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O.A.C REVIEW

JULY

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THE O. A. C. REVIEW

THE DIGNITY OF A CALLING IS ITS UTILITY

VOL. XXV. JULY, 1913. No. 10

Dairying in the Canadian West

J. W. MITCHELL, B.A., PROFESSOR OF DAIRY HUSBANDRY MANITOBA AGRICULTURAL COLLEGE, AND SUPERINTENDENT OF DAIRYING FOR THE PROVINCE OF MANITOBA.

IT has been said by some who have not had the opportunity, and by others who have not taken the trouble to study our Western conditions that this is a country practically limited, in its possibilities, to such forms of farming as the growing of wheat and other cereals, and quite unsuitable for the successful pursuit of such a form as that of dairying. If this were true, that is, if we could not engage successfully in the higher and more intensive forms of farming, which, amongst other things, make provision for the maintenance of soil fertility, what would it mean? Simply this, that we must continue a primitive form of farming which, when carried to excess, reduces itself to a vicious form of soil mining.

If I held such a view as this of our possibilities I would regard the future of farming in the West as anything but promising. After an experience of nine years in Western dairy work, first as Superintendent of Dairying in Saskatchewan and Assiniboia, and latterly in a similar capacity in Manitoba, I have no hesitation in saying that I hold no such a view as to our limitations; nor do our leading farmers and others who are thoroughly conversant with our conditions and possibilities.

Changing Conditions

In principle, the development of farming in the West does not differ materially from that which has taken place in the older Province of Ontario. The writer, who was brought up to farming in Ontario, has a distinct recollection of the time when large quantities of the coarser grains were marketed as such, the farms were in a very poor state of fertility, and dairying was but a comparatively minor industry. At that time one of the posers of the anti-prohibitionists was, "What will we do with our barley if prohibition becomes general?" While disavowing any intention of expressing my views, even by inference, upon this great moral problem, I feel safe in saying that such a question, if propounded at the present time, would cause very few farmers any loss of sleep.

Things have changed in Ontario. Crop rotation, including pastures and soiling crops, and the growing of corn, roots, clovers and the coarser grains, and its natural concomitant, the keeping of stock, have become general. A similar evolution is gradually taking place in the West, and particularly in the older sections. In many instances a change from exclusive grain growing has become necessary, on account of the drain upon the plant food in the soil, a loss of humus accompanied by a general deterioration in the soil's physical condition, and the invasion of weeds. Our best farmers have awakened to the

necessity for the change and have begun to apply the remedy, viz., crop rotation and the keeping of stock.

The Place of Dairying in These Changing Conditions

What is the place of dairying in this evolution? It is a large and growing one. I say this, first, because we can produce milk and milk products economically, and, in the second place, because there is a large and growing market, at remunerative prices, for these products.

We have gone sufficiently far to be able to say that we can successfully produce such foods as alfalfa, corn, roots, and the coarser grains for the fall and winter feeding of our stock; while in summer we can provide suitable pastures, and grow such soiling crops as alfalfa, oats, or a mixture of oats and peas, and corn to supplement the pastures when necessary. This means that we can produce milk and milk products successfully.

As to the market for dairy products, we have, in the West a large and a growing one. Our older towns and cities are growing very rapidly, and new ones are constantly springing up, while mining and manufacturing industries are steadily developing; all of which means a large consuming population. The fact of the matter is, that at the present time we are not nearly able to supply the markets open to us at our very doors, but are importing large quantities of, not only dairy, but all kinds of animal products. Furthermore, we have the best kind of a market, namely, a critical one that demands a good quality of product and is willing to pay remunerative prices. Hence, from both the standpoint of economy of production and that of suitable markets for our products, we have everything to encourage us in the development of our dairy industry.

No apology is offered, and none will be expected, for dwelling at some length upon the possibilities for dairying in the West. This is a new country, and it is but natural that the higher forms of farming have not, as yet, reached what may be termed an advanced stage. It took considerable time, in both the older provinces of Canada and the older States of the Union, to bring about the evolution that has taken place, and there are even stronger reasons why such should be the case with us. The tendency in a new country, where the land is either free-grant or obtainable at low prices, the virgin soil so fertile and so easily brought under cultivation, capital limited, and labor somewhat scarce, is to engage in grain farming, and continue this so long as it remains reasonably remunerative; and it will not be denied that there is a certain justification for it, so long as it is not carried to excess.

Development That Has Taken Place in the Dairy Industry

As has been pointed out, conditions are changing with us. The land is growing rapidly in value, which calls for more intensive farming, much of the soil is no longer virgin, and large markets have developed for such commodities as dairy products.

Dairying has already developed to no inconsiderable extent, is assuming larger proportions from year to year, and, what is worthy of special note, has entirely passed the experimental stage and become established on a permanent basis. The following table, giving the quantities and value of milk and milk products produced and

marketed, by Manitoba alone, during the year 1912, will throw considerable light upon the present condition and development of the industry:

Product	Quantity lbs.	Price c	Value $
Cream'y Butter	2,931,138	28.0	820,718.64
Dairy Butter...	4,333,905	23.4	1,014,158.14
Cheese	536,618	13.0	69,760.34
Milk	43,800,000	1.8	788,400.00
Sweet Cream ..	3,431,100	...	.....
Butter Fat	801,700	32.0	256,544.00
Total value			$2,949,581.12

To the foregoing should be added, if they could, the large quantities of milk, cream and butter not marketed, but consumed by the farmers themselves.

The total quantity of creamery butter manufactured in the three Prairie Provinces during 1912, was 7,658,138 pounds, and its value was $2,099,003.64. This means that the average price received for our creamery butter for the year was 27.4 cents, which must be considered as entirely satisfactory.

If the reader will bear in mind that this is a new country, and that in all new countries co-operative, or factory dairying is always preceded by home-dairying, or the making of butter on the farm, it will help him to appreciate the fact that the output of our creameries, considerable though it is, does not begin to represent the magnitude of the dairy industry in the West—not nearly so much so as would be the case in one of the older provinces where co-operative dairying has become so general. A reference to the foregoing table shows that the output of dairy butter in Manitoba is far in excess of that of creamery butter, and there is no question but that if we had at hand full statistics for the other two provinces they would indicate for them a like relation between the outputs of dairy and creamery butter.

After having passed through a number of vicissitudes, in which many mistakes were made by all concerned, dairying is receiving from our farmers more earnest consideration and support than ever before. As an evidence of this let me mention the fact that in the older parts of Manitoba, where a few years ago a dairy speaker received but an indifferent hearing, they are to-day thoroughly interested in dairying, and either have a local creamery or are shipping considerable quantities of cream to creameries at other points. Within the last year ten new creameries have been erected, mostly at points where, but a few years ago, a creamery could not have existed.

As the majority of these new creameries did not open until this season, and as most of the older creameries of the province expect to have a larger make this year than last, we look for a very substantial increase over 1912, in our output of creamery butter; and I feel safe in saying that they are equally optimistic in the two provinces to the west. This growth in the output of our creameries is but indicative of the general growth of the dairy industry.

Cream-Gathering Creameries

The form of co-operative dairying that is particularly suited to our western conditions, and that has already firmly established itself, is that of the cream-gathering creamery. Our farms are large, and the country somewhat sparsely populated, many of the farmers will not, for many years to come, go so exclusively into dairying as they do in some of the

older provinces, and the herds, as a consequence, will not be so large. Again, in order to have a well equipped, well manned creamery, in which a good quality of butter can be economically manufactured, and then cared for and marketed to the best of advantage, the output of a creamery must not be too small. For these various reasons, it is evident that the cream-gathering creamery best satisfies our conditions.

Cow-Testing

During the past three years the Dairy Department of the Manitoba Agricultural College, which has charge of the field work of the province, has been carrying on cow-testing work in a systematic way. We supply the outfit, including a spring balance, a case of sample bottles, a sampling dipper and report forms, and do the testing, all free of charge. A large number of our farmers have taken advantage of the opportunity offered them and good results have followed.

In all three provinces the dairy industry is receiving every encouragement from those who have the direction of the work, in such ways as that already indicated, and through the holding of meetings, travelling dairy work, and the regular inspection of cheese factories and creameries.

We hope that enough has been said to indicate the possibilities for dairying in the West, the trend that the industry is taking, the development that has already taken place, the interest that is being taken by our farmers in the work, and the encouragement that is being given them; and if so the purpose of this article has been fulfilled.

Billy Brad and the Forbidden Fruit

ELLIS PARKER BUTLER, AUTHOR OF "PIGS IS PIGS," ETC.

"AND you must not take an apple," said Billy Brad's mother warningly. "If you want an apple, come to me and ask me, and if I think you may have one I will pare one for you. You are too young to know whether you need an apple or not. Do you understand? You must not take the apples!"

"Yes, mama," said Billy Brad cheerfully, and that was a bad sign. There was no reason why Billy Brad should be cheerful; for the day, so far, had not been a success—success and mischief being synonymous in Billy Brad's mind. So far, he had been spanked only twice, and this was far below the average and indicated an unsuccessful day. His world seemed barren of opportunities. The day had begun well enough for he had found a large jar of cold cream on his mother's toilet-table, and had oiled the bedroom floor with it, giving the floor a better gloss than even Katy had ever been able to give it. For this he had been mildly spanked. Then he had found the shears, and stood on tiptoe, searching the top of Mrs. Bradley's toilet-table for a certain long switch of hair that at times reposed there—for at that moment Billy Brad was a barber, and wanted to "cut it." There was no switch visible, so he "cut" the hair of Mrs. Bradley's best silver-backed hair-

brush. The crisp bristles snipped deliciously, but the affair was a tactical error.

"Just look at that brush!" his mother had exclaimed. "It is not good for a thing in this world, now, but to spank you with. I'll keep it to spank you with, Billy Brad. Come here to me!"

For an hour after that Billy Brad's morning was dull. He could think of nothing better than to throw all his toys out of the play-room window into the geranium-bed—killing "Inyuns"; but when all the red-blossomed Indians had been crushed to earth, this was no fun, and he came downstairs. His first impulse was to come downstairs as a "big old dog"—on his hands and knees; but he remembered that the last big old dog he had been had fallen bumpety-bump down the entire long flight, so he came down as a big old snake.

A big old snake comes downstairs head first, on its belly, clinging with its toes, and hissing virulently. Four or five steps from the bottom it loses its hold and bumps down. In this it resembles the big old dog.

Billy Brad picked himself up and seated himself on the bottom step. The descent had been a failure; he was not even hurt. It was evident that the world was askew this morning, and Billy Brad had about decided to be gloomy, when he thought of the apples.

The apples were in the lower part of the sideboard—the part with doors. There were bottles of catsup and Wortestershire and cans of maple syrup in the lower part of the sideboard, and when Billy Brad opened the door of the lower part of the sideboard he saw a catsup bottle. Here was something worth while! The things Billy Brad might do with half a bottle of catsup would make the stoutest heart tremble. In your wildest imaginings you could not guess what Billy Brad could do with half a bottle of catsup. He would not paint the wall-paper with it, for that is something you could imagine him doing. Billy Brad always did the thing no one else could possibly have thought of doing. But just as he reached for the catsup bottle Mrs. Bradley entered from the kitchen.

"Billy Brad!" she said sharply. "Don't you touch those apples."

"No, mama," he said sweetly, as she closed the door of the sideboard.

"Now, mind!" said his mother. "Will you promise me not to take an apple?"

"Yes, mama," said Billy Brad. "I won't take a napple, but—but—but maybe a big old slickery snake might take a napple."

Mrs. Bradley looked at him suspiciously. She knew that Billy Brad could, with ease, transform himself into beast or bird or reptile. When he crept on his hands and knees and said, "Wow, wow!" he was a big old dog; when he walked on hands and feet, with his plump little haunches higher than his head, and said, "Oof, oof!" he was a big old bear; and when he lay flat on his belly, and wiggled and hissed, drawing himself along by his elbows and finger-nails, he was a big old slickery snake. A slickery snake might do, with a clear conscience, things Billy Brad had promised not to do.

"Billy Brad," said his mother, "you must promise that no big old slickery snake, nor any other animal, or bird, or anything else, will touch the apples. Will you promise?"

"Yes, mama," said Billy Brad

cheerfully. "And—and—and if a big old slickery snake comes to take one of my mama's apples, I'll take a big swo-sword and—and—and cut its head off, I will!"

