact the general nursery is designed in rectangles, not only to improve working conditions but for appearance. Hedges are attractive, but their use is confined to the outer limits of the nursery. Whether ornamental or forest tree stock is being propagated the public expects to see well kept grounds and a display of planted trees and shrubs.

Seed is not borne upon trees in the same abundance each year. A good seed crop in any region is often followed by one or several very poor or lean crops. Accordingly, during years of plenty, enough seed is collected to last several years. The behavior of seed stored over the period between seed crops is important to the nurseryman. Some loss in viability of stored seed is unavoidable, but

the amount is reduced by proper storage. In some cases, as in the firs, the loss is so great for a period of only one year, that it is advisable to store the seed in the ground. Sometimes the seed is stored in air tight glass bottles.

The best time to sow the seed is in the spring, although it may be done in the month of November. Sowing the seed in the spring is preferred in Canada. Frost heaving in the late fall and early spring may do considerable damage to the seed. The mantle of snow occasionally melts, leaving the nursery bare in midwinter, and the unprotected ground freezes hard. A spell of warm weather following, common in February, will mire the top few inches of soil. Drainage is difficult because the ground underneath is frozen. The seed embedded in the mire rots.

In planting, the seed is broadcast in the seed beds. The main advantages of broadcasting over drill seeding are the smaller costs of sowing; the small amount of ground space used for broadcast beds, which results in lower cost of soil preparation, weeding, watering and the better control of the work. The seed contains sufficient storage food to bring the plant from a certain depth to the surface after which it can manufacture its own food. If the seeds are covered too deeply the plants will starve before the surface is reached. Seed beds are given special care while germination is in process. Watering is frequent, but of short duration, and the water is lightly applied to keep moist the

zone in which germination takes place. A spray is used. Heavy drops would indent the surface and wash the soil cover. The beds are protected by screens. In the summer the screens keep the birds from taking the seed and in the winter they keep the snow off the seedlings. As the stock becomes older it requires less care. Many little refinements necessary in the proper care of the first year seedlings can be dropped in the second year with no appreciable injury to the seedlings. The beds are no longer protected by screen frames. Watering may be less regular.

Forestry-nursery stock should be judged by the condition of the root system and the balance between top and roots. Unlike ornamental stock these trees are outplanted on the forest where no care is given to them after planting. The forest trees must be well rooted to survive the shock caused in the change from deep soil and regular watering in the nursery to the soil when transplanted in the forest. Consequently, the trees must have at time of planting a root system that will meet the demands of the transpiring tops—what is termed by nurserymen “balance.”

Cutting the roots stimulates the development of numerous new laterals, and these fine rootlets branching from the main roots form the bushy fibrous system. This is accomplished by pruning the stock before transplanting. At the same time root pruning temporarily retards top growth.

Leave a tree undisturbed in a nursery and in form it soon becomes no better than wild stock. A fine seedling will, in its first year, send quite long roots into the ground. Unless checked by pruning, the roots reach further out as the tree grows older, and these far-reaching roots cannot be taken up with the tree except with much care. The top however, continues to grow in equal proportions to the roots, and its size is in no way reduced when the plant is taken up. The tree has become top-heavy. That is why it is difficult to transplant wild stock successfully; why young trees are said to withstand the shock of transplanting better than old ones; and why there are forest nurseries.

For this reason after the seedlings are left in the bed for two years, they are then transplanted in the nursery. They are then called not seedlings but transplants. The spacing between the transplants is widened and made more uniform for the benefit of the future top and root development. The transplanting of seedlings is possible at any time when the soil can be worked, even in mid-summer. However, if it is done in hot weather, success is possible only through protecting the transplants during the operation and immediately after it. The percentage of loss incurred by transplanting seedlings at the Forest Nursery, Fredericton, N. B. was 10 per cent. To neglect root pruning when the trees are lifted is to defeat the principal purpose of transplanting. The transplants are left in the soil for two years, then they are dug up, packed, and shipped for reforestation.

Thus far research in nursery practice has solved most of the detailed questions. The problems of outstanding importance on which additional work is required deal with the effect of soil fertilizing. Above all, in future work, careful and detailed study should be made of all plantings, to determine not only the factors affecting initial survival, but the subsequent history and development of the trees.

—S. F. C. '32

A Few Personals on Class of '33

One day Dr. Trueman, while hunting around,
Quite a fine bunch of rare specimens found.
He herded them all together you see
And brought them into the old A. C.

First there's Horncastle, the dancing man,
Dancing's his hobby and that boy can.
He's teaching us dancing, so you see
He's quite a help to the old A. C.

Now we have Thompson, one hard to describe.
I think he comes from the monkey tribe.
He's the president of the Junior degree
An excellent specimen so they tell me.

Of course there's Brown, the ladies' man.
He chases the women whenever he can,
He sits on the sofa with a fair young lass
When he's not attending the chemistry class.

Then we have Messrs Taper and Reed
Whose moustaches look very funny indeed.
They're short and fuzzy and sparse and small;
One needs a mike to see them at all.

Then we have Longley, a bulky young man
Who tells nice stories whenever he can.
He rivals Horncastle on Saturday night.
His dog-trot attracts all the ladies in sight.

Copinger-Hill comes next in fame
He's a jolly fine chappy in spite of his name.
He tried a debate against President Moore;
His humor was fetching but lost him the score.

Alec McNab has nice fuzzy hair;
MacPherson's got a permanent too.
And Gilbert's complexion is very fair
But Wilmshursts whiskers are by no means few.

Mr. Byers, the Marathon runner,
And Hilton, the singer of fame,
And Tommy Chiasson with his radiant smile,
And Morrell who made his own name.

But last we have the pupils of skill
Whom Horncastle is teaching to dance.
I heard a fair Normalite say to Burrell,
"Come on! Snap out of the trance."

There are a few others to include in this song,
But to tell of them all would take too long.
Just look them up in a book at the zoo;
No doubt you'll find yourself there too.

—H. T. '33—

Wallace Freestone Quarrie

The Wallace Freestone Quarry is situated at Wallace, Cumberland County. It was discovered about one hundred years ago, it is thought, by one Mr. Grant. The circumstances of the discovery are rather interesting. Mr. Grant intended putting up a fence and tried several times to sink a post but found each time that his task was quite impossible. After a little excavating, a bed of rock about an acre in extent was unearthed.

Stone was taken from this bed to a depth of approximately sixty feet. Later, several similar beds were struck; these were quarried until they ran out or became too deep for the hoist. After a time better machinery was procured and now the old beds are being operated together with some new ones. At the present time there are six

cranes each lifting in the vicinity of ten tons of stone each day. Some forty men are employed in this operation.

When the stone is to be uncovered a steam shovel digs away the earth. Steam drills are used to sink the holes for the dynamite. These holes are about four feet apart each way. When the dynamite is exploded, the stone, on account of its characteristic strata, breaks off in regular blocks; these blocks are sometimes cut into smaller pieces. The operation of cutting the large blocks into smaller ones was at one time done by machinery, but at the present time it is done by hand. Nearly all of the stone is shipped in the rough and is transferred by rail, water or truck. Until 1900, practically all went by water. Since that date, much has been shipped by rail or truck. Trucks are particularly useful when finished stone is to be moved short distances,

Stone from the Wallace Quarries goes to all parts of Canada and the United States. It is used chiefly for building purposes, although considerable quantities are used for monuments.

—A.T.M. '33

—o—

Fertilizers

—o—

Plants require certain foods and in order to get the best possible results from the land it is necessary that the soil be supplied with the re-

quisite food to be conveyed to growing plants. Our virgin soil, that has never been called upon to produce crops, rarely requires any fertilizer when first cultivated. However, land that has been producing crops continually is deprived of many of the soil properties necessary to promote growth and we must apply fertilizer in order to restore the proper balance of these properties.

In dealing with land one must keep in mind that different crops exhaust different food elements, so that rotation of crops helps very materially to keep the food constituents of the soil balanced, but in most soils an additional supply must be added either in the form of manure or commercial fertilizer.

Commercial fertilizers are expensive, hence one must know what varieties to purchase in order to use them economically. The four most important substances not supplied by nature to the soil are nitrogen, potassium, phosphorus, and calcium. Not all of these substances will be lacking at one time, nor can one tell by the color or texture of the soil just what food constituents are necessary to restore the ordinary balance. Therefore before going to the expense of applying fertilizers to any soil one should either analyze it himself or send a small sample of it to the nearest chemist who advises of the proportion of food value lacking and the form of commercial fertilizer to remedy it. Thus we see that by fertilizing scientifically we not only supply the necessary food properties to the soil to promote better growth, but we also lessen our cost of production which is of vital importance to every farmer.

Silver Thaw

—o—

Nature's trees aglittering stood:

Those that God had made of wood,

Alone I stood amid the glade.

The trees they crackled as they swayed.

Each tiny twig was gilded rare;

The sun gave back a brilliant glare

Wondrous to behold, this bright array

Showed for its splendour as it lay.

Thus in all the years to be

Nature's pranks will with us be,

And through the ever-changing days

God will send us such displays.

—G, W.A. '32

—o—

Electrification of Farms

—o—

One of the largest fields for development in the electric light and power industry is in the electrification of farms through the extension of rural transmission and distribution lines. This fact is being brought more and more before the attention of public utilities as there is becoming a gradual stagnation in other fields of development as far as

present requirements are concerned. Undoubtedly this will prove very welcome to the farmer providing he can obtain service at a reasonable figure, for the question which will automatically arise in his mind is "Will the increased cost of living be at least counterbalanced by increased production on my farm.?"

To the man in the poultry business the cost of purchasing electricity to light his poultry houses is negligible compared to the increased production in eggs, but will the cost of electrifying an ordinary general farm pay for itself outside of improving living conditions and providing the modern conveniences? It will not, unless this service can be furnished at a very low cost per K.W.H. This can be accomplished in only one way and that is by applying the principle of interconnection or the "typing in" of one central station to another. The results will be:

- (a) Increased effectiveness in the utilization of capital through the reduction in the amount of reserve equipment necessary.
- (b) Concentration of generation in large plants where unit costs are reduced to a minimum.
- (c) Economical development of water power otherwise unavailable due to location or seasonable flow, by bringing this energy within the general network.
- (d) Increased dependability of service in the

face of possible interruptions

- (e) Wider distribution of power, thereby enabling small communities and rural sections to obtain advantages otherwise confined to the larger centres.

Until this general "typing up" process has been brought about either by the government or by privately owned utilities, the farmers of this Canada of ours stand a very small chance of being able to afford electricity on their farms.

—J. H. H. '83

The Two Brothers

A few short years ago there lived, in what is now, one of the most prosperous farming districts of Nova Scotia, an elderly gentleman who had spent his life in the agricultural industry. Like the majority of aged farmers, he was beginning to realize that he could not accomplish any great amount of work and knew that a change would have to be made. After careful consideration he decided to place everything he owned in the hands of his two sons. On informing them of what his intentions were, they were very much pleased, as both of them preferred farm work to any other in which they had experience.

Jack and Henry had always worked together

and the bond of brotherly love that existed between them was remarkable.

The two brothers who for some time had taken almost as much interest in the different kinds of work as their father, now undertook everything with even greater enthusiasm. With the advice of an experienced father all their accomplishments spelled success. They, however, did not exclude from their work what scientific knowledge they were gradually acquiring. It was evident, in fact that the young farmers realized the necessity of combining scientific and practical knowledge in order to obtain the best results.

The two brothers were soon deprived of their father's help, as he lived only a short time to witness the success of his sons. They undoubtedly missed their loved father, but nevertheless continued to do good work for some time. As you probably know, farming has its disadvantages as well as all other occupations, but after all it is really such disadvantages that make life worth while. Not everybody, of course, is so fortunate as to possess that quality of accepting all things as they come, and such was the quality found lacking in Henry, the younger of the two brothers. Jack noticed the change more than anyone else, but did not care to question his brother as to what was troubling him. He had not long to wait for an explanation. One evening as they sat beside the fireside discussing different questions Henry suddenly changed the conversation—"I'm

tired of farm life, Jack and am going to try something better." "Why Henry, what's the trouble?" "Oh, this life of all work and no play does not suit me. There is too much hardship and not enough pleasure in farming when everybody else seems to have such a good time.

Jack tried to persuade his younger brother not to be so foolish, but all words of encouragement were in vain, Henry planned on leaving the following morning and as a result an agreement was made by which Jack became the owner of the whole property, giving Henry a liberal sum for his share. In the morning the two brothers, who had worked together for so many years, wished each other the best of luck and parted.

Life now seemed entirely different, not only for Henry who had gone abroad, but for Jack as well. On arriving in the City of New York, Henry at once wrote to his brother telling him all about the wonderful trip he had and also his first impressions of New York. Jack carefully read and reread the long interesting letter, which made him think that perhaps Henry had done the right thing by going away. Jack lost no time in answering his brother's letter and did not neglect to send him all the news which he thought would be of interest. The correspondence, I must admit was given more attention than is usually the case where brothers are concerned. They gave each other an account of everything except their own misfortunes, and as a rule each of them presumed

that the other was blessed with good luck. On the contrary, both of them had their troubles from time to time, yet no one would have any reason to think so by judging from the nature of their letters. Henry always managed to have some very exciting news for his farming brother, as he now called him. He often wrote pages describing a certain thrilling adventure he had experienced and would finish with the words, "I wish you were with me Jack." Jack did, at times, wish he was in New York—who does not? As a rule such wishes are only momentary and so they were with Jack. Regardless of all the comforts and luxuries of his brother in New York, Jack was quite content with his lot and although he always had plenty of work he, as well as Henry had his periods of recreation.

As the years rolled by both brothers married and "settled down." Now that each of them had a partner with whom he could share life's pleasures and trials, brother love seemed to gradually lessen till finally all correspondence ceased. It appeared as though that bond of brotherly love they once had for each other no longer remained in their hearts. This apparent loss of friendship was the source of much uncomfortableness on the part of Jack, not due so much perhaps to the fact that he was more interested in Henry than Henry was in him, but rather on account of the reply he had to make to the many people enquiring about his brother in New York.

Jack was that type of man who, although having every reason to believe that Henry was bless-

sed with health and happiness, always spoke the truth.

Jack had no idea that he was to learn from experience that it paid to tell the truth. One night after a day's hard work, he was about to retire the thought came to him again that Henry had done the right thing by giving up farming. No sooner had the thought passed through his mind than he heard a faint knock on the kitchen door. On opening the door to see who was there he looked into the face of his own brother Henry—a face which once bore the sign of success, now wore the look of failure.

F. L. '33

The Initiation '31

'Twas a frosty autumn evening
In the year of '31
When we juniors of the A. C.
Our work had just begun.

We were invited to the College,
By our seniors of one year,
And were told to bring pyjamas
Which filled our hearts with fear.

Although we had greater numbers
The seniors did not quake
They had dignity to maintain
And their honour was at stake.

After various proceedings
 Such as blindfold, blanket-toss,
 And other preliminaries
 Just to let us know "who's boss."

We were dressed in our pyjamas,
 Our hands behind us tied,
 And paraded toward the city
 With seniors on either side.

Although our hands were fastened
 Our feet were left quite free;
 I ask you Studious Seniors,
 "Who had the greater spree?"

When we at length reached Prince Street
 With the seniors breathing fast,
 They cried and with much fervour
 'The Palliser at last!'

They treated us to ice cream
 I don't say we got our fill
 But we heartily enjoyed it
 For the seniors paid the bill.

F. D. C. '33

Optimistic A. C. Graduate:—"Have you a good
 opening for a bright, intelligent young man?"

Pessimistic Boss—"Yes, and close it softly when
 you leave."