"Never mind about that!" said Mrs. Bradley. "You have promised. My little boy would not tell a fib. I can trust him. Can't I?"

"Yes, mama," said Billy Brad willingly, for he had no intention of taking an apple. He desired a catsup bottle. He hungered for a catsup bottle. What he would do with it when he got it did not bother him at all. A catsup bottle half full of catsup is a useful thing for a boy to have on hand in case of emergencies. There is no telling when it may come in handiest, and the rational thing to do, when there is a catsup bottle to be had, is to have it.

Mrs. Bradley went into the kitchen her mind at rest as to the apples, for Billy Brad was a truthful boy. If he said he would not take an apple she felt she could depend on him not to take one, for he had been taught the awfulness of a lie. Mr. Bradley had taught him, with a little rawhide whip that lay on the top shelf of the hall closet. Billy Brad knew that a lie was the one unforgivable sin.

Billy Brad lingered between the dining-table and the sideboard when his mother had gone into the kitchen. Although nothing had been said about catsup bottles, he had a feeling that he had better wait a while before taking one. He leaned against the dining-table and waited. It was a circular table, of mahogany, with a high, glowing polish, and when Billy Brad leaned against it with his head raised enough to give him a good view of its top, his mouth just reached the rim of the table. He put out his tongue and tasted the table top. There was no taste to it at all; it was neither sweet nor sour nor bitter. He opened his mouth wider and tried to bite the table top, and his sharp little teeth sank into the soft, varnished wood quite pleasantly, and when he looked he saw that his teeth had made a pretty semicircle of white dots. This was interesting. Billy Brad moved slowly around the table, making semicircles of white dots. He felt that the appearance of the table was greatly improved. He made dots quite around the table top.

On the top of the table was a large highly embroidered linen table-cover, and in the exact center of the cover stood a tall glass vase of flowers. Billy Brad fingered the edge of the table-cover, and it moved. He grasped one of the pointed scallops and walked slowly around the table. The entire table-cover revolved, and with it the vase in the center turned slowly. As he walked he kept his eyes on the vase, and sang:

"All aroun' a mubbery-bush, mubbery-bush, mubbery-bush;
All aroun' a mubbery-bush, mubbery-bush, mubbery-bush."

He walked around the table three times, sing-songing, but the vase did not topple over. It was an unsatisfactory vase, and the fourth time around Billy Brad held out his free hand. By stretching out his free arm he could touch three chairs as he passed them. So he sang:

"All aroun' a mubbery-bush—tag!
Mubbery-bush—tag!
Mubbery-bush—tag!"

On the fifth round, holding his hand extended after touching the second chair, his finger-tips touched the door of the sideboard. It was a loosely hung door, and, when he touched

it, it closed and rebounded open again. On the next round he tagged it a little harder, and it opened a full two inches. A delicious odor of apples issued forth, and through the crack Billy Brad could see the catsup bottle. When he reached the door again he deserted the table-cover and opened the sideboard door. He put his hand into the lower part of the sideboard, reaching for the catsup bottle, and the topmost apple of the pile in the dish bumped to the floor and rolled under the table. Billy Brad withdrew his hand quickly and three more big red apples followed and rolled across the floor. A glimmering of the power of circumstantial evidence to convict the innocent freightened him, and he hippety-hopped guiltily twice, away from the sideboard.

He went into the hall. When apples are rolling is no time to acquire a catsup bottle. The front door was open, and Billy Brad went out upon the porch. At the bottom of the porch steps was a cement walk, and at the corner of the walk was a small hole, no bigger than his thumb, that led into unknown depths under the walk. Billy Brad remembered this hole now, and he remembered that he had a dead caterpillar in the porch hammock, so he got the dead caterpillar and put it in the hole. He now had three dead bugs, a glass marble, and a dead caterpillar in the hole. It was quite a treasure-trove. He looked about for some other thing of great value to put in the hole. He tried to remember where he had seen a certain dried angleworm. He heard the screen door of the next house slam. He brightened at once. It meant that Florence was coming out to play.

Florence came down her porch steps slowly, with her hands behind her back. She looked at Billy Brad doubtfully for only last night she had been whipped for letting Billy Brad put burs in her hair. She had gone in proudly, with her yellow curls beautifully "done up" in the back with burs, and instead of meeting with praise she had been whipped. Contact with Billy Brad might mean serious catastrophe. She hesitated at the bottom of her steps.

But Billy Brad did not hesitate. He walked straight across the pansy-bed into Florence's yard, and took his place immediately before her, with his hands behind his back,—because Florence had her hands behind her back,—and looked at her.

"I got some'n an' you ain' got," said Florence teasingly.

"I got a—a big old lion in my house," said Billy Brad. "And—and—and I got it down my cellar. And—and—and I got it in a coal-bim, I have. And—and—and if I want to I can go down in my cellar, and—and I can go in my coal-bim. And—and I can pat my big old lion, I can. And—and he won't bite me, for 'cause I tooked my mama's scissors and I cutted his teef all out."

Florence looked at him doubtfully. To her mind, it was quite within possibility that a boy should have a lion down cellar in his coal-bin. If he had, it was quite useless to compete by mentioning that her mama had a big cake in the kitchen. She decided it would be more tantalizing to stick to things near at hand.

"I got a napple," she said suddenly flashing it before Billy Brad's eyes, "an' you ain't!"

"That's my napple!" said Billy Brad promptly. "I want my napple."

"It's my napple!" said Florence. "My mama gave me my napple."

"I want it," said Billy Brad, and he took it. At that age all little boys are robber barons, and no little girls have sex, so he took it as a right. Florence, being robbed, opened her mouth and wept. Billy Brad stood ungallantly and watched her cry, for the cryings of Florence were an interesting mystery to Billy Brad. She was the best cryer on the block, and when she cried Billy Brad could see all the trimmings of the inside of her mouth—the small white teeth, the funny crinkles in the roof of the mouth, and the red tongue all the way back to where it was hitched on. It was an interesting spectacle, and Billy Brad took a step nearer, that he might see better.

"My papa's got gold teef," he said when he had satisfied himself there was no chance of seeing all the way down Florence's throat. "And you ain't got gold teef."

Florence stopped crying immediately. She had never thought of having gold teeth. It was a new idea. She considered it a moment, and decided that the loss of the apple was the most important incident of the moment.

"I want my napple!" she screamed. It was a shocking display of temper.

"You can't have it," said Billy Brad, and turned away. "I need it."

Five minutes later Billy Brad sat on his porch steps, eating the big red apple, and Florence virtuously aloof, sat on her own steps, eating another, when Mrs. Bradley, passing through the dining-room, saw the apples on the floor and the sideboard door wide open. She stepped to the front door and looked out. Billy Brad, who had promised not to touch the apples, eating one! As he heard his mother's step he looked up at her—placidly.

"Billy Brad," said his mother sternly, "I am going to tell your father!"

"Are you?" said Billy Brad pleasantly. He did not ask what she was going to tell him. He did not so much as wonder what. So many things happen in the course of a day that it is not worth while trying to think what a father is to be told. Often, when Billy Brad had decided what he was to be whipped for, it had, in the event, proved to be something entirely different—something he had quite forgotten.

"And I shall see that he gives you the good whipping you deserve!" said Mrs. Bradley severely.

Billy Brad dug his sharp teeth into the apple. On the score of the apple his mind was at rest. There, at least, he was guiltless. It was his by right of conquest. He humped his back a little more, as if in mute admission of the truth of the sentiment, "We are all miserable sinners."

He ate the apple to the utmost core, and put the core down the hole with the caterpillar. Not because the core was precious, but because it seemed a logical thing to put an apple core down a hole so evidently sized to receive it.

"Now, Billy Brad," said his father, that evening after dinner, "I want a little serious talk with you, young man! Your mother told you not to take an apple to-day, and you promised not to take one. Do you remember that?"

"Yes," said Billy Brad; "and—and—and Flowence had a napple, and—and——"

"Now, never mind about Florence," said Mr. Bradley coldly. "You prom-

ised mother not to take an apple; and when a boy promises not to take one, and then does take one, it is a fib, and a fib is a lie. Do you understand?"

"Yes," said Billy Brad. "Papa, fen —fen—fen you open your mouf I can see all your gold teef. And—and—Flowence ain't got any gold teef!"

He said sadly, as if not having gold teeth was the ultimate sorrow. This was, as you can see at once, a complete explanation of the apple episode, and his father should have known it. If Florence had no gold teeth Billy Brad must have been looking into her mouth, and if he had looked into her mouth she must have been crying, and if she had been crying it must have been because Billy Brad took her apple, and that explained where Billy Brad had obtained the apple. But fathers are notoriously dense.

"We'll forget about gold teeth," said Mr. Bradley coldly. "We will talk about apples. Now, Billy Brad, I want you to tell me the whole apple story."

Billy Brad brightened. He loved stories. He loved to hear them, but even more he loved to tell them.

"There was a big old slickery snake," said Billy Brad, "a great big old slickery snake, and — and —and it wuggled like a wum——"

"Stop there!" said his father. "It did not wiggle like a worm, for there was no snake—no snake at all."

"And — and — and there wasn't no big old slickery snake," said Billy Brad, "and it didn't not wuggle like a wum— What did it wugle like, papa?"

"It didn't wiggle like anything," said Mr. Bradley sternly. "There was no snake, and you know it. Now, go on with this apple story. Your mother told you not to take an apple—"

"Yes," said Billy Brad, "and—and —and— Why wasn'e there no wuggly old snake, papa?"

"Because," said Mr. Bradley, "you were the snake."

"And I was the old slickery snake," said Billy Brad. "And—and—and I wented into the garden, and—and I wuggled up a noak tree—"

"Now, stop!" said Mr. Bradley. "That's nonsense. You didn't go into the garden, and you didn't wiggle up an oak tree, because there is no oak tree in the garden, and if there was it wouldn't have anything to do with apples. Apples don't grow on oak trees. Apples grow on apple trees. Acorns grow on oak trees. And these apples were in the sideboard."

"Were they?" asked Billy Brad, with surprise.

"Of course they were!" said Mrs. Bradley impatiently. "You know they were, Billy Brad."

"Do I?" said Billy Brad, but the information seemed new to him. "And —and—and," he began carefully, there wasn't no old wuggly snake, and there wasn't no napples on the noak tree, for 'cause napples grow on napple trees. And—and—and—" He hesitated. Nothing in the way of a story seemed to suit his father this evening. He felt he must be careful. "And a big old nangel flewed down," he began briskly.

"No," said his father, shaking his head. "No angel flew down. Not an angel. Not a single, solitary angel. You took the apple, Billy Brad!"

"Out from the sideboard in the garden?" asked Billy Brad.

"The sideboard couldn't be in the garden," said Mr. Bradley, "and you know it. Sideboards are never in the garden. Sideboards are in the dining-

room. You went into the dining-room and you took an apple out of the sideboard. No snake, no oak tree, no garden. You took the apple. Now, why did you take the apple?"

"For 'cause," said Billy Brad, turning his bright eyes up to his father's face, "for 'cause I was a devil!"

That settled it! A father, even an indulgent father like William Bradley, can not have a son saying such things. He may, or he may not, believe in the black personage mentioned himself, but he cannot permit a boy who has stolen an apple, and then fibbed about it, to throw the blame on Satan, still less mention his name in its vulgar form in excuse of his misdoings. He led Billy Brad through the hall to the kitchen, stopping at the hall closet for the rawhide whip. The interview in the kitchen was long. There had to be a long explanation of the reason for the whipping before it took place, and a long wiping of tears and close clasping of a sobbing little boy in a father's arms after it was all over. But Billy Brad never bore ill will. He kissed William Bradley fervently when it was all over, and took his hand to be led back into the parlor.

Mrs. Bradley was not alone. She was sitting very primly in her chair. And facing her in another chair was Mrs. Wix, her lips set firmly. You know the unpleasant half hour when the woman next door comes to complain of your child, and how unpleasant it is when you know she is right. You know in your heart she is right, and yet you feel that she is a most disagreeable, meddling person. Your back stiffens at once. Mrs. Bradley's back was as stiff as a ramrod.

"More of Billy Brad's naughtiness!" she said.

"That's bad!" said Mr. Bradley, without vigor. He knew one thing. After the painful scene in the kitchen, Billy Brad would receive no more punishment at his hands that evening!

He took Billy Brad on his lap. "What's the young terror been doing now?" he asked.