Morell, after a dance at the local dance hall.—"I
 spent two dollars to-night and I could have
 spent more but that was all she had."

Charles Darwin's Theories

In the present paper an attempt is to be made to give in outline the theories of Charles Darwin, and to briefly point out some of the evidence both for and against these theories. The work with which Darwin's name is usually associated is his famous "Origin of Species," and the keynote of this work is the theory of Natural Selection, which he worked out with laborous care, and for the adequate presentation of which he arrayed a most formidable mass of evidence.

In opening our discussion of this subject, it is well, I believe, for us to keep clearly in mind one fact, which is that contrary to the opinion often popularly expressed, Darwin was not the first to advance the theory of evolution. The idea that species of plants and animals have been formed from pre-existing species is a very ancient one, conceived, by the early Greeks, and from the time of Aristotle there have been various theories advanced to explain the process by which this could have come about. Darwin in no sense originated the idea. What he did do, was to collect such a mass of evidence, and to arrange it in such a form, that for the first time a satisfactory explanation could be made as to how the process came about.

He lived at a time when, as Osborn has said, "the store-house of facts was fairly bursting for want of generalization," and by his grouping together the known facts about nature, he arrived

at the generalization which has resulted in the general acceptance by the scientific world of the truth of evolution as an historic fact. We should remember therefore that Darwin did not originate the evolutionary theory. He merely brought together facts to make it the most plausible explanation of all those hitherto given.

The theory of Natural Selection which was arrived at independently by Darwin and Wallace, and published simultaneously by them on July 1, 1858, has had an influence upon the thought of the world almost beyond calculation. As Romanes has expressed it, "If we may estimate the importance of an idea by the change of thought which it effects, this idea of Natural Selection is unquestionably the most important idea that has ever been conceived by the mind of man."

However the far-reaching effects of Darwin's work may turn out to be more his arranging of facts in such a manner as to show for the first time the plausibility of evolution, than his advancing of the theory of Natural Selection itself. His theory which for many years was considered as adequate to explain evolution, is to-day being regarded more and more critically in the light of modern research, and instead of being the cause of evolution as was originally supposed, it is now being looked upon as a contributing factor only. But we shall discuss this later when dealing with the criticisms of the theory itself. It is sufficient to here point out that from the very first, Huxley who was such an ardent advocate of Darwin's views, regarded Natural Selection as only the most

probable cause of evolution, though he never wavered in his adherents to the facts of evolution after the publication of the "Origin"

Darwin also was very cautious in not claiming Natural Selection as the sole cause of evolution, an example which was not copied by all of his followers. He freely admitted the possibility of co-operating agencies, and in the introduction to the sixth edition of the "Origin of Species" closes with these words: "I am fully convinced that species are not immutable; but that those belonging to what are called genera are lineal descendants of some other and generally extinct species, in the same manner as the acknowledged varieties of any one species are the descendants of that species. Furthermore I am convinced that Natural Selection has been the most important, but not the exclusive means of modification." This statement he made again in the conclusion of his book, and it should be borne in mind, because many of the objections raised against his theory of Natural Selection turn out to be invalid when it is remembered that Darwin himself freely admitted the possibility of co-operating agencies:

The first part of this paper will be devoted

(1) To the theory of Natural Selection itself and the evidence advanced for its support.

(2) To some of the criticisms of theory, and the modifications in it that may be necessitated by them.

The Theory of Natural Selection

The theory of Natural Selection occurred to Darwin while considering what he calls the "struggle for existence" in the organic world, and he applied the doctrine of Malthus to the whole animal and vegetable kingdoms. He expresses this in the introduction to the "Origin" in the following way: "As many more individuals of each species are born than can possibly survive; and as consequently there is a frequently recurring struggle for existence, it follows that any being, if it vary however slightly in any manner profitable to itself, under the complex and sometimes varying conditions of life, will have a better chance of surviving and thus being Naturally Selected. From the strong principle of inheritance any selected variety will tend to propagate its new and modified form."

Darwin's theory of Natural Selection is merely a statement of observable facts about nature, and deductions drawn from them. These have been summarized by Kellog in the following manner.

The observed facts are:

- (1) The increase by multiplication in geometrical ratio of the individuals of every species.
- (2) The slight variation in form and function existing among all individuals, even of the same generation.
- (3) The transmission, with these variations by

the parent to the offspring of a form and physiology essentially like the parental one.

The inferred and partially observed facts are;

(1) Lack of room and food for all these new individuals produced by geometrical multiplication, and a consequent competition among them.

(2) The probable success in the competition of those individuals whose variations are of such a nature as to give them the advantage.

(3) The fact that the successful individuals will, by heredity, pass on to their offspring the favorable variations.

From this the deduction is made that species are gradually made from pre-existing species.

In support of his theory Darwin mustered a great array of facts collected from many different sources. The evidence may be grouped (after Romanes) briefly as follows:

(1) Evidence drawn from the observation of variations under Domestication. Darwin pointed to the large variety of animals that have been produced by artificial selection, taking as one example the many varieties of Domestic Pigeons that have all arisen from the wild rock-pigeon. And, arguing by analogy, he shows that if thru selection man can produce such diversities, Nature also thru selection could do the same.

(2) It is a matter of observation that the struggle for existence in nature does lead to many

forms being exterminated, and forms with advantage multiplying at an enormous rate. Examples of this are to be found in those cases where a species has been introduced into a country foreign to it, and where as a consequence its natural enemies do not exist to keep it in check. A good illustration of this is the case of the common rabbit in Australia.

(3) An argument upon which Darwin laid a great deal of emphasis is that among all the millions of structures and instincts that are adapted to the needs of the species presenting them, not a single instance can be found of a structure or instinct developed for the benefit of another species. Darwin was so confident of this, that he made the statement that if such an instance could be found, he would surrender his whole theory on the strength of it.

The remaining details of the theory that are of interest to us, will be alluded to in our discussion of its criticisms. Before passing on to these there is one thing with regard to the theory that we might keep in mind, since some of the recent researches have given rise to criticisms bearing upon it. This is the part that morphological data plays in the theory. Huxley pointed out that there are two ways of separating species, namely morphologically and physiologically, and that while the latter is the only safe guide, owing to the difficulties in its application it is not the common one, plants and animals being usually classified according to their morphological similarities. Indeed this

is the only way we have of classifying many animals which exist to-day only as fossilized remains. The great mass of evidence that Darwin has brought forth to prove the origin of species from pre-existing species is largely morphological in character, and Huxley himself carefully noted this point. His statement on the matter is as follows:

“After much consideration, and with assuredly no bias against Mr. Darwin’s views, it is our clear conviction that, as the evidence stands, it is not absolutely proven that a group of animals having all the characters exhibited by any species in nature, has ever been originated by selection, whether artificial or natural. Groups having the morphological characteristics of species, distinct and permanent races in fact, have been so produced over and over again; but there is no positive evidence, at present that any group of animals has by variation and selective breeding, given rise to another group which was even in the least degree infertile with the first. Mr. Darwin is perfectly aware of this weak point, and brings forward a multitude of ingenious and important arguments to diminish the force of the objection. We admit the value of these arguments to their fullest extent—but still, as the case stands at present, this little rift within the lute is not to be disguised nor overlooked.

L. E. S. '33

(To be Continued)

A Perfect Day

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Imagine yourself standing on Bible Hill one morning and looking out over a vast area of rolling hills and valleys lying snugly under a blanket of immaculate snow. Fleecy white clouds are drifting along the sky obscuring the sun. The air is sharp and invigorating. Everything is solemn and calm. But most beautiful are the myriads of crystals of multi-shape that hang from the branches of every tree and cover every building.

Beautiful as this is, imagine the noon of the same day when the sun disperses the clouds and comes out on his fiery car. Then, as if by magic, every tree is bathed in scintillating light, like myriads of diamonds, reminding one of countless fairies clothed in all colors, with bright silver wings glittering and sparkling. Oh! With such a wonderful vision troubles take wings and go seeking dark corners where their shame will not be disclosed by such glittering beauty.