"Will you tell him, Mrs. Wix?" asked Mrs. Bradley stiffly.

"I prefer you should tell his father," said Mrs. Wix, with the air of a woman who has seen her unpleasant duty and has done it.

"Very well," said Mrs. Bradley. "This morning Mrs. Wix gave Florence an apple and sent her into the front yard. She heard Florence cry, and looked out in time to see Billy Brad deliberately take the apple away from her, and then he stood and made faces at her while she cried!"

"I—I—I saw how many teefs Flowence has got," said Billy Brad. "But Flowence hasn't got any gold teef. My papa's got gold teef."

The information was for the benefit of Mrs. Wix, who did not seem much impressed by it, after all.

"Took her apple, did he?" said Mr. Bradley. "Well, I hope he gave it back."

"He did not," said Mrs. Wix. "He took it away from her, and let her come crying to me for another while he sat on his steps and ate it. I would have come over then, but I saw Mrs. Bradley come out. I supposed, naturally, she meant to punish him; but as I heard nothing of the matter from her, I thought it my duty——"

"Quite right!" said Mr. Bradley genially.

"Because I thought Mrs. Bradley might think your son had got the ap-

ple in his own house," said Mrs. Wix.

Mr. Bradley looked at Mrs. Bradley meaningly, and Mrs. Bradley arose.

"We shall see that it does not happen again," she said, leading the way to the door. "Mr. Wix is well, I hope? Good night."

"Well?" she said, when she re-entered the parlor. "So that is where Billy Brad got the apple! He did not steal it, after all. He did not tell me a fib. And the poor child had to be whipped!"

"Yes," said Mr. Bradley gently. "But why didn't you tell us where you got the apple, Billy Brad?"

It was evident that Mr. Bradley did not consider infantile highway robbery a serious crime—at least, not at all as serious as lying.

"Why didn't you tell us about the apple in the first place?" asked Mr. Bradley. "I asked you to tell me. Tell papa now. Just as it was, Billy Brad."

"There was an old noak tree," said Billy Brad eagerly, "and—and—and napples growed on it, and—and—and a slickery old snake wuggled up the big old noak tree, and—and—and it tooked a napple——"

"Careful!" warned Mr. Bradley.

"And—and—and the slickery old snake wuggled down the noak tree," said Billy Brad, very carefully and very slowly, "and—and—and a big old nangel flewed down, and—and—and——"

Mrs. Bradley opened her lips to speak, but Mr. Bradley motioned her to be silent.

"—And—and—and the big old slickery snake gived her the apple, and—and—and the nangel he tooked his swo-word, and he said, 'Get out of my garden!' and—and—and——"

"For mercy's sake! You poor kiddie!" exclaimed Mr. Bradley, hugging the wee boy tight in his arms. "You poor kiddie! I told him to tell me the story of the apple, and he's been trying to tell me the story of the Garden of Eden!"

"And—and—and there wasn't no old sideboard out in the garden," said Billy Brad, with bravado.

"No, siree, Billy Brad!" said Mr. Bradley. "You knew better than papa that time, didn't you? And I whipped you for telling a fib, when you didn't tell one. So you can have whatever you want, Billy Brad, to square us. Now, think! What do you want most of anything, Billy Brad?"

"Gold teef," said Billy Brad, without the slightest hesitation.

OPPORTUNITY

Master of human destinies am I!
Fame, love and fortune on my footsteps wait;
Cities and fields I walk; I penetrate
Deserts and seas remote; and, passing by
Hovel and mart and palace, soon or late
I knock unbidden once on every gate.
If sleeping, wake; if fasting, rise before
I turn away. It is the hour of fate,
And they who follow me reach every state
Mortals desire, and conquer every foe
Save death; but those who doubt or hesitate,
Condemned to failure, penury and woe,
Seek me in vain and uselessly implore.
I answer not, and I return no more. —John J. Inglis.

The Rural Problem

PROFESSOR J. B. REYNOLDS, B.A.

TO maintain a rural population engaged in profitably producing foodstuffs to supply the nation's needs, in numbers rightly proportionate to the whole population of the nation, and against the attractions of city trades and industries, of the professions and of speculative enterprises in this rapidly developing country: that is the rural problem in Canada, and particularly in Ontario, and the eastern provinces, at the present time. For the last thirty years that right proportion has not been maintained in Ontario. The rural population has actually diminished in that time by many thousands, while towns have become cities and cities have multiplied their populations four-fold.

The farmer has no reason to complain of the growth of towns and cities, for this growth has secured for him larger and more profitable local markets. This advantage of better markets, however, has been secured to the farmer at great cost. To some extent, indeed to a considerable extent, cities have grown at the expense of the rural population, and the cost to the farmer has been an increasing social isolation, and an increasing difficulty in securing labor.

The disturbing of the balance of population has resulted seriously for those who live in towns, for it has compelled them to pay higher prices for what they eat. Whatever factors may go to cause the high cost of living, it is evident that if the number of producers diminishes and the number of consumers increases, inordinately, then produce must rise inordinately in price. Such a state of things is rapidly approaching in Ontario.

And what does rural de-population mean to the nation? Social economists are agreed that rural conditions tend to develop a certain type of character, and urban conditions a more or less different type. For a rich and varied national life both types, all types, are needful. The nation needs the sanity and sobriety of judgment, the persistence and the faith which rural conditions foster, as well as it needs the alertness and the business acumen born of strife in cities. The number of children attending our rural schools is diminished by half, in many schools by more than half, of the number attending the same schools even twenty-five years ago. At the same time the resources of our larger towns and cities are being taxed beyond their capacity to provide schools for their rapidly increasing population. If residence in the country and training and education amidst country surroundings, are desirable for at least a fair share of our citizenship, then the present distribution of our school population is to be deplored.

Many attempts have been made, and are being made, to solve the problem. Nearly forty years ago the plan was conceived of educating the farmers-to-be, and the agricultural college at Guelph was founded. The rural exodus had not then commenced, or it had not been observed. The college has continued on its way, through good report and through evil report, and I believe has done all that could be done to instruct the farmer and to

improve rural conditions. It has certainly brought about better methods in farming, has induced farmers to use better materials as their raw product,—better seed and better stock—and has led the way in placing upon the markets high-grade butter and cheese, poultry and fruit. Nevertheless, the exodus commenced during the life-time of the College, has continued, and is continuing. It may as well be confessed that College education, while it has made better farmers, has not increased the number of farmers, or succeeded in preventing a decrease in the number. How could it? A young man comes to the College at Guelph from an Ontario farm. When he has completed his two year's course, it is almost an even chance whether he returns to the farm or goes on for another two years to graduate. If he decides upon the latter course, there is small chance that he return to farming. The four years' course fits him for one of many branches of professional work, and at the same time opens his eyes to the disabilities of farming. The blame for his direction of choice lies, not in the education he has gained, but in the conditions of farm life. Until these are bettered, an agricultural college need not be expected to serve as a recruiting ground for Ontario farmers, any more than a university.

"Rural education" is a more recent form of effort to solve the problem. Just what is meant by rural education is not evident, even to some who most loudly proclaim its efficacy. Nature study and school gardening are the most obvious and feasible of rural subjects of instruction. Regular instruction in the principles of farming has been occasionally attempted and has failed for two very good reasons: First, because of the inability of teachers to make the work interesting and really educative, and secondly, because to introduce such subjects of instruction regularly must mean a less effective general course of instruction. Moreover, if a system of rural education can be devised, to bring about the desired effect of making country life and farming seem more desirable, who, then, shall receive that instruction, and where shall it be taught? Shall there be a system of rural education for country children, and a system of urban education for town children? Shall the country children be fitted by education for farming, and for nothing else? It has been the boast of our Canadian democracy that the widest choice of occupation is afforded to our citizens. If the country as a place of residence, and if farming as a means of livelihood, are so desirable as some pretend, then as many should be attracted from the towns and cities to the adventures of farming as are attracted from the country to other occupations. To be effective, then, as a means of inducing our citizens to take up farming as an occupation, "rural education" should be adopted more especially in the urban schools.

The whole question resolves itself into the relative attractiveness of farming in Ontario. That, for the last thirty years, farming in Ontario has not been so attractive as farming in the West, or so attractive as city occupations, is shown by the rural exodus. This attractiveness, of course, depends on many factors,—the kind of work demanded, and the amount of it, its profitableness, the mental interest surrounding the

work, the number of difficulties and obstacles met with, the conveniences obtainable on the farm and in the house, and the social conditions.

Farming has always been a laborious occupation, and always will be so. Modern machinery has lightened the labor somewhat, while it has increased the amount of capital required to run the farm. But there will always remain the irreducible minimum of labor on a well-kept and well-stocked farm. Hard work, however, belongs to every occupation that is worth while, and anyone who quits farming because he wants a soft job will not be of much use anywhere. It is not the work done that cows the spirit, but the work not done. Many a good and industrious farmer in Ontario has become discouraged because no matter how hard he worked, he could not get help to till the land as he wanted to do.

Farming in Ontario, when intelligently conducted, on good business principles and by up-to-date methods, is moderately profitable. The conditions under which the farmer buys what he has to buy, and the conditions under which he has to sell his produce, make it impossible to realize the large profits which, with the same energy and brains and capital, other men gain in other callings. He buys for the most part in a monopolized and protected market, and sells in an open market. Even if he produces a superior article, he is not always able to secure a superior price for it, for he has to compete in an open market with inferior stuff, and the purchasing public does not always know the difference. Rarely can the farmer fix his price for what he buys, and rarely can he fix his price for what he sells. He fights against a two-edged sword. Nevertheless, he fights, and is content if he can hold his own or a little better, because he likes his job and respects his calling; because, "God-like, he makes provision for mankind."

On account of the uncertainty of prices farmers generally prefer to follow mixed farming. Eggs may sell at any price from fifteen to fifty cents a dozen; pork anywhere from six to ten dollars a hundred; apples from one dollar to three dollars a barrel. Mixed farming means tolerably sure but moderate profits, and it means also, for success, a wide and varied knowledge, and such an array of implements and apparatus as to require a capital investment out of proportion to the dividends received. A machine installed by a manufacturing firm generally works three hundred days in the year. A farmer has to have a mower, costing fifty dollars, to work two or three days a year; a binder, costing one hundred and twenty-five dollars, to work from two to six days; and many other implements of large cost and infrequent use.

Farm life is rendered unattractive by the absence of household conveniences which are within the reach of the most modest city house. The outdoor pump is still the source of water supply for most farm houses, and the stove the source of heat. These things mean the carrying of water for all household purposes, and a house only partly heated. They mean also, the absence of bath-room, water closet, and sewerage. When that is the condition of things in the house, the barn arrangements are not generally more convenient. Housework and chores under these conditions become the bane of life to the girls and boys.

It is of course true that these con-

veniences may be secured for the country house as well as for the city house. In some country houses the appointments are equal to those in any good city house. But it is exceptional to find it so, and we are now considering average conditions, things as they are. It may be asked why, if water and heating conveniences can be secured for the farm house, and if these conveniences add so much to the attractiveness of farm life, — why more farm homes do not enjoy them. It is again a question of capital. How many town houses have complete water conveniences unless there is a system of public water supply and public sewerage? With the public systems of water and sewage pipes passing along your streets, it is easy to give orders to a plumber to connect the same with your house. The cost of this, in the public system, is distributed over a number of years, and is paid in the taxes and water-rates. On the farm, the well has to be dug, or if dug already it often has to be deepened, curbed, and made a permanent job. A pump is installed, and power for pumping. Pipe lines are laid from the pump to the house. All these things must be paid for in cash. It may be cheaper in the end than the debenture plan, but the cash is not often available, or the owner is not disposed to use his capital for such purposes.

Another disability of farming arises from the fact that the volume of work to be done is often so large that no room is left in the farmer's life for intelligent thinking and reading. He gets into the habit of the mere laborer, and denies to himself and to his children the privilege of thinking. It is the mental interest that elevates farming, if it is elevated at all, above mere drudgery. With so many sources in farm operations to awaken and to gratify intelligent curiosity, it is a pity that so few farmers give to their children opportunity and encouragement to take an interest in some branch of the work.