How clumsy is man in the face of such handiwork. Let him try to dress one tree as thousands were dressed that day—Impossible! I often think that such beauty is sent from Heaven to give us a new hope, fresh courage in striving for what is awaiting us there. But, lo! The sun is sinking in the west like a ball of fire. Every tree is lit up with

a fiery blaze. The sun sets and once more the landscape assumes the appearance of an immaculate white blanket stretching over the countryside. How can one help taking off his hat and murmuring a prayer of admiration and wonder to Him who made all things.

Slowly dusk creeps on and, one by one, the shining stars come peeping out, blinking and dancing as in sheer delight at the sight below. So is drawn the curtain on a perfect day.

—o—

It is generally known that Robbins is seeking a job in Truro for the coming vacation. This ought to be welcome news for the girls in the ice-cream parlour.

Mr. Longley, who had never seen an automobile, was one day mowing hay when his mower broke. Mr. Trevors passing in an automobile stopped to inquire if he could help Mr. Longley but was astonished when Mr. Longley said, "what is that?" Trevors answered, "That is an automobile. Longley, "Well this is an automohay, but it won't."

Pasteurization of Milk

—o—

The system of pasteurization was discovered by Pasteur, a famous French chemist. The pasteurization process was first carried out to advantage with wine; it improved the flavor of the wine as well as made it keep longer. It was some time before this was applied to milk. Denmark and Germany were the first two countries to use this method of improving their milk supply for consumption.

The pasteurization machines were first introduced from Denmark to this continent in 1895. The first machine designed in this country for the pasteurization process was invented shortly after this by Mr. S. M. Heulings who at the time of his invention was living in New York. It was the first continuous flow pasteurizer made.

There have been several systems of pasteurization during the last hundred and twenty-five years. In this article I shall endeavor to deal with the "holding process" of milk. To pasteurize milk by this system we must heat the milk to 145° F. and hold it at that temperature for thirty minutes. This not only makes the milk safe for consumption but also improves the keeping quality as well. This system is the most popular one at the present time. The "flash system" has been prohibited by health officials in a great many sections be-

cause the milk has to be heated to too high a temperature. There are several reasons for this: the cream will not rise to the top, the milk has a cooked taste as well as other reasons.

It is very important that the milk after being heated should be thoroughly cooled. The means of cooling should be sufficiently large so milk will not pass over too rapidly and some not become properly cooled. Another means of regulating this is by valves by which you can make the milk flow as fast or as slowly as you choose. This is important because it is essential that milk be cooled to a low temperature or it will sour.

In order to get a good cream line milk should not be heated over 145° F. Milk should be heated and cooled as rapidly as possible. It should be bottled as soon as it is cooled, because if allowed to stand the cream will rise to the top. If the cream is disturbed it will not rise again.

Milk pasteurized by the "holding process" at 145° F. doesn't undergo any noticeable change. The soluble phosphates of lime and magnesia in the serum of both raw and pasteurized milk are practically the same. The albumen does not coagulate until after it is heated to a higher temperature than 145° F. However, after it has reached this temperature it coagulates very rapidly; when it has been heated to 160°F, almost 31 per cent. of the albumen has coagulated.

Some of the advantages that are received by

pasteurizing milk are (1) It destroys any bacteria that would cause disease; (2) it is a means by which we can keep milk sweet for a longer period of time because it reduces the number of lactic acid organisms; (3) it also reduces the total bacterial count in milk by nearly 99 per cent. No matter how carefully milk is handled there may be some disease germs get in the milk. If the milk has been pasteurized properly we know these bacteria have been killed.

The pasteurization of milk adds only slightly to the cost. The more milk is pasteurized the less is the cost per gallon.

In order to obtain good results when pasteurizing milk, the equipment such as pipes, pumps, valves and tanks must be thoroughly cleaned, rinsed and steamed for five minutes each time milk passes through them. The bottles must be washed, rinsed and steamed and later cooled, so that the good which has been done by pasteurizing is not reduced when the milk is bottled. If this has all been done carefully you should have a good product for consumption.

J. A. T. '32

The Oriental in British Columbia

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During the last three years, particularly, the people of Canada have heard much debate concerning the influx of Orientals into British Columbia. In the last three decades this immigration has tended more and more to concentrate on Canada's Pacific coast. Whether the matter constitutes a serious problem or not it is difficult to decide.

In 1858, the year of the gold rush, came thousands of California miners to the British Columbia mainland. Came, also, in their van a host of Chinese. They did not, at first enter into competition with the whites; being content with worked out claims. Later, however, when Canada was pushing her great railways to the westward thousands more arrived, to seriously interfere with the employment of white labor on construction. This was the beginning. Now the Chinese flock the Fraser delta, Indians the lumber camps, Japanese the canneries and small towns.

The Chinese standards of living are of an extremely low order. Their expenses are little. Therefore, their truck gardens offer so unfair a competition to those of whites that the latter are finally eliminated from the unequal struggle. In the lumber camps and canneries the situation is

very similar. The rice-eating native races of India and Japan, working for paltry wages, have greatly lessened the number of positions open to whites. In the small towns we find another aspect of the problem. Because of lower living standards, combined with a marvellous business acumen, Japanese have gradually tended to displace native whites in small business. At Vancouver, there have landed, in one year, as many of this last race as ten thousand, to invade every department of industry.

One can easily see, therefore, that the yellow race forms a not inconsiderable portion of British Columbia's population. There has been much objection to the entrance of the Oriental, perhaps reasonably. Yet one must probe the problem with an entirely unbiased mind before one can state definitely whether or not yellow immigration should be debarred any more than foreign white. Both immigrations probably increase the native Canadian's struggle for existence. However, I think it can be said that the Oriental offers the most unfair industrial competition. Another, perhaps lesser, objection to the yellow man, applying much more to the Chinaman than the Japanese, is the fact that he comes alone into the province, prospers at the expense of native whites and then returns to his homeland, taking Canadian money with him. He does not take root in the soil. Some will argue that this is because of the five hundred

dollar head tax imposed on the Chinaman. Indeed it is a wonder that the poor Chinese gardener can ever enter Canada, and that our Oriental problem in the case of Chinese, is not entirely provided by wealthy princes of Cathay.

Finally, there is no doubt of the great differences existing between the social culture of the European races and of the Asiatic races. It has been suggested by a certain prominent British Columbian that these differences could be surmounted if white and yellow would intermarry. He was rebuked by one, perhaps less tolerant than himself, who suggested that he be first and marry his daughter to the unofficial mayor of Vancouver's Chinatown. The prominent gentleman felt himself to be insulted by the remark. One can easily see, therefore, the difficulties in the way of such a course; for race prejudice is an instinctive thing. However, even though the thing were possible, it would take centuries.

It would seem, therefore, that the consensus of opinion regarding British Columbia's Oriental problem can only be that Asiatic immigration either be measurably decreased or prevented entirely. If not the yellow race will slowly, but none the less certainly, replace the white on Canada's West coast.

—C.D.T. '33

Autobiography of the Woolly Aphis of the Apple

—o—

It is late September, the beautiful Autumn colors are clothing the landscape in various shades of green, gold, brown and red. Surely it is good to be alive in such a beautiful world, and in my home high up in Elm Tree, with my pretty little wife dressed in her lovely reddish-yellow frock over which she wears a lovely woolly cloak of purest white, I am the happiest little Woolly Aphis alive. My suit is of olive-yellow and my top coat of the same material as my wife's cloak. Having no mouth parts with which to take food, we spend all of our time enjoying the beautiful scenery and chatting with our neighbors. The women folk, being twice the size of the gentlemen, do most of the talking with few interruptions.