One solution of the rural problem, then, is within the farmer's own hands. He must, first of all, become a thinker, an observer, and an experimenter, and encourage his children to do likewise. If, in addition to the labor of pruning apple trees, the reasons for doing so are taught, that degree of mental interest is added which lifts the labor to the highest plane. This whole question of mental interest, applicable to every operation on the farm,—to tilling the soil, selecting the seed, and feeding the stock, can be illustrated by the work of the dairy. Boys can learn to milk cows, and to feed them, at twelve years of age. If it is merely the work of milking and feeding that they are set to do, it is liable to become intolerable drudgery. The use of the milk scale will give to the work the necessary mental interest. For example, on our own farm we had fifteen cows during the first year of our management, and of the fifteen, six have been discarded as not up to the standard. The remaining nine are superior cows. We commenced with five cows in April, 1912, bought four more in October, two early in December, and four in March, 1913. The proceeds, figured from daily weighings of the milk and from the selling price of the milk at so much per hundred, are given in part in the following tables, so as to illustrate the process of weeding out cows that are relatively unprofitable.

Table I.

No.	Milking Period	Lbs. Milk	Proceeds	Cost of Feed	Net Profit
1	10 mos.	9,000	$124.00	$54.00	$70.00
2	12 mos.	9,800	133.00	56.00	77.00
3	12 mos.	9,475	130.00	55.00	75.00
4	10 mos.	6,300	85.00	50.00	35.00

Table II.

5	3 mos.	1,780	$ 25.32	$15.45	$ 9.77
6	3 mos.	1,850	26.30	11.45	10.85
7	3 mos.	2,950	40.50	17.00	23.50
8	3 mos.	1,260	19.00	15.00	4.00

Table III.

9	5 mos.	6,280	$ 91.00	$40.00	$51.00

Table IV.

10	2 mos.	3,100	$ 45.00	$16.00	$29.00
11	2 mos.	2,850	41.30	16.00	25.30
12	2 mos.	2,900	42.00	16.00	26.00
13	2 mos.	1,570	22.75	14.00	8.75

In table No. 1, cow No. 4 was not up to the standard of the others, though better than many in the average herd. We sold her at the end of the year. In table No. II. only cow No. 7 was up to the standard, and the other three were sold in January. Cow No. 9, has proved an exceptionally good one, with $51.00 profit in five months. The last group are high-priced cows, bought in March, and are proving worth the money. No. 13 is due to freshen early in August, and her flow of milk is diminishing.

Any boy of twelve who is doing entrance work in arithmetic can take charge of these records, and if he is properly guided in the matter it will be strange if he does not become intensely interested in such a study of comparisons.

If the parents in the farm home are anxious to keep their children on the farm, then they must consider what things make for interest and charm in the country life. With the children, it is not first a question of profit, but of interest in things for their own sake. The parents should not be blind to the fact that the town offers many attractions superficial they may be, but still attractions to the young, which the country does not afford. There is much silly gush being uttered to-day by those who lack understanding of the situation, concerning the charm of nature as a force in rural life. As a matter of fact, the picture show will draw a hundred boys and girls, while a charming landscape or a beautiful retired spot "far from the madding crowd" draws one. This fact may be regrettable, but it is still a fact to be faced. It may be the natural and inevitable desire of the children to see life, or it may be a fault in the cultivation of their tastes. Country life and farm work have their charm, even to children, and it is the business of parents to discover what it is, and to reveal it to their children. Scenery is only a small part of that charm. The large freedom of movement, the interest in growing things, the sense of ownership, associated with the country atmosphere and surroundings, are the factors which will count in attaching children to country life. To these forces must be added a training and a measure of responsibility that will give the feeling of capability, an assurance of success when the management of land and stock and household falls into their hands.

There is no doubt that many farmers might, if they would, add conveniences to the barn and house that would make the daily work easier and more pleasant. A convenient water supply is a very important factor, and in most instances an outlay of two hundred dollars will provide water in the barn for the stock, and in the house for all domestic pur-

poses. Where the cash is not available, a system of debentures, issued by the township, or the county, or the provincial government, would provide the necessary funds, and spread the cost by easy payments over a number of years, much as the same thing is done in towns and cities. A representative of the Ontario government is now abroad, along with representatives from American States, looking into the matter of loans to farmers at easy rates of interest. We shall await the result of this investigation with hope that something may be done to place more capital at the disposal of enterprising farmers.

Up to the present, the education of the farmer has been largely in the direction of enabling him to produce more, and better foodstuffs. While this line of education must still be pursued, it seems that the time has come to emphasize the question of selling. We have reached the point now where it is easier to produce than to sell to advantage. Producing is better understood by the farmer than marketing. The farmer, in fact, needs to make himself a better business man. The chief difficulty in his way is that, singly, he does not produce enough of any one article to be independent of the local market, or of local dealers. He has not got into the way of shipping to the best market. Co-operation will overcome this difficulty. If farmers will agree, in each district, to co-operate in the matter of buying, of producing, and of selling, the burdensome taxations of the middlemen might be avoided, and the farmer would get what is his by right of the profits of his labor.

A College Man's Ideals

AN ideal is that fixed purpose by which from time to time you can square your life.

Some fellows are content to launch out on the college stream and then drift aimlessly along until it carries them out into the open sea of life. They train neither brain nor muscles and as a result find themselves helpless in the rough weather every man must expect to encounter sooner or later. Others who are wiser prefer to guide their course according to some definite purpose and thereby gain valuable information and strength of character as they go.

Have at least one worthy ideal.

Place it as high as you can see.

Go after it in dead earnest.

You may never reach it.

Again you may. What matters it? It has served your purpose if it has spurred you on and on, if it has kept you progressing steadily.

The hard try will prevent stagnation.

It will also develop your natural ability.

The lack of an ideal has caused many comparative failures.

Its possession has often won well deserved fame.

Almost every page of biography swears that the above are facts.

Be not afraid of making your aim too high—even aim to fit yourself for the premiership of the Dominion—if you so desire. A "strenuous life" has been known to get men there.

Make your ideals as definite as possible and then begin to work steadily towards them.

Even twenty-story buildings must go up one stone at a time. If then you resolve to be the greatest statesman of your time begin by making yourself the best debater in your college.

"Heaven is not reached at a single bound,
We build the ladder by which we rise
From the lowly earth to the vaulted skies,
And climb to its summit round by round."

Let your efforts and not your words tell others that you have ideals. Don't enlarge the size of your hat until you have attained to some of them.

The ideal does not make the great man—the hard striving after it often does—for "great men are made, not born."

The world has never offered a more enticing field for the truly great than at the present time.

Search out some of the ideals which have been useful to other men and learn by heart the story which they will tell.

At every stage of your progress in life keep your head balanced by being able to say "I count not myself to have attained but this one thing I do—forgetting those things which are behind; and reaching forth unto those things that are before, I press forward toward the prize of my high calling"—whatever it may be.

Remember that "the spirit that does not soar will often grovel."

Recognize two things as you seek to develop your character. One is the importance of proper surroundings—your environment; the other is the necessity of practice. If you wish to become a perfect or even an excellent swimmer, you do not go out in the country and run and climb mountains. You go into the water where you have the proper environment for swimming. And it is not enough for you to put yourself in the proper relation to the water if you would learn to swim. You must do more; you must strike out and practice, practice continually. So it is with the building up of your character. First put yourself in range of those influences which make for righteousness—the influences of the church, good companionship, a community where God is reverenced and obeyed, good, strong wholesome books, fine men who can instruct you and whom you can imitate, and other things of similar character; and when you have chosen your proper environment and adjusted yourself to it, your next duty is to practice what you are told. Work out in your own life the principles which underlie all these things. Environment is essential. Practice is necessary. Each is incomplete without the other. "Abide in Me and I in you; as a branch cannot bear fruit of itself except it abide in the vine, no more can ye, except you abide in Me." "Work out your own salvation."

"Not in the Curriculum."

MACDONALD

Reminiscences of Macdonald

ONLY yesterday it was anticipation of Macdonald! What a queer bunch we were those first days,—our frantic desire to seem sophisticated, preventing our natural curiosity from following its bent. We were Juniors, we were Freshies, we were nonentities, and as we blundered along among the traditions and observances of Macdonald, we observed the Seniors on their serene heights of experience, and wondered in humble hearts how we were to be changed to such wonderful creatures in the dim future. We soon found out how it was done, as the educational juggernaut began to grind its wheel on our defenceless minds, — House-practice, Sanitation, Psychology, Cooking, Physiology. It seemed a hopeless jumble at first, but before long we began to see light. Once we had learned the facts about starch, for instance, we found that the same knowledge served for cookery, foods, chemistry, laundry, and later experiments. Thus we found out how the "system" worked.

Unbalanced Rations at Twelve p.m.

But mental labor did not occupy our whole attention. There were proms., there were parties, there were, what is termed in vulgar parlance, "crushes." We came to our first prom. in full regalia, hopeful and excited. The Seniors termed the affair a bore, and we were amazed. We had good fun at those proms., too. It was so interesting to meet the men from all the corners of the world. Didn't we thrill when a South Afri-

can was pointed out to us the first time! Now the sight is so common that we thrill no longer.

Our "crushes" also occupied much time. Nearly every Junior attached herself to a Senior to whom she went for advice, guidance and cheer, and for whom she willing "fagged." This was a safe outlet for surplus enthusiasm, without any recourse to the tea-room and kindred dissipations. As to what may be termed Inter-Collegiate crushes, nothing can be said in this article. There are so many varieties, and their nature depends so on circumstances that they deserve a separate article, which would doubtless be rejected by our honored Editor.

Examinations in our first year were the cause of much stress and anxiety. We actually used to study for them two or three weeks ahead, and worried over the results. As we look back and think how much of this effort was unnecessary, we wonder at our one-time energy.

Second year found us a bit lazy and blase. The responsibilities of our increasing practical work, such as demonstrations, housekeepers work, practice, teaching, etc., left us with little time or inclination for the more frivolous side of life. Nevertheless, it was our duty to lead the fun, be the head and do unto the Juniors as our Seniors had done unto us.

And now we are through! Glad and sorry both, for while it has been hard in places, yet it has been such a vital experience that it is hard to contemplate a complete change. Those sad words, "We shall never all meet again," come to use many times as we think of bidding farewell to those we have known and loved here. Memories of our good times haunt every corner, but—avaunt, sadness. Here's a jolly good health to us, and may we all live long to sing the praises of Macdonald Institute.

—G. M. C.

A Demonstration—Pupil Teacher and Pupil Pupils.

On Thursday evening, May 29th, Miss Watson entertained the Seniors at a delightful dinner prepared by the Juniors. Sweet peas were in profusion on the prettily decorated tables. Honey-suckle adorned other parts of the room. Miss Cavers of the Junior Housekeeper class, proved to be a most capable steward. Very pretty were the little menu cards of conventional design, in silk and gold, setting forth the simple but dainty menu.

After dinner Dr. Creelman gave the graduating class a long-to-be remembered address.

To the juniors the important feature of the evening was that auspicious moment when "Our Polly" bequeathed to them the badge of seniority, the black tie. To the Seniors of '13 the Juniors extend their sincerest wishes for all success and prosperity in days to come. In looking back over the year that is just drawing to a close we can only say that if they maintain the standard of efficiency which they set up while attending Macdonald, there is not the slightest doubt but that every good thing to be won will be theirs in the years which are to come.

WEDDING BELLS

June, the month of brides, has two ex-Macites on its roll this year. The wedding of Miss Hilda Hills and Mr. Harold Phillips is to take place in Hamilton on the eleventh. This is a real college match, as Mr. Phillips met Miss Hills while he was at the O. A. C. and she at Macdonald, and the good wishes of their classmates go with them to their home in far South Africa.

Miss Verna Smith and Mr. Gordon Conant are to be married on the twenty-fifth at Winona. Miss Smith will be remembered as the clever girl who took the leading part in "My Lord in Livery" last fall. All happiness should be hers in her Oshawa home.

G. M. C.

On Saturday, May 31, the election of officers for next year was held, when the following were elected:

President of the Lit.—Miss Helen McMurtry.

First Vice-President of the Lit.—Miss Bessie McKinnon.

President of the Y. W.—Miss Jeanette Babb.

Convener of the Mission Study—Miss May Lees.

Convener of the Bible Study—Miss W. Clark.

President of the Athletic—Miss Margaret Munro.

Treasurer of the Athletic—Miss Bessie McGregor.

Secretary of the Athletic—Miss Bessie McKinnon.

Mac. Hall Editor for The Review—Miss Florence Irwin.

The following students successfully passed their University English exams:—

2nd Year—Misses H. Campbell, G. Crowe, L. Griffin, M. Kay, H. Leonard, L. Lyons, E. McGregor, C. McLaurin, R. Templeton, F. Oliver and Mrs. Oliver.

1st Year—Misses J. Babb, R. Black, C. Bredin, M. Campbell, W. Clark, P. Graham, E. Groff, H. Harrington, H. Hepburn, F. Hotten, F. Irwin, M. McLean, H. McMurtry, M. Munro and I. Weseloh.

MAY DAY

May Day was celebrated on Friday, May 23rd, on the College Campus. In the early part of the day doubts

were entertained as to whether the day was going to be fine or not. However, preparations went on, and shortly after dinner the sun decided in our favor and put forth its best rays to help make the day successful.

Sharp at four o'clock the procession left the hall. The graduation class, who wore white dresses and carried big bunches of mauve lilacs, tied with satin ribbon of the same shade, took the lead. Following them came the other classes in varied and charming costumes. The procession wended its way across the campus, and was joined by the graduating boys in their distinguished-looking gowns. After taking up their positions on either side of the platform, the people, satisfied that the faculty were in their places, looked about eagerly for the queen.

Robed in white and yellow and carrying shepherd's crooks came the eight tall outriders. Following came the little flower girl, then the queen and her pages. I am sure that the people were fully satisfied that the queen and her attendants were all that could be desired. The queen was crowned by Miss Watson and led to her throne, which was covered with a canopy of wild flowers and lilacs.

The next feature of interest was the presenting of the gold medal to W. H. J. Tisdale as the best all round man in the graduating class. Following this was the Grand March, which was led by the eight outriders. Many different figures were formed, and it was a very pretty sight indeed. After the decorating of the May pole several dances were enjoyed: The Furry Dance, Weaving Dance, Pop Goes the Weasel, Country Dance, and the May Pole Dance. The girls who danced the latter were in Dolly Varden costumes of green and mauve and looked quaint and picturesque.

Some of the Graduates.

The guests were invited back to the hall and were served with a very enjoyable tea, after which an address was given by Dr. Faulkner.

The most enjoyable day closed with a delightful dance, presided over by the good fairies, Messrs. Noonan & Co., music producers, of Buffalo. It is a hopeless task to attempt to describe a dance, and we will content ourselves by saying it equalled any of the winter affairs, which at the time we never thought possible.—A.F.W.

On Thur.day, May 22, the senior class at Macdonald served a luncheon to the Dominion Association of Superintendents of Hospitals, who were the guests of Miss Watson on that day. Lecture room No. 40 was transformed into a cool yellow and green bower, by means of bamboo trellises, twined with yellow flowers, while yellow plants on the window ledges, and bouquets of marsh marigolds on the tables added to the effect. The menus were dainty affairs of yellow and gold, so that the color scheme was unbroken.

Decorating the May-Pole.

The guests declared that the luncheon was delicious, and at its close Miss Snively, who was for many years at Toronto General Hospital, gave the girls a most helpful and inspiring address. All credit for the success of the affair is due to Miss MacLaurin, of the Normal class, who was steward, and under whose able direction the class '13 proved themselves capable and efficient workers.

G. M. C.

On Tuesday, June 3rd, Miss Watson left for her well earned trip to England and the continent. The students all assembled in front of the Institute to wave their good-byes and good wishes for a pleasant and safe journey. At noon we all received such a pleasant surprise when each girl found a dainty bunch of sweet peas beside her plate. The little card on the table, "With Miss Watson's love and good-byes" told the tale. If she could have heard the three hearty cheers given for her she would have had some small idea of how much her girls appreciated her kindness, and what a warm spot she holds in each girl's heart.

At the close of school Miss Dickey and Dr. Ross intend going abroad for the holidays. We wish them both a very enjoyable summer.

A KICK

We plead for better treatment of the students who study at Massey. Why not provide lounges and hot luncheons for the Normal girls who have such a thirst for knowledge that they remain locked in the building noon hours. Much has been done in the past to relieve their sufferings, and we tender to Mr. Downey our heartiest thanks for his efficient rescue work. May the near future see many improvements in conditions.

Much Ado About Nothing

It is a well-known fact that a class seated in the Massey Hall lecture room and one in the Biological lecture room are visible to one another. One day last term the Macdonald seniors were having a Biology lecture, while the dear departed Fourth Year was at English. The Biology lecture was funny, and the class was accordingly enjoying itself, or rather, herself.

D-v-s—"Look at Miss Crowe having a good laugh over there."

K-ng—"Miss Crowe doubtless has caws to laugh."

"Sister Kittie's home from college
with a host of modern kinks
In the way of hygienics, sanitation, food and drinks,
Proteids and carbohydrates she combines exactly right
For the strictly balanced ration she identifies at sight.
She knows all about digestion, what is best for us to eat;
What we need for body-building, growth and force, repair and heat.
And the dinner table's lovely when my sister has it set;
But we haven't lost our confidence in Mother's cooking yet!"

—Lippincott's.

COULD YOU IMAGINE

Doctor C. without a smile?
A biologist without a satchel?
Bland a woman-hater?
No roll-call?
No house-practice?
Campbell with "serious intentions?"
Everyone a Review subscriber?
Dr. Reed without his dog?
Fresh air in Massey? A Jr. Normal without educational sewing?
Miss Lyon on time?
Chapel overcrowded? A two-in-one with nothing to do?
No one at the College phone?
Miss Griffin with a star?
Being paid for housekeeper duties?
Eggs and bacon for breakfast?
Whitey not an authority on eggs?
A street car on time?
A senior who couldn't shish?

G. M. C.

Marketing Canadian Fruit in the Prairie Provinces

R. M. WINSLOW, PROVINCIAL HORTICULTURIST, BRITISH COLUMBIA.

IN the three Prairie Provinces there are about 1,700,000 people who want fruit but cannot produce it. In the whole of Western Canada there are 2,200,000 people, and only in certain parts of Southern British Columbia can fruit be grown. The problem seems simplicity itself. In actual practice it is an extremely complicated question involving many considerations of Canadian and foreign competition, organization, transportation, distribution, relative costs of production, market preferences, customs tariffs and other features. To win this great market for Canadian fruit offers many difficulties with, fortunately, corresponding rewards.

The Prairie market has grown very rapidly in recent years; while the population increased from 416,000 in 1901 to 1,323,000 in 1911, and probably will be over 1,700,000 by July, 1913, fruit consumption has increased at a much greater ratio. British Columbia marketed in 1912 about six times as much fruit there as in 1905; for Ontario the proportion was even greater; a similar condition is true of the shipments from the United States. Nova Scotia now comes into that market, a condition undreamt of even six years ago.

The Canadian Prairies have become, not merely one of the markets, but the principal market for British Columbia. The prairies take the bulk of the tender fruits shipped from Ontario and nearly as many apples as Great Britain; even Nova Scotia, handicapped by a very long haul, though with reasonably favorable freight rates, now looks to the prairies as the most suitable market for their "Gravenstein" crop, which averages about 70,000 barrels annually.

The whole significance of the prairie market in Canadian fruit growing has changed. The conditions in that market and the terms on which our fruit can secure entrance to it must be the fruit grower's first consideration.

As a necessary step in discussing the immediate difficulties confronting us, I will, with the Editor's permission, outline briefly the principal facts underlying the demand and the supply of fruit as they now exist.

The total estimated population in July, 1913, will be about 1,700,000; this is an increase from 416,000 in 1901, or over four times as great. The tremendous areas yet unsettled and the present increasingly high rate of immigration give promise of an even more rapid increase in the coming decade. About forty per cent. of the present population live in eleven cities and their suburbs, and the increase in urban to rural population is constantly going on.

Local production at present plays practically no part in the supplying of the demand. There are some apples grown in Southern Manitoba, while apple trees of various hardy varieties are being tried, with more or less success, throughout many sections of the prairies. The Dominion Government, under the direction of W. T. Macoun,

Dominion Horticulturist, has inaugurated a series of experimental tests of the greatest magnitude, at the various Prairie Experimental Farms, testing tens of thousands of possibly desirable seedlings; this work will, undoubtedly, be of the greatest eventual service, but is not likely to affect the demand for outside fruit to any extent for a number of years. Strawberries and other small fruits are also being grown with success in several sections of Alberta, but the season is so much later than in British Columbia, or in Ontario, that the local strawberries do not affect the general market; for practical purposes, we may consider local production at present negligible.

The Canadian Pairies probably consume more fruit per capita than the people of any other large area. We learn that in the United States, for instance, about thirty million barrels of apples are produced annually, giving an average consumption of one-third of a barrel per head of population; the Canadian Prairies annually take from outside sources, through commercial channels, nearly one barrel of apples per head of population. Prairie people testify to an extreme desire for fruit, which they attribute to something in the air or the country; at any rate, the prairies have great consuming power—Winnipeg, for instance, has long been looked on as one of the most active fruit distributing centres of its size on the continent.

Even twelve or fifteen years ago, when British Columbia shipments were very small and Ontario's were negligible, there were large quantities of apples and other fruits being shipped across the international line from the States of the Upper Mississippi Valley; that trade, despite the active efforts of Canadian fruit shippers, has continued to expand. We believe we are quite within the mark in saying that even at present about 50 per cent. of the deciduous fruit entering this market is supplied from the United States; in apples alone the percentage is not so high. The Canadian producers have greater prospects of securing the entire apple trade than they have with any other class of fruit, except possibly grapes of American varieties, in which even now Niagara District holds the market. In the great range of tender fruits, the Americans, fortified by long experience in the trade and with an earlier season, will continue to hold some advantage. For those fruits eaten only in hot weather, such as peaches, apricots, Bartlett pears and plums, the demand is already on the decline when Canadian supplies are at their height; this factor will operate against our ever securing the bulk of such trade. In the supply of fruits for preserving a somewhat similar condition obtains: the prairie housewife has become accustomed to purchasing preserving supplies during August, while the increasing supply from British Columbia will not be available for about two or three weeks later. To alter this custom, even partially, will take a good deal of educational work. This is not to say that there is not a large and remunerative business to be done in these lines, but I wish to make clear that certain inherent difficulties operate against our ever displacing some kinds of American fruit altogether.

The distribution of fruit requires a large and permanent organization; such an organization has for its func-

tion the task of keeping the channels of trade full of the kinds of fruit they require; naturally then, the control of this organization is a very important factor in supplying the trade. There are about thirty fruit jobbing houses selling to retailers, one Auction Company which sells to retailers, and one Brokerage House which sells to jobbers; there are approximately three thousand retailers handling fruit. About half of the jobbing houses are owned or controlled by one body of capital, which controls a similar but larger group of houses in the Dakotas and in Minnesota; this is familiarly known as the "American Ring"; about one-half of the remainder are owned by the Scott Fruit Company, and these two bodies, in the opinion of B. C. shippers, work more or less in conjunction. The remaining jobbing houses are mostly individuals; one concern, with several branches, is under control in British Columbia; the McNaughton Fruit Auction at Winnipeg is controlled, we believe, by the St. Catharine's Cold Storage and Forwarding Company. The Brokerage concern, which replaces a similar concern under slightly different management of last year, is being financed by the houses of the American ring to secure for themselves a better grip on the supply of fruit.

What kind of a problem the very effective organization of the fruit jobbing business will eventually create remains to be seen. So far, British Columbia shippers had undue cause for complaint at their hands, but indications are not wanting that the terms received will not always be so favorable. It is realized, however, that to equip a rival organization will take much money and a severe struggle.

There is much discussion on selling direct to the retailer. The B. C. Markets' Commissioners, stationed in the prairies for the past four years, have unanimously reported that, up to date, our large fruit business is better conducted through the jobbers than through any other channel; the small fruit business is better handled direct to retailers by express.

The cost of transportation directly affects the selling price; generally speaking, rates have been so designed that British Columbia has a preference over all competitors in Alberta, and in parts of Saskatchewan. Similarly, Ontario has an extremely low rate to Winnipeg and advantageous rates to other points in Manitoba and parts of Saskatchewan. Nova Scotia, when its great distance is considered, has quite a reasonable freight rate to Winnipeg. The Northwestern States, which enter largely into the supply of peaches, plums, cherries, crab apples, pears and apples, against Ontario and British Columbia, have a rate of 75 cents on apples in carloads to all Great Northern points, and higher to non-competitive C. P. R. points, which gives British Columbia and Ontario effective protection in such "exclusive" points. The extension of the Great Northern and Canadian Northern into much of what has been previously exclusive C. P. R. territory will result in lessening our advantage in these markets. Generally speaking, however, rates from Ontario and British Columbia are comparatively favorable, and in many cases give a greater protection than is afforded by the customs tariffs.