I live in a large community and, having little else to do, we have many parties. I enjoyed the party we had yesterday very much. We were requested to give our ancestry as far back as could be traced. Of course we all knew that we had no fathers. Our mothers were born over in Farmer

Thompson's orchard but as Autumn approached they flew over to our Elm Tree. They were dressed in their fine travelling suits of greenish-brown serge with exquisite little cloaks of woolly angora. How we envy them that delightful trip, for, not being blessed with wings, we are destined to remain in our Elm Tree. In a few days after the arrival of our mothers we were born, six to twelve in a family, about half boys and half girls. We had been told all of this by our mothers, but one lady in our village had been left her family records since early spring. I shall record them as told at the party.

In early spring there hatched from pretty cinnamon colored, oval eggs, a brood of stem mothers who, like ourselves, were wingless. They fed on the undersurface of the tender green elm leaves and were soon surrounded by a numerous family of young aphids followed in turn by another large family. The third generation was given wings and being of a restless disposition, many flew away on a trip of adventure. Being particularly attracted by the appearance of Farmer Thompson's orchard, they decided to settle there. Upon taking up their abode they found other large colonies already established on the branches of the apple trees from the bark of which they sucked their food.

During the summer almost a dozen genera-

tions of these ladies arose, but their lives were far from pleasant. Whole colonies were destroyed by cruel old spiders who built webs over these colonies and henceforth feasted at ease. Lady beetles were continually raiding colonies for fresh meat. But of all the terrors that wrought havoc in the aphid colonies, Farmer Thompson himself seemed to be the most dreaded. He was continually at work with a sprayer which coated the bodies of our great-grandmother's sisters with kerosene emulsion or a soap or tobacco decoction. This rendered them unable to breathe and caused the death of thousands of our aunts. To escape these dangers many of our ancestors went down into the earth and fed upon the roots of the trees. But Farmer Thompson soon discovered them and promptly proceeded to extricate them with dusts, which were quite as deadly as the sprays.

At the close of Lady Aphid's speech my brother arose and told about the baby aphids of our ancestors for you see we fall-born aphids are quite different in our characteristics. The baby aphids were born alive and began to suck their food through their long beaks which, by-the-way, were longer than their bodies. In a few hours they had a new waxy suit and by the time they were full grown, which was from eight to twenty days, they had been the happy possessors of four new suits.

I have already told you that our mothers

were all fall-born ladies. Some of them were born above and some below ground, and all had delicate gauze wings. I told you also of their families of boys and girls. We belong to the only generation in which boys are born and we do not grow after birth. We shall raise no children, but each lady aphis will lay a single long, dark, cinnamon colored, oval egg, nearly as large as her body. This egg will be hidden in a crevice of the bark of the tree. Next spring a brood of female aphids will hatch from these eggs and continue the cycle throughout the season.

Now I fear I have tired you with this long account of our life history so I shall walk up this little twig and enjoy the scenery. In a few days we must die, for winter is approaching, when no tiny creatures like us can survive.

M. B. M. '32

—o—

Horncastle and Trevors were passing by a grocery store. Horncastle, spying some large coconuts in the window, exclaimed, "Oh, look at the large potatoes with whiskers on them!"

Crosby to Fair Normalite:—"You see I'm just learning to dance."

Fair N. (with aching feet);—"As if I didn't know it!"

Heredity and Genetics

—o—

Inheritance is the ability of any organism to transmit its characteristics to its offsprings. This is chiefly accomplished in two ways, either by a vegetative process, known as asexual, or sexless reproduction, or by a more elaborate process known as the sexual method. Sexless reproduction is the first, the original method of procreation. Primarily it is a process of cell division, which is easily illustrated by the case of the amoeba, the one-celled water creature that is still with us. The amoeba is a tiny blob of transparent, jellylike living material called protoplasm. In reproduction, it first rounds itself up. Then by assuming a dumb-bell shape, it gradually pulls itself apart to form two separate animals. We should now turn our attention to the sexual method of reproduction, in which the union of sperm nucleus and egg nucleus is the fundamental principle of procreation among all animals that are male and female, from the humble creature below the worms, all the way up to man. The nucleus consists of a substance called chromatin, which assumes the form of very tiny rodlike particles known as chromosomes. These chromosomes are the actual carriers of the parental characteristics. By characteristics, we mean the physical and mental features of an individual. Among a man's physical or structural characteristics are the color of his hair and eyes; the color and texture of the skin; and many more too numerous to mention. As for mental charac-

teristics, there are genius, insanity, perseverance, strength or weakness of will, courage or cowardice, and a host of others.

The question now rising in our minds is how we know that the chromosomes are the carriers of parental characteristics. However, this may be answered by the fact that we know this through actual observation and experiment. If you take an unfertilized egg cell and develop it artificially—that is to say, without the aid of a sperm—you get an embryo that shows characteristics only of the mother. Since the sperm cell consists mostly of nucleus and practically no cell plasm, it follows that the sperm nucleus transmits the father's characteristics. And since the nucleus, in turn consists of chromosomes, it is obvious that they are the actual vehicles of the parental traits. It need not be stated here that it is quite usual for a son to act like his father and to have several of his mental traits. And we often wonder if this is not due to imitation and training. Some of it may be, but most of it is inherited. This is shown by the fact that a child often resembles, mentally as well as physically, its grand-parents, or great grand-parents it has never seen. Obviously it is logical to assume that the same chromosomes which carry, say, the color of the eyes or shape of the nose from a grandfather to a grandson, also are responsible for the fact that the boy possesses, for example, his grandfather's perseverance.

Up to the nineteenth century, it was com-

monly believed that the fully formed human or other animal was contained, in miniature, either in the egg or in the sperm. This was not just a popular belief, but a scientific theory, known as doctrine of pre-formation. As a matter of fact, there were two theories of this kind. According to one the miniature human being or animal was contained in the egg, and only the sperm was needed to stimulate its growth. The other theory has the miniature man or beast in the sperm, and the egg was necessary to enlarge it. Carrying these theories to their logical conclusion, all future generations would have to be encased, inside the miniature man or animal. According to these theories, serious calculations were made to show that within the body of Mother Eve there were contained the miniatures of 200,000,000 descendants, at the exhaustion of which the human race would cease to exist. But in 1827 the pre-formation theories and all that went with them were overthrown by the famous German scientist Von Baer, who conclusively demonstrated the fertilization of the human egg by the sperm and its subsequent development.

We should now turn our attention to the transmission of characteristics. In 1865, the Abbe Mendel, an Augustinian monk, working in a monastery at Bruenn, Austria, demonstrated, in a series of experiments, the transmission of characteristics by the reproduction process. He worked extensively with common garden peas and found that tallness was dominant, and shortness recessive.

This was also true for the most cases of plants and animals. Also a man with blue eyes marries a girl who has blue eyes. The children will all be blue eyed. When you wed these children to blue-eyed children of blue-eyed parents, you again will get blue-eyed offsprings. If the same matings are made with brown-eyed people of pure brown-eyed stock, the results also will be brown-eyed children. However, if a brown eyed person of a pure brown-eyed stock marries a blue-eyed person of a pure blue-eyed stock the children will all have brown eyes, just as Mendel's first generation of hybrids were all tall pea plants. The reason for this is that brown eyes are dominant over blue eyes, just as tallness is dominant over shortness. Next we must assume that all these brown-eyed children marry brown-eyed children of similar brown and blue eyed hybrid parentage. The children from these marriages will be brown-eyed and blue-eyed in the ratio of three brown to one blue, provided of course, that enough children are born to make the calculation.