All American fruit is shipped in carloads by freight, except strawberries, raspberries, etc., which come in carloads by express. Much British

Columbia fruit is still shipped in less than carloads both by freight and express with correspondingly high charges. If shipped direct to retailers at country points, such goods can be quoted at reasonable and remunerative prices; it is very difficult, however, for less than carload, or "LCL" fruit to compete with straight carloads with their lower rates into big distributing centres. Generally speaking, transportation conditions, as well as rates, are favorable to the Canadian grower.

Customs tariffs on imported fruit constitute an effective aid in keeping the market of the Canadian product. There is a widspread fallacy that the effect of the tariffs is always to increase prices, but we have numerous instances that this is not the case. Ontario American grapes, for instance, are protected by a duty of 2 cents a lb. and yet they sell to the consumer, year in and year out, at an average of about 1½ cents a lb.; the effect of the duty in this case is merely to give the market to the Canadian-grown product, which is actually sold at but very little more than the cost of production. A similar condition occurs in other fruits, and in view of the remarkably strong competition for American fruit our growers feel amply justified in asking for the protection of the market by the use of the tariffs.

The dumping of American fruit constitutes the gravest and greatest difficulty. In a year like 1912 with large crops throughout the United States hundreds of carloads of American fruit of the lower grades are dumped over the border to be sold for what they will fetch; some of them fetch practically nothing under those circumstances; many do not pay the freight and duty charges; the majority of such cars do not pay the grower the cost of his packages, to say nothing of the cost of production. The result is demoralization of the markets. The Canadian producer cannot possibly sell for cash, while, on the other hand, the jobber and the retailer find in this fruit, which they secure for so little, an opportunity for a fine harvest. The records obtained by our markets' commissioners, on the ground throughout the season do not show that the consumer gets any material benefit from this condition so disastrous to the producer; the advantage is absorbed in the trade. The Dumping Clause is so worded as to be useless in this connection, and there seems no prospect of amending it to make it perform its legitimate service in protecting us against the dumped American fruit.

One of the curious minor difficulties arises out of the Fruit Marks Act, which requires all Canadian apples to be marked "Fancy," No. 1, or No. 2. The consumer, who does not know the difference, naturally considers "Extra Fancy," "Fancy" or "Choice" Apples—the three American grades—superior because the grade terms sound better; on the other hand, because fruit with these designations has occupied the market very largely in the past, the fruit trade and the educated consumer know the American grade marks better than they do the Canadian ones; consequently they prefer the American fruit. As a result, Canadian fruit has been discriminated against, both by those who know and those who do know the usages of the trade. We understand that, as a result of our representations on this matter to the Dominion Government,

the discrimination will be removed by requiring American fruit to be marked with our grade marks and the American marks to be erased.

Market preferences are numerous, occasionally unexpected and sometimes justified. The above-mentioned discrimination against Canadian marks is one that arises naturally. The prairies prefer the highly red apple, even of low quality to a yellow or green apple of high quality. Color is most important in making sales under competition, next to price. Contrary to the general impression, the prairie fruit trade cannot honestly be said to demand a high-class article; for instance, 80 per cent. of the American apples imported into Alberta and Saskatchewan are of the "C" or "Choice" grade, their lowest grade; only 20 per cent. are "Fancy" or "Extra Fancy." Generally speaking, the prairie people want the greatest bulk of fruit at the lowest cost; they show no particular enthusiasm for the large size, high color and fancy packing that the large cities of the East demand in boxed apples. They prefer the American apple box rather than the Canadian one, because they believe the former holds three or four lbs. more fruit, and in the past this has usually been the case. They prefer Italian prunes in a peach box instead of in the 4-basket plum crate, because the former can be sold for about 10 cents less; they prefer yellow fleshed to white-fleshed peaches and free stones to cling stones; but this is true, I suppose, for all America. They prefer red plums and purple plums, but do not want yellow or green ones; plums, peaches and cherries must be large, the larger the better.

In such a short article, I have been able only to hint at the tremendous complexity of the fruit trade of the Prairie Provinces. The question of American competition alone has concerned us, and we have been able to gather a great deal of information on many features of it. The fruit growers of Canada may reasonably expect a large and continually increasing outlet in the prairies, but, in my opinion, there may be the necessity for considerable sacrifice of prices in the effort to secure that greater share of the trade, which we must have as our orchards develop.

The Scholarships Awarded

FOR COLLEGE YEAR 1912-13.

The scholarships, medals and prizes have been awarded as follows:

First Year, four scholarships of $20 each —In Agriculture, L. B. Clemens, of Galt; Biology, R. J. Hastings, of Formosa, Japan; English and Mathematics, C. T. Brown, of Peterboro; Chemistry and Physics, G. Garlick, of Sussex, England.

Second Year — The Governor-General's medal for proficiency in first and second years, the George Chapman prize of $20 in books for proficiency in English in first and second years, the valedictory prize of $10 in books for the best essay in the second year, and another prize of $10 in books for general proficiency, have all been won by A. Cory, of Prince Albert, Sask.

The fourth year medal for the best all-round man, both in studies and athletics, was unanimously voted by his class-mates to W. H. J. Tisdale, of Paris, Ont.

The Canada Industrial Scholarships for special essays were awarded: First, G. J. Jenkins, of Toronto, $50, subject "City Milk Supply"; second, C. T. Brown, of Peterboro, $30, "The Country Church and Rural School in Relation to the Country's Ideals and Developments"; third, $20, R. H. Ferguson, of New Zealand, "Fertilizers and Their Uses."

Turkeys---How and Why

J. L. TENNANT, B.S.A., DISTRICT REPRESENTATIVE RENFREW COUNTY.

TURKEYS are not receiving the attention at the hands of the Canadian farmer at the present time which their importance as an article of food and their ability to produce profitable returns warrants. This lack of interest in turkey-raising is due possibly to two things. Other lines of poultry-raising, particularly the production of eggs for the market and the raising and fattening of chickens have been very profitable. These lines have taken up the attention and the time of those interested in poultry to the exclusion of other poultry work. Then there is a feeling that turkeys are very tender during the early part of their existence and also that they succumb very easily to the attacks of disease.

Now while there is some truth in the statement that turkeys lack hardiness during the early part of their life, yet they are not nearly so weak, nor so easily killed as a good many would have us suppose. Careful investigation will show that turkeys are as easily raised as chickens and with no higher rate of mortality. There is considerable difference in the hardiness of various individuals amongst turkeys just the same as there is amongst chickens. Therefore it is necessary to use great care and good judgment in choosing breeding stock. Select only those individuals which have a strong constitution, good conformation and show an aptitude to make profitable returns for the feed and care which is given them.

The objection to raising turkeys on account of the ravages of disease is well taken. But here again it is extremely doubtful if turkeys are any more subject to disease attack than are other kinds of poultry. Roup and blackhead are the two diseases which seem to be particularly fatal to turkeys. Both of them are contagious and spread rapidly through a flock when once started. Blackhead is the most serious disease and the most difficult to eradicate. It is caused by a proloyoa, which gains entrance to the body of the turkey and causes a darkening of the tissues of the head and neck. Probably a bacteria comes in also, but this is not definitely known. Blackhead spreads fairly rapidly through a flock and soon kills the birds which are attacked. It remains virulent in the soil, especially in clay soil for several years. Sandy soil does not seem to remain affected for so long a time. Recent work by Dr. Higgins, of Ottawa, goes to show that blackhead can be largely controlled by adding one teaspoonful of commercial hydrochloric acid to each gallon of the drinking water about once a week. This will act as a preventative and will keep the digestive tract of the bird acid, which is essential to its health. In birds which have the disease, giving them this acidified drinking water all the time may effect a cure.

Roup is very contagious and diseased birds should be isolated at once and destroyed if they are very bad. Abundance of fresh air is the best preventative and cure for this disease.

The females should be mated with the male early in the spring, at least four or five weeks before the laying season commences. The turkey hen lays on the average about sixteen eggs, and these are all fertilized at

one mating. They are usually all fertile. Nests of sufficient size and well protected should be provided in sheltered places near the buildings to induce the turkey hens to lay in them and thus prevent them wandering to the woods. Usually better success will be obtained by letting the turkey hen set and hatch out her own brood, than by hatching the eggs under hens or by means of an incubator. Turkeys do not adapt themselves very readily to artificial methods of hatching and rearing.

It is not wise to try to raise turkeys and chickens on the same ground. Occasionally this may be done successfully, but as a rule only indifferent results will be obtained. Turkeys require a larger range than chickens and do not obtain their full share of feed when running with a bunch of chickens.

A very satisfactory feed for the young poults is a mixture of low grade flour and shorts mixed with sour skim milk, along with plenty of green feed. They should have abundant range after they are a couple of weeks old. Cracked corn should be added to the ration when they are about two to three weeks old, and this can be replaced by whole corn and wheat as soon as the young poults can swallow the whole grain. An abundant supply of fresh, clean drinking water should be provided at all times. During a storm the turkey hen should not be disturbed, for if left alone she will protect her brood from getting wet.

Except in districts where the winters are very severe the turkeys will not require artificial protection. They need an abundance of fresh air and do not do well in confinement. On free range they will pick up a large share of their living, but they should be given a feed of grain at night in order to attract them home and ensure their going to bed with full crops.

Turkeys do not fatten very readily until cool weather comes. During warm weather their appetites are not keen and they do not consume sufficient food to cause rapid fattening. When cold weather comes, however, they begin to eat more and rapidly increase in weight. Corn is one of the best foods to fatten them, along with sour skim milk to drink. Or,cornmeal, shorts and low grade flour may be mixed with sour milk or buttermilk to the consistency of a thin batter, and fed in troughs. Any ration suitable for fattening chickens may be used to fatten turkeys successfully. But they must have free range. They do not do well when confined.

The bronze turkey is the largest variety and is the best one under average conditions. It is hardy, a good forager, has a strong constitution and a big frame. It reaches a very large size. For the special Thanksgiving trade the black turkey is perhaps more suitable, since it is a little smaller and matures earlier.

At prices which have prevailed during recent years, a very large profit can be made out of turkeys. There is no reason why many more farms in Canada should not raise from twenty-five to fifty turkeys each year. Only for a period of five or six weeks in the spring would they require very close attention. They would be able to pick up a very large part of their living during the summer. And in the fall the sale of this number of fattened turkeys would materially increase the farm income. In addition to this a flock of turkeys wandering over a farm annually destroys a large number of injurious insects.

Crop Rotations for Live Stock Farming in Ontario

O. C. WHITE, Asst. Dominion Field Husbandman.

IN a very great measure the profitable production of farm crops depends upon factors that are largely controllable. The variety and quality of seed used, the kinds and amounts of plant food supplied, and the soil treatment given, may be so adjusted that crop failures are comparatively rare even under most unfavorable climatic and soil conditions.

The proper regulation of any one of these factors involves expenditure, but so long as the increased returns are relatively greater than the added expense, the operation, whatever it may be, must be regarded as profitable.

A most inexpensive and yet effective means of increasing the profits from our Ontario farms, and at the same time assisting to maintain soil fertility would be the more general adoption of suitable crop rotations.

Were it the case that all plants made exactly the same demands on the soil, rotations would be unnecessary and unprofitable. It is because of the fact that crop requirements and crop residues vary, that the order in which they follow each other counts for so much. Knowing the especial food requirements and the value of the residue of most farm crops, it might appear to be a comparatively easy matter to determine absolutely the arrangement that would be most profitable. To some extent this is true and generally speaking it might be said that a good rotation should include:

1. Clover or other sod.
2. Corn, roots or potatoes.
3. Cereals.

And that preferably these groups should follow each other in the order named.

Such an arrangement is not always practicable, however, for the merit of any rotation depends not on one, but on several influences. There is to be considered:

1. Its ability to supply different crops in the needed proportions.

2. Its power to keep weeds in check.

3. Its effect on the fertility of the soil.

For the past fourteen years the testing of rotations suitable for live stock farming, such as is carried on in Ontario, has received considerable attention at the Central Experimental Farm. While the results of the experiments would not warrant us in drawing definite comparisons as to their effect on fertility, we can confidently recommend any one of the following four, if proper cultural methods within the rotation are followed.