In 1872 the German biologist Flemming discovered chromosomes. This discovery has been responsible for countless barrels of burned midnight oil, plenty of brain **fag**, flunked examinations and the resultant heartaches. Because the system for which he laid the foundation is so involved and so difficult to understand that it is rivaled only by higher mathematics. This system

states that the nucleus of each of the billions of cells that make up our bodies contain the same kind of machinery that is contained in the reproductive cells. That is to say that the cells of the muscles, eyes, skin and brain also have chromosomes. In a man, all of the body cells except the sperm cells, contain 47 chromosomes. In a woman, all the body cells have 48 chromosomes, except the egg cells. A human egg cell has 24 chromosomes. But the sperm cells each man produces are of two different kinds—half of them have 23 chromosomes and half have 24. Obviously, the egg cell and the sperm cell each carries half the total number for the purpose of re-establishing the total when united. When this union takes place, you have a fertilized egg cell containing either 47 or 48 chromosomes—in other words a future boy or girl. The fact that there is a difference of one in the number of male and female chromosomes was established recently by Dr. T. S. Painter, professor of zoology in the University of Texas. To understand how marvellous this operation really is, one must know that each of the 47 or 48 chromosomes in every single one of the billions of cells in our bodies carries several hundred characteristics, so that the total number of characteristics in each cell nucleus reaches up into the thousands. In other words practically all the characteristics that go to make up our entire personality are condensed in each of these tiny cell

nuclei; no matter in what part of the body they may be found. Don't forget that we develop through the division and subdivision of one fertilized egg cell. Each characteristic is represented in the egg and sperm chromosomes by ultra-microscopic units known as genes. That is why the study of this subject is called the science of genetics.

L. E. S. '32

N. S. Guernseys at the 1931 "Royal"

The Royal Winter Fair, Toronto, Canada's greatest Agricultural Show and one of the leading Dairy Shows on the American continent, in 1931 brought forth the outstanding Guernseys in Canada and the New England States.

Nova Scotia, commonly called the home of the Guernsey breed in Canada, was strongly represented at the recent Royal Fair by the well known herd of Beech Hill Farm Ltd., Princeport and the young but coming herd of Oakfield Estate, Oakfield.

The first class to enter the show ring was bull calves under six months, with eleven entries. Oakfield Estate captured third place with Oakfield Dairymaid's King, a smooth and nicely finished

animal. In the class one year and under eighteen months with eight entries Beech Hill Farm took fourth place with Beech Hill Diamond's Trim, a showy and nicely finished bull. Next to enter the ring were bulls eighteen months and under two years, with four entries. Oakfield Estate took fourth place with Oakfield Stella's Lad. This bull showed fine dairy type but lacked strength over the withers. The two year old bull class was an easy win for Beech Hill Farm with Butterfat, Pride of Hilltop. This strong, dairy typed and promising bull was later given Reserve Senior Champion. In the mature bull class, with ten entries we find the Grand Champion male, Bonnie Brae Trojan, owned by William Brooks, Paris, Ontario. Beech Hill Farm captured second place with Beech Hill Lindy, a very showy bull and the Grand Champion at the 1930 Royal. Oakfield Estate took fourth place with Carter's Mixer King, an exceedingly strong and smooth bull and the Grand Champion at the 1929 Royal. The R.O.P. bull classes next entered the ring. With eleven entries for bulls over one year and under two whose sire or dam is qualified, Beech Hill Farm captured fifth place on Beech Hill Diamond's Trim, and Oakfield Estate took sixth place on Oakfield Stella's Lad. With twelve entries for bulls under one year whose sire or dam is qualified, Oakfield Estate captured sixth place on Oakfield Dairymaid's King.

Next came the classes for cows, the first of

which was the class three years or over not in milk with thirteen entries. Oakfield Estate captured first place on Stella of Spruce Grove, a strong typey cow showing a fine finish. Beech Hill Farm took second place with Dairymaid's Secret of A., a strong and nicely finished cow. In the cow class two years and under three with eleven entries, Bertha, of Spruce Grove made an easy win for Oakfield Estate and was later given Reserve Grand Champion. This heifer showed plenty of strength, uniformity and finish. Had she been showing fresh she would have brought back the Grand Champion ribbon. Sixth placing went to Oakfield Estate also on Mollie of Spring Grove, a half sister to Bertha, and a smooth, nicely finished heifer, but not showing enough udder development for her class. Then came heifers eighteen months and under two years with sixteen entries. In this class Beech Hill Farm captured second ribbon on Beech Hill Diamond Colleen, a typey, nicely finished heifer. The class, heifers one year and under eighteen months, with eighteen entries, represented a very strong class. Beech Hill Farm captured third and fourth placings on Beech Hill Rose Blossom and Beech Hill Jewel's Daffodil respectively, two uniform heifers. In the heifer class six months and under one year, with eighteen entries, Beech Hill Farm took second ribbon on Beech Hill Cinderella. Oakfield Estate captured fourth place on Oakfield's Marie's Maid.

Heifer calves under six months brought out a

strong showing with twenty-three entries, Oakfield Estate capturing sixth place with Fishermaid of Belvoir, a good dairy typed heifer. Eighth place went to Beech Hill Farm on Beech Hill Rose.

Just a word about these last two classes. Besides having larger entries than any of the other classes they were exceedingly uniform throughout. The exhibitor who left the show ring with a ribbon certainly could consider himself fortunate. The two Nova Scotia herds, as I have shown, did exceedingly well in these classes. The Guernsey judge Mr. W. K. Hepburn, Anselma, Pa., stated that these classes were superior to those shown at the National Dairy Show, St. Louis, U. S. A.

Coming to the aged cow class in milk with ten entries, Beech Hill Farm captured first, fourth and eighth placings. First place went to the grand old producer and show cow Sea View Queen. Fourth place was taken on Dairy Dimfree's Queen of Preston Hollow and eighth on Gregory's Ruby. In the cow class four years and under five with seven entries, Oakfield Estate took third ribbon on Mountain Way Buttercup. This cow showed finish and plenty of constitution, but lacked uniformity of udder. The class three years and under four in milk, with ten entries, produced the Grand Champion Female, Martindale Faithful, owned by Martindale Farms, St. Catharines, Ont.

Fourth place was captured by Beech Hill Farm on Helderberg Elizabeth May, a smooth and nicely finished animal. The sixth ribbon went to Oakfield Estate on Prospect, N. S. Supreme, a very showy cow but not carrying a properly balanced udder. Next came the class of cows two years and under three in milk with eleven entries, the red ribbon going to Beech Hill Farm on a uniform and nicely fitted heifer, Beech Hill Colleen. Oakfield Estate captured fourth place on Rose's Dairy Maid, a smooth heifer but showing a slight weakness in the back.

In the R.O.P. class of cows six years or over having an official record there were nine entries. Oakfield Estate captured the red ribbon on Stella of Spruce Grove. Although showing dry she was too outstanding in type to be overlooked. Notwithstanding this fact she was followed closely by Sea View Queen, winning second place for Beech Hill Farm. In the R.O.P. class cows under six years having an official record, there were seven entries. Third placing went to Beech Hill farm on Helderberg Elizabeth May, a cow showing a nice finish. Mountain Way Buttercup, a cow showing good dairy qualities, won fourth place for Oakfield Estate.

Following the R.O.P. were the group classes, first being the graded herds. Beech Hill Farm

won first place on an extremely uniform and nicely fitted herd headed by Butterfat Pride of Hilltop. Oakfield Estate took third place on a strong typey herd but lacking the uniformity easier obtained by the old breeders. This herd was headed by Carter's Mixer King. The graded herds were followed by Dairy herd with seven entries, Beech Hill taking another red ribbon with four smooth and uniform females. Oakfield Estate won fourth place with four typey females but lacking in uniformity. In the junior herd class with eight entries, Beech Hill won second place on a nicely finished herd. Oakfield Estate took fourth place on a herd showing good dairy type.

The get-of-sire brought out thirteen entries. Oakfield Estate won third place in this strong class on a very uniform group. Beech Hill Farm came sixth with a herd nicely finished but lacking uniformity. In the produce of dam class with fourteen entries, Oakfield Estate captured second ribbon on a smooth, nicely finished pair. Beech Hill Farm followed closely taking third place on a pair not quite so outstanding in type. In the last class, three animals sired by one qualified sire with eight entries, Oakfield Estate won second ribbon on a uniform and nicely fitted group.

May I state in conclusion that the owners of these two Nova Scotia herds should be congratulated on the showing of their respective herds at "Canada's Premier Show." Although not bringing back any Grand Championships they have

shown their ability to hold their own. We hope the 1932 Royal will see these two herds back again with a stronger showing than ever.