No. 1

This is of three years' duration and is well suited for intensive dairy farming where soiling crops are used.

1st year—Corn or other hoed crop.

Apply manure during the winter at the rate of 15 tons per acre, shallow plough in the spring for corn, work well before sowing.

2nd year—Grain. Seed down with 10 lbs. of red clover, 2 lbs. alsike, 6 lbs. alfalfa and 6 lbs. timothy per acre.

3rd year—Clover hay, two crops expected.

No. 2

An excellent four-year rotation made up of equal areas of hoed crops, grain, hay and pasture.

1st year—Corn or other hoed crop. Plough previous August, manure 20 tons per acre, work at intervals and ridge up in the fall.

2nd year—Grain. Seed down with 10 lbs. red clover and 12 lbs. timothy per acre.

3rd year—Clover hay, two crops expected. Second crop may be saved for seed.

4th year—Pasture, or if not needed for such purpose, timothy hay.

No. 3

This is of five years' duration, and contains a relatively larger proportion of grain than No. 2.

1st year—Grain. Plough previous August, top work and rib up in October. Seed down with the grain 10 lbs. red clover per acre, which allow to grow to be turned under the following spring.

2nd year—Corn or other hoed crop. Apply manure during the winter or spring at rate of 25 tons per acre, shallow plough in spring, turning under both clover and manure.

3rd year—Grain. Seed down 8 lbs. red clover, 2 lbs. alsike and 10 lbs. timothy per acre.

4th year—Clover hay, two crops.

5th year—Timothy hay or pasture.

No. 4

This five-year rotation is similar to No. 3, in the relative proportions of the different crops, but is broken up after one year of hay.

1st year—Grain. Seed down 10 lbs. red clover, 2 lbs. alsike and 5 lbs. timothy per acre.

2nd year—Clover hay, two crops expected.

3rd year—Corn or other hoed crop. Apply manure during the winter or spring at rate of 25 tons per acre, shallow plough in spring turning under both clover and manure. Shallow fall plough, or fall disc after corn is harvested.

4th year—Grain. Seed down 10 lbs. red clover, 2 lbs, alsike and 5 lbs. timothy per acre.

5th year—Clover hay, two crops expected. Plough late fall.

On some farms no rough pasture is available, and more is required than any of the above rotations supplies. One of seven years' duration—grain, clover hay, pasture, corn or roots, grain, clover hay, pasture—would answer the purpose very well. In view of its long duration it would be preferable to supply the manure in two applications, using part for the hoed crop, and part as a top dressing for the last year pasture.

If an examination of the above rotations be made there will be noted a few characteristics common to them all.

1. Grain is always seeded down with clover, even though it be used only as a fertilizer, as in the case of the first year of rotation No. 3.

2. Grass and clover seedings are heavy. Increased crops of hay and rare failures of a catch have justified them.

3. Hoed crops form a large proportion of every rotation. An attempt to farm a small area without a hoed

crop was not successful. Weeds could not be kept in check.

4. No land is left in hay for more than two years. Our records show that the second crop nearly always costs more per ton than the first and succeding crops are very liable to be grown at a loss.

Rotations will not in themselves maintain soil fertility, nor will they take the place of soil cultivation, but they should be one of the very first considerations if a permanent agriculture is to be established.

The Calf Path

One day through the primeval wood
A calf walked home, as good calves should;

But made a trail all bent askew,
A crooked trail, as all calves do.

Since then two hundred years have fled,
And, I infer, the calf is dead.

But still he left behind his trail,
And thereby hangs my moral tale.

The trail was taken up next day
By a lone dog that passed that way;

And then a wise bell-wether sheep
Pursued the trail o'er vale and steep,

And drew the flock behind him, too,
As good bell-wethers always do.

And from that day o'er hill and glade,
Through those old woods a path was made.

And many men wound in and out
And dodged and turned and bent about

And uttered words of righteous wrath
Because 'twas such a crooked path;

But still they followed—do not laugh—
The first migrations of that calf.

And through this winding wood-way stalked
Because he wabbled when he walked.

This forest path became a lane,
That bent and turned and turned again;

This crooked lane became a road,
Where many a poor horse, with his load

Toiled on beneath the burning sun
And travelled some three miles in one.

And thus a century and a half
They trod the footsteps of that calf.

The years passed on in swiftness fleet,
The road became a village street,

And this, before men were aware,
A city's crowded thoroughfare.

And soon the central street was this
Of a renowned metropolis.

And men two centuries and a half
Trod in the footsteps of that calf.

Each day a hundred thousand rout
Followed the zigzag calf about.

And o'er his crooked journey went
The traffic of a continent.

A hundred thousand men were led
By one calf near three centuries dead.

They followed still his crooked way
And lost one hundred years a day;

For thus such reverence is lent
To well-established precedent.

A moral lesson this might teach,
Were I ordained and called to preach.

For men are prone to go it blind
Along the calf-paths of the mind,

And work away from sun to sun
To do what other men have done.

They follow in the beaten track
And out and in, and forth and back.

And still their devious course pursue,
To keep the path that others do.

But how the wise old wood-gods laugh
Who saw the first primeval calf!

Ah! many things this tale might teach—
But I am not ordained to preach.

—Sam Walter Foss.

THE O. A. C. REVIEW

Editorials

The Retiring Staff

With the July number of The Review, the present staff retires from office, after having attempted (we will not say with how much success) the somewhat difficult task of combining a College magazine with a farmer's journal. By the use of the latter term, we do not mean that we would model The Review after any of the excellent practical papers now on sale, but we would like to make the magazine what its name implies, a review of the latest and best discoveries in scientific agriculture and its many branches. It is also our endeavor, in depicting the events which occur around the College, to try to interest farmers and farmer's sons not only in the actual farming operations in which students receive instruction at the College, but to give a glimpse of the many other activities which could make rural life so enjoyable. And if we have succeeded in awakening a desire in some of the boys to enter College next fall or later, we have not been a failure. Most of the old prejudice against the College and the graduates has been removed, and we feel that the Review is responsible for some of this better feeling at least. There is also springing up in urban communities a deeper appreciation of the farmer and the work he accomplishes in providing the food of mankind. Perhaps the high cost of living is partly responsible for this, for even although the wage of agriculture is still miserably low, it is increasing. It has been our aim to impress the motto of the craft upon our readers, "The Dignity of a Calling is Its Utility."

We have enjoyed our work upon the College paper, and we hope that our readers can truthfully utter the same statement.

The Covered Rink

This institution was talked of as early as 1903, and is still an unreality. At the end of the winter term, in 1912, a committee consisting of two members of the faculty and three from the student body, was appointed and given full powers to erect the rink, first securing the requisite currency. In the summer of 1912, a goodly proportion of the signers of the $25.00 notes redeemed them and prospects looked bright. Unfortunately, the members of the committee were overloaded with executive work last year at the College, and beyond securing the promise of a lease of a site from the Minister of Agriculture, little was accomplished. The surveying of this site is to be done early in July and the lease obtained from Toronto.

The committee state that, once this lease is an actual fact, they will issue a prospectus to the note-signers who have already paid, those who have not paid, and all the other graduates of the College with whom they can get into communication. In this prospectus will be given the actual cash so far subscribed, the amount promised, the cost of the rink, the estimated returns once the rink is built, and the estimated outlay. It is the intention to establish later a joint stock company, the shares to be $25.00,—those men who have already subscribed of course receiving their share of stock, and eventually, with ordinary luck and management, repaying the whole subscription.

The first and most necessary thing however, will be the collection of the actual hard cash. We hope that the alumni of the College will come loyally to the rescue and assist in building a rink that will be a joy forever to—shall we say their descendants?

Cosmopolitan Club

The aim of this organization was, when organized several years ago, to unite the various nationalities represented at the College, to help them to understand and tolerate each other's racial peculiarities; or, to quote the constitution, to cultivate the arts of peace, to establish strong international friendships and to carry out the motto: "Above all nations is humanity."

We will omit all reference to the past other than this. The Club will reopen in the fall with a new executive which is truly representative. It can serve an extremely useful purpose at the College, but it must, to reach its maximum efficiency, enlist the sympathy of the Canadian-born student. Let us when we return to school in September, co-operate with the officers of the Club in working out its ambitions. It has been, in many cases, condemned unheard, and more charity of thought from all sides would be beneficial.

The Track

Last year our track team was almost successful in carrying away the inter-faculty championship belt, and this with two good men missing from the team. We have lost several men since then, notably Culham, Palmer and Horobin, but with the added experience of the junior classes and the possibility of a find in the first year, the chances are as good as they ever were. With Puleston in the dashes, White and Miller in the quarter and half, Fraser in the mile, and Freeborne in the three-mile; Pope and Bryden in the jumps; and Forsythe in the discus and shot puts, there should be some commotion at Varsity meet next fall.

Manager Freebourne put the team through a faithful course of training last year, and if the boys supplement this with some pre-College work in early September and a faithful adherence to the rules of training laid down on another page, we may look on the championship as ours.

A Woodland Wedding

Have you heard about the wedding in the grove across the way?
If not, why I must tell you. It took place the other day.
The bride, whose name was Lily, was gowned in purest white,
And Violet was the flower girl, a modest little sprite.

But oh! the groom was handsome, as with smiling face he stood.
His name was Johnny Jump Up, who lived in yonder wood.
And as he waited for his bride upon the carpet green,
I trow it was the prettiest sight that ever I have seen.

The audience numbered thirty, friends of the bride and groom.
Each fair one had an escort and all were in full bloom.
Their dresses were most gorgeous—pink, blue and amethyst,
And on one I even noticed a very yellow vest.

And while they sat and waited out in the Summer air,
Jack-in-the-pulpit stepped quickly up and wed the happy pair.
So 'mid the chime of Bluebells and congratulations hearty,
The bride and groom with nodding heads were bowing to the party.

The breezes blew them o'er the lake, away, away, away,
And nothing ever has been heard up to the present day
Of where they went, or how they are. I guess we'll never know
What happened to this flowery pair who loved each other so.

—V. G. Parmenter, Owen Sound.

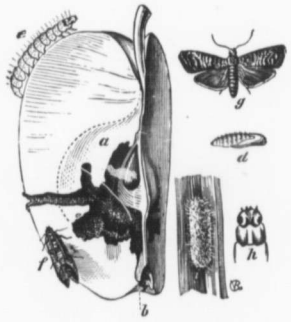
Summer Insect Pests

C. A. GOOD, '14.

WHEN, because of idle curiosity, the evil spirits flew from Pandora's box, that one in charge of injurious insects must have gone forth with all his agents and lieutenants, for he has assuredly been extremely busy in distributing trouble ever since. Very few plants are without insect enemies of some description and many are the hearts that have been discouraged because of the voracious appetite of these incessant feeders. Even in this so-called enlightened age the amount of cold cash that is yet lost because of injurious insects is enormous. In this article, then, it is the object to try and clearly show how to identify and combat the most injurious of our summer insects, but shortage of space will not permit the mention of every one.

Apple

The most injurious of our apple insects is the codling worm, the adult of which is a small, gray moth with a golden spot on the tip of each front wing. This insect will attack either the apple, pear, crab-apple, or quince. As most of the first brood larvae enter the apple through the calyx, or blossom end, it is advisable to have poison waiting there for them. To do this carefully spray the trees with lime-sulphur solution, using as the poison two lbs. of arsenate of lead to 40 gallons of the spray mixture. Spray just after the blossoms have fallen and be sure to so direct the spray that every calyx has its share of poison, otherwise all the labor and expense is just so much waste. Wherever the second brood occurs badly, as in the southern sections of the province, spray again about two weeks later, using the same solution as with the first, being careful to cover every apple, as the majority of this brood enter the apple from the side. The best way to control the second brood is, to quote the proverbial Irishman, "Don't have any." Destroy them all in the first spray.

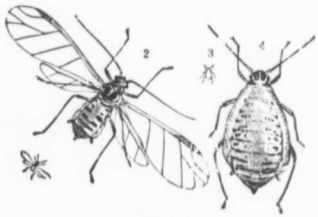


The Codling Worm

a, injury done to apple; g, adult moth; e, larva.