J.D.R. '32

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Social Activities

—o—

The social activities at the Agricultural College are quite as pleasant this year as formerly and the same spirit of friendliness and social equality prevails as in the past.

The first social event of the season was a delightful tea given by the members of the faculty and their wives. This very pleasant function was held on the afternoon of October 30th, in the Women's Institute rooms in the Science Building. Professor Middleton welcomed the students to the College in a very pleasant speech, and Dr. Trueman gave a short talk, after which everyone enjoyed sandwiches, cake and coffee and a social chat. The students met not only each other, but also the members of the faculty, their wives and office staff.

Through the courtesy of Dr. Trueman, and Miss Helen Macdougall the Saturday night socials are being held again this year. The A. C. boys have as their guests the students of the Normal College, and the popularity of the socials is so

great that it has been necessary to invite only one class from the Normal College at a time. This act seems to have caused a large number of the Normalites to forget what class they were in.

Last year we had only a victrola to furnish the music for the dancing. This year we have been fortunate in securing the services of one of the Normal students who plays in a manner very pleasing to dancers. We hope that all A. C.'s and Normalites who wish to dance and have not taken advantage of this opportunity to learn will proceed to do so at once.

That the members of the faculty are interested in our social activities is shown by the fact that they are always well represented at the Saturday night socials.

The Senior Prom—the first big dance of the year was held Wednesday evening, December 9th in the College Auditorium. This event was a crowning success from every point of view. Music was furnished for a program of eighteen dances and extras, by McLaughlin's Orchestra of Truro. The catering was done in a very capable manner by the True Blues—a Truro Temperance Society. The chaperones were Mrs. J. M. Trueman, and Mrs. W. V. Longley.

If social events at the A. C. continue to be as pleasant and successful for the remainder of the year as they have been to date, and there is every reason to believe they will, we can count upon a most enjoyable year.

Alumni Notes

—o—

Among those receiving their Ph.D. degree last June at the University of Minnesota, was W. V. Longley, who has been connected with the Nova Scotia College of Agriculture since June, 1927, as Professor of Economics. Dr. Longley was graduated from the Nova Scotia Agricultural College with the class of '09 and from the University of Toronto (Ontario Agricultural College) with the class of '11. Graduate work in economics, major agricultural economics, minor economics was taken at the University of Minnesota in 1925 - 1927, where he obtained his Masters degree in 1926. On his return to Nova Scotia his subject for a Doctor's thesis was changed to "Some Economic Aspects of the Apple Industry in Nova Scotia" and this was submitted to the University of Minnesota last year. Dr. Longley is also Director of Extension for Nova Scotia, and in connection with this work served on the organization committee of the Canadian Council of Boys' and Girls' Club work of which organization he is now vice-chairman. He was one of the organizers of the Canadian Society of Agricultural Economics, the Economics Group in the C. S. T. A. organization. As a member of this organization he served two terms as secretary and is now vice-president. Dr. Longley is also a member of the International Economics Association, the American Farm Economics Association and the American Statistical Association.

C. V. Marshall, B.Sc., Acadia '24, N.S.A.C. '26, resigned his position as Assistant Chemist at the N. S. A. C. last June and is now farming at Salem, Yarmouth County. Charlie is missed, not only in the classroom, but in the gym and other spheres of college life.

Stanley Wood '18 was appointed Superintendent of Live Stock for the province of New Brunswick to fill the vacancy left by the resignation of L. E. McLaurin.

Maynard P. Harrison '28 was promoted last spring to the position of Chief Assistant to the Live Stock Superintendent for New Brunswick. Mr. Harrison has been in Agricultural Representative work in New Brunswick since his graduation from the O.A.C. in 1930.

H. L. Trueman '15, Secretary of Canadian Society of Technical Agriculturists, was seriously injured last June in an automobile accident caused by faulty road construction. Mr. Trueman was in bed for three months, but is now back at work and is likely to fully recover.

S. S. Munro '28 has a scholarship at the University of Wisconsin where he is taking post graduate work in Poultry.

Don. F. Putnam '24 was married recently to Miss Jean L. Wiles of Truro, N. S. Mr. Putnam is doing post-graduate work at Toronto University.

Lyman T. Chapman '16 is editor of the Nor' West Farmer, Winnipeg. Mr. Chapman was at his home in Cumberland County for the Christmas vacation and spoke over station C.H.N.S. in Halifax. He visited with Dr. Trueman while in Truro.

Edwin P. Grant '31 has been employed at the Experimental Station, Nappan, since graduation.

R. P. Longley '28 and C. M. Collins, '20 are taking post graduate work in Economics at Toronto University. Mr. Collins has been Agricultural representative with headquarters at Lawrencetown.

A. D. Pickett '25, Provincial Entomologist for Nova Scotia is taking post graduate work in Entomology under Dr. Brittain at Macdonald College.

Joe Fitzgerald, Farm Class 30 is farming at Linwood. We are sorry indeed to hear of the recent death of his mother.

H. F. MacIntyre, Farm Class '26 was married during the past summer to Miss Margaret MacMasters of Judique. They will reside at Leitches Creek, Cape Breton.

Dr. W. A. DeLong '16 was recently married. Dr. DeLong is on the teaching staff of Acadia University.

Ed. McPhee '28 has been Assistant Agricultural Representative for Cumberland since his graduation from O.A.C. in 1931.

Smith Hilton '20 was appointed Secretary-Manager of the Maritime Winter Fair last Fall and handled his first Fair last November with great success. He is also Assistant Superintendent of the Dominion Experimental Farm at Nappan.

E. A. Hilton, '31 and Vaughn Logan '28 are employed at the Central Experimental Farm, Ottawa.

N.S.A.C. grads at O.A.C. are: F. W. T. Lucas '29—fourth year Bacteriology option, O. L. Davis '30—special course in Horticulture, F. T. Lord '30—third year in Entomology option, R. E. Wetmore, '31—third year Field Husbandry option, F. J. Duplissea '31, F. A. Wood '31 and L. O. Weaver are taking the Intermediate year. J. Hallett '30.

At Macdonald College; John Leefe '31—third year Plant Pathology option, J. E. C. Smith '31—third year Economics, J. Leslie Forsyth '31—third year Agronomy, Taft Cameron '30, H. J. Griffiths '30, W. H. McCullough '30,—fourth year Plant Pathology, A. J. MacDonald '30, Janie Bell Matheson '30—fourth year Horticulture, H. A. Riordon '30, J. G. Stothart, '30

Walter Whitehead '14 was granted a leave of absence from Macdonald College last summer and visited his home in Kent, England.

Roy Layton '31 was in the Dominion Service Potato Inspection during the past summer.

Benny Pitman '29 now on the staff of the the Experimental Farm, Nappan, is rejoicing over the birth of a daughter.

A. J. MacDonald '30 is President of his class at Macdonald College, and Chairman of Residence Committee.

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Oxen in Yarmouth County

—o—

There is at least one place in Nova Scotia where the historic slow plodding ox is still used extensively. In fact, oxen are used much more extensively than horses or tractors in almost every part of the County. This County is Yarmouth, situated in the Southern end of the Province.

There are several reasons why oxen should occupy so prominent a place in this section of the province, as beasts of burden. The foremost of these reasons, I might say, is due to the topography of the county, or the greater part of the county, at least. It is rocky, hilly, covered with rough forests and many apparently bottomless meadows and marshes. Under such circumstances as these the ox is invaluable. A good yoke of "cattle" as the oxen are usually called, are admittedly not

as fast as a span of horses, but nevertheless can go through many a rough woodlot or soft meadow where it would be impossible to venture with horses.

Another reason is the cheapness of the ox's feed, as compared with that of the average horse. Oxen will do very well on a ration consisting of meadow hay, together with the upland hay, while horses require the upland hay altogether, and only the best of that. There is also the fact that a yoke of oxen can be raised from calves and broken in to work a great deal more cheaply than can a pair of horses, and with much less trouble.

Taking these reasons into consideration, and especially the fact that the lumbering in many sections cannot possibly be done with horses, because of the rough land, I will venture the opinion that it will be quite a while before the hard-working, well-matched yokes of oxen for which Digby and Yarmouth Counties are justly famous, will be supplanted by horses or tractors.

B. H. '33

—o—

Lochinvar

—o—

With apologies to Sir Walter Scott
Oh, young Lochinvar has come out of the West,
Of all the Tin Lizzies his Ford was the best.

So he cranked up his engine and rode down the
Clyde
For he was in search of an unshingled bride.
He stopped not for breakfast, he stopped not for
dinner,
(I guess that was why the poor laddie grew thinner)
But ere he alighted at the A. C. front gate
He'd forgotten his top hat, alas! It was fate!
But boldly he entered the A. C. dance hall
And offered his fag case to all at the ball
Except to Miss Nairn, the unshingled maid
But bowed low before her and gallantly said,
"I've long wooed you Scottie, now step to my side
And I'll gladly make you my thirteenth bride."
So the lass kissed her laddie and he kissed his lass
And gallantly from the ball they did pass—
So stately his form, so lovely her face
('Twas coated with powder, but that's no disgrace)
So A. C's be watchful for 'tis a Leap Year.
Your best girl may elope like this little dear.

F. C. '33

Robbins—"Wilson, Do you have any Stinking
Willie around Moncton?"

Wilson—"Yes, we do."

Ayers—"He stinks good too, I've smelled him
over in Charlottetown."

Things We Want to Know

—o—

1. Why Brown bought three new blinds for his landlady's boarding house.
2. Does Travis still travel via. the railway track?
3. If Travis likes to be chased off the veranda at one A. M.
4. Does Hilton enjoy driving the Office Staff down town at five P. M.
5. What Reed did with his cookie duster?
6. If everyone is out of step but Tommy C. at the A. C. socials.
7. Does Copinger-Hill use his rubber boots for dancing?
8. If McNab, Copinger-Hill and Jackson really had their most intelligent parts upward when they fell over backwards in Physics class.
9. If Mrs. Longley investigates the frequent weekend visits of Dr. Longley.
10. Why Longley has a particular desire to amuse the quantity of wall-flowers at the Saturday night socials.

Jokes

McNab—"Why don't you like the girls?"

Hilton—"They're too biased."

MacNab—"Biased?"

Hilton—"Yes, bias this and bias that."

Mr. Fraser was having a hard time to get his students to write a decent theme. He asked them to write about a hockey game, and all the students with the exception of Longley went to work vigorously. Longley sat staring vacantly for a time, wrote a few words and passed in his theme book. Mr. Fraser read; "Rain—Game postponed."

Thompson (near 5 and 10)—"Morrell, who was that girl you were out with last night?"

Morell—"Wait till I go in and ask her."

Dr. Trueman—"The size of the milk wells is very important in the production of milk."

Horncastle—"Say, I thought you got milk from cows."

Thompson (blowing about his farming)—"I can build a haystack so it will look like an egg."

Longley—"Yeah, like a fried one."

Hilton had run into a car belonging to a fair Normalite. She, indignantly "Didn't you see me stick out my hand?"

He—"No mam."

She—"But if I'd have stuck out my leg you'd have seen it."

Prof. Longley—"Graham, Why are you late this morning?"

Graham L.—"W-e-l-l s-i-r, when I got up and looked in the mirror I couldn't see myself so I said to myself, 'Graham must have gone to classes.' I got back into bed and it was ten o'clock before I discovered the glass had fallen out of the mirror."

We know that Eaton is Holstein, so is Trueman, but what kind of a cow is Bird?

Drakes—"When bees swarm, where do they go?"

Prof. Payne—"That depends upon the Queen herself. She may go on the Esplanade, but I have my doubts."

MacKenzie—"How long does it take you to dress?"

Ayers—"Twenty Minutes."

MacKenzie—"It takes me only five."

Ayers:—"But I wash."

Prof. Payne—"The worker bees continue to feed the young queens on a milk diet."

Drakes—"Are'nt they apt to develop milk fever?"

Prof. Payne—"That depends upon whether or not the milk is changed for whiskey."

She—"And you promise me you won't gamble?"

He—"Aren't we going to get married?"

Fair Normalite—"Do you really milk the cows at five a. m.?"

Burrell—"Yes what of it?"

Fair N.—"And do the cows go "moo, moo?"

Burrell—"Did you ever hear 'em cackle?"

Judge—"What brought you here?"

Drakes—"Two Policemen."

Judge—"I don't mean that—Drunk I suppose?"

Drakes—"Yes sir, both of them."

Overheard at last social. George and a blond in front of a window.

George—"Do you mind the wind?"

Blond—"Oh, no, talk as much as you like."

Prof. Longley—"What is one of the most uncertain of all stocks on the much narrowed market at present?"

Taper: receiving a pinch, woke up exclaiming: "Great Mexican jumping beans!"

Prof. Longley, none the wiser—"Correct, I thought you were asleep."

Drakes—"Why does a blush steal over a girls' face?"

Armstrong—"Because if it ran it would raise a dust."

Prof. Harlow—"Give the formula for water."

Trevors—"H-I-J-K-L-M-N-O,"

Prof. Harlow—"What are you talking about?"

The Dumb One—"Didn't you say it was H to O?"

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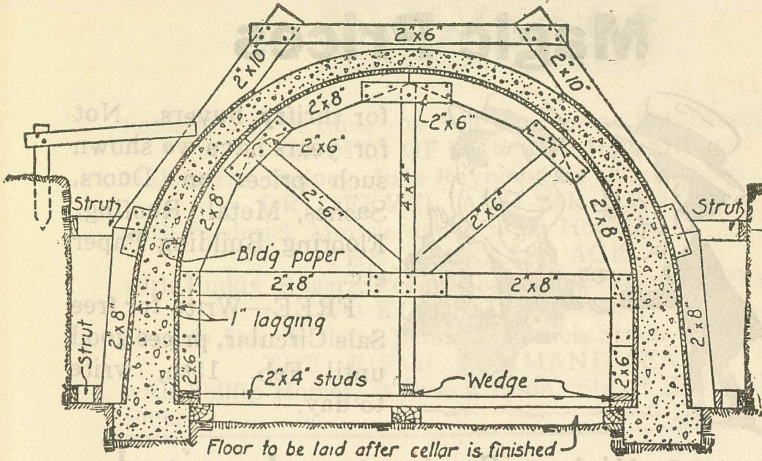
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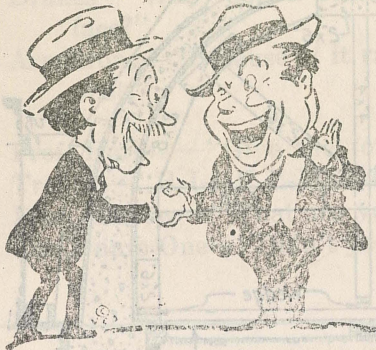
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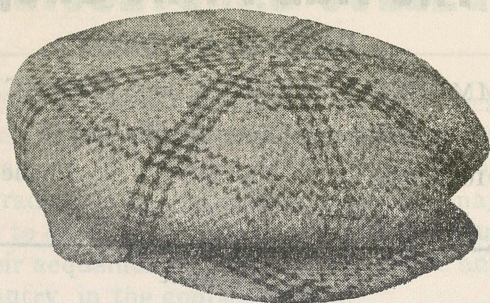
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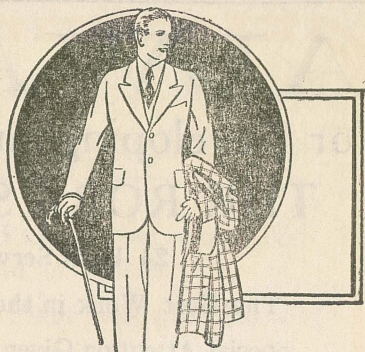
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