Aphids, or the green lice, do a great deal of damage by sucking the juices from the leaves and tender shoots, thus dwarfing the trees and curling the leaves, causing them to drop prematurely, while on bearing trees they are responsible for the presence of the clusters of small, deformed, woody apples. The winter is passed in the egg stage and in early spring these hatch, the young aphids beginning to feed at once upon the opening leaves. This is the best time to spray as they have not had time to become hidden among the curled

leaves. Lime-sulphur and black leaf 40 is the best mixture to use, but kerosene emulsion or whale oil soap

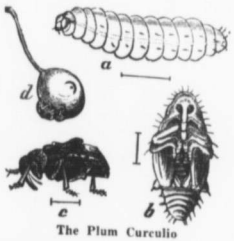


The Aphis

2. Winged form, enlarged; 4, nymph, enlarged.

are both very good. If spraying has to be resorted to when the leaves are out in full it must be done before the leaves are badly curled or the aphids will not be touched.

The plum curculio is a small, dark, snout beetle, about ¼-inch long that attacks not only the apple, but the



The Plum Curculio

a, maggot, enlarged; b, pupa, enlarged; c, adult, enlarged; d, fruit showing characteristic egg puncture. Note the crescent.

pear, plum, cherry and peach. The adults injure the fruit when depositing, as the eggs are deposited through punctures in the skin, which are easily recognized by the crescent-shape cut that the female makes near each egg. See diagram. The feeding punctures also deform the apple. We are all well acquainted with the nature of injury the larvae do in the pulp of the cherry and plum, and it is therefore not necessary to dwell on this. The winter is passed in the adult stage under rubbish, or in any good hiding place in and around the orchard, so, consequently the first remedial measure would be to clear away all rubbish lying around the trees. With apples, 3 lbs. of arsenate of lead used in the codling moth spray will effectively control the pest, but if necessary a second application may be applied two weeks later. Cherries and plums should be sprayed twice, once after the calyces have fallen from the fruit, and again about two weeks later, whereas with peaches 3 lbs. of arsenate of lead used alone is sufficient.

Pear

Most of the insects that attack the apple attack the pear, but there are two characteristic pests of this fruit.

The slug is the blackish, slimy worm that is often seen feeding upon the upper surface of the leaves, the adult of this insect being a small, black, four-winged, saw-fly. The cherry trees are worse affected than the pear and are often quite completely defoliated. The pest is very easily controlled, as spraying with two pounds of arsenate of lead to 40 gallons of water as soon as there are enough slugs present to justify an application is quite sufficient to destroy them all.

The pear psylla is the other foe. It is a tiny, blackish insect about 1-10-in. long, with transparent wings. The injury is done by both the adults and nymphs sucking the juices from the leaves and green parts, frequently weakening the tree so much that it is unable to produce even one-quarter of a crop. The nymphs are nearly always to be seen in a drop of

honey-dew and are broad, unshapely, yellowish-white, almost transparent creatures, with distinct red eyes. As the winter is passed in the adult stage, the eggs are laid in the spring. Spraying thoroughly with lime-sulphur just as the buds are bursting, will control the pest, as the spray kills the eggs just as they are hatching. If the first spray fails use black leaf 40, just as soon as the leaves have expanded.

Cherry

The plum curculio has the cherry upon his list of host plants, but what has been said about him previously applies equally well to him here. This is true also of the cherry slug.

The cherry fruit fly, a pretty two-winged insect with wings that are conspicuously marked with black and more or less transverse bars is sluggish in habits, apparently not flying far. The eggs are inserted under the skin of the cherry and the injury is done by the maggots, which reduce the tissue of the fruit to a rotten mass. The Early Richmonds being ripe soon after the flies appear in the Spring are usually free from infestation, but later varieties, as the Montmorency, are badly attacked. It is a hard insect to combat, as the larvae confine all their efforts under the skin of the cherry and consequently cannot be reached by any means. Probably spraying with a sweetened poison solution just as the flies are beginning to emerge about the second or third week in June would control the pest. The soil should be kept loose and poultry should be encouraged to scratch in the orchard, as they are of great value in picking up the pupae. Endeavor to remove all infested fruit and destroy it by either burning or scalding, but not by burying, as the flies can emerge from great depths.

Peach

The presence of gum exuding from the base of peach trees is a certain indication of the presence of the peach tree borer, a little larvae, which can be distinguished by its brown head, and which bores just beneath the bark. The adult is a clear-winged moth, closely resembling a wasp. The only effective control measure is to dig them out with a knife, but as an ounce of prevention is worth more than a pound of cure, it is more satisfactory in every way to wrap the base of the trees with newspaper to prevent the moths from laying their eggs. This paper should be put on before July 1st, as the moths begin egg-laying at that time.

The plum curculio is also a bad pest of the peach.

Grape

The small blue beetle, about one-fifth of an inch long, that is often observed about grape vines, is one of the grape's bad foes. The adults do the injury by attacking the buds, shortly before, or as they are bursting, destroying them. The larvae that appear in a few weeks feed upon the leaves, but are not nearly so troublesome as the adults. Spraying with arsenate of lead, using 6 or 7 lbs. to 40 gallons of water, just when the adults are seen attacking the buds, will effectively control the pest.

The mottled leaves seen on many vines are the result of the work of the grape leaf hopper, a tiny insect about one-eighth of an inch long with red or blackish bands across the wings. The vine with many of these affected leaves on it is unable to

manufacture sufficient food, and consequently the fruit does not ripen properly. The best remedy is to spray with black leaf 40, whenever the nymphs are seen, which will probably be about the middle of July.

The rose chafer, a fawn-colored beetle about two-fifths of an inch long, with a slender body and long legs, attacks the grapes as they are coming into bloom. But they do not confine their energies to the grape, for the apple, plum, cherry and roses are also infested. As the larvae and pupae are found in the ground, chiefly in sandy soil in old pastures or grassy plains, plowing in May will destroy many of them. Spraying with 4 to 5 pounds of arsenate of lead to 40 gallons of water, which has been sweetened with 1 or 2 gallons of molasses, may be used to poison the adults, the solution being put on whatever they are feeding upon. Lime-sulphur or Bordeaux mixture spoil the spray, as they will not eat it.

Currants and Gooseberries

Many are the bushes that have been stripped of all foliage by the imported currant worm, which is easily recognized by its green color and the multitude of black dots upon it. But, although it is very common and very destructive it is very easily controlled by spraying with arsenate of lead, two lbs. to 40 gallons, whenever the caterpillars are seen.

The red spider, a little red mite, feeds on the under surface of the leaf usually, making a web of silk under which it works. This pest attacks a great number of trees, shrubs and flowers, causing the leaves to turn a sickly, reddish color. Spray thoroughly with lime-sulphur, strength, 1.009, but be careful to strike the under surface of the leaves, in order to catch the mites.

Imported Currant Worm.

Aphids are usually a great nuisance to the owners of currant plantations, but what has been said under "apple," will apply here equally well.

Raspberries

The row of eggs that are laid on one side of the cane and reach deeply into it have been laid by the snowy tree cricket. The portion of the cane above the injury dies. As the presence of wild raspberries usually tends to favor this pest, cut these down and burn them to destroy the eggs, and when pruning in the regular plantation endeavor to cut off all canes that have egg masses, being sure to burn all cuttings.

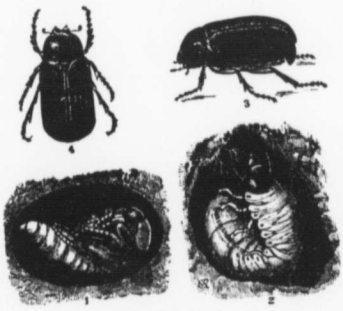
For the red spider see under "currant."

The adult of the borer is a black, long-horned beetle with a yellow neck. The adults girdle the tips of the canes in two places, the egg being laid between the two girdles. As the larvae work downwards, cutting off the canes about four inches below

where they wilt, will effectively rid the patch of the pest.

Strawberries

The white grub is very destructive if the plants have been planted in a field which has been in sod for many years and which has become infested with the grubs. Watch where the plant is being killed and dig up the offender. Strawberries should not be planted on old sod until at least the third year after the field has been broken for fear of infestation.



The White Grub

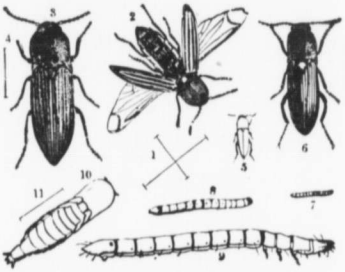
2, grub; 3 and 4, adult beetles.

Although the weevil is not very common in Ontario, it often occurs in very destructive numbers. The injury is done by the adult female, a small, grayish-brown snout beetle, about one-tenth of an inch long. She lays her egg in the bud shortly before it it ready to open, and to prevent further development of the bud she punctures the petiole with her beak, causing it to die and drop. The larva lives inside the bud, feeds on the pollen and the rest of the bud until full-grown, when it pupates within the bud. The staminate varieties are most commonly attacked. The most practicable control measure is to have as little rubbish as possible in the neighborhood of the plantation, so that the adults may not find good winter quarters. Also, never more than two crops should be taken off the same patch if there is any danger of infestation. When plowing up the old plot, first mow over the ground as soon as the crop is off and burn, as this not only destroys a great many of the weevils, but many other pests that attack the plants.

Potato

Our old friend the potato beetle, or the Colorado beetle as it is sometimes called, is so very well known to all that it is only necessary to say very little. Spray the plants as soon as the earliest eggs have begun to hatch, with paris green, using one pound to 40 gallons of water, or better, to 40 gallons of Bordeaux mixture.

The small holes and brown areas commonly seen on the leaves, are caused by flea-beetles, very tiny, black insects, not more than one-half of an inch in length. The same spray that attends to the Colorado beetle will easily destroy this beetle.



The Wire Worm.

2, 3, 6, adult, enlarged; 7, 8, 9, the larvae (the wire worm.

The wire worms are slender, thick-skinned, smooth, yellowish or brown

grubs, being usually worst on corn, wheat, oats, barley and potatoes, but seldom attack clover or peas. In the case of corn the seed, as well as the roots, are devoured, while with potatoes the tubers are bored through in all directions. The insects breed chiefly in grassy places, such as old pastures, roadsides, and waste lands, taking from two to three years to complete the life-cycle. A short rotation of crops, including fall plowing and the stirring of the soil after plowing—to destroy the earthen cases that the insect hibernates in—is necessary to escape the depredations of these worms. As clover or peas escape injury these crops may be included in the rotation to good advantage. The recommended rotation is as follows: First year, barley and clover, leaving the clover to grow up during the second year; third year, plow up after crop is off and sow peas.

The adults of the white grubs are the large, brown June beetles or "pinching bugs," as they are usually called, although they are quite innocent of any such evil designs. The grubs are white, very stout, with blackened posterior, and they attack much the same plants as the wire-worms, including strawberries. They likewise spend from two to three years in the ground. As the control measures are also the same as with wire-worms, fall-plowing and short rotation of crops are excellent. Hogs can be used to advantage in infested fields. If the adults are becoming too plentiful and are devouring the tender shoots on the trees, they may be trapped at night by setting a lantern in a tub of water into which has been poured a little kerosene.

Asparagus.

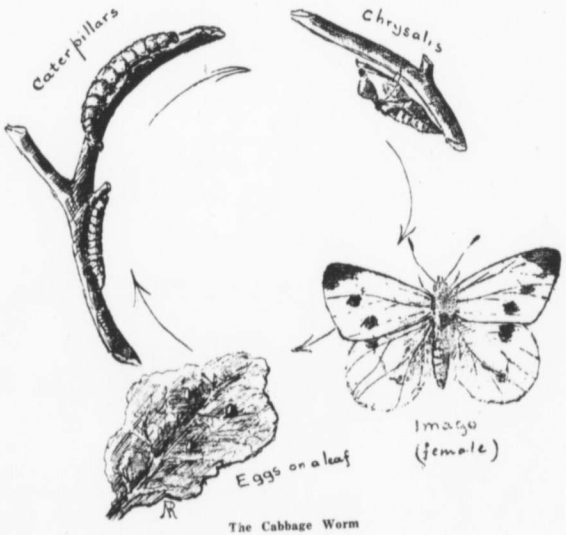
The 12-spotted asparagus beetle and the blue asparagus beetle are the two most troublesome insects that attack this plant. In the spring the adults feed upon the young shoots and the young larvae when they appear do likewise. Later in the year both adults and larvae feed on the larger plants, keeping at it right up to severe frosts. Encouraging poultry to run in the patch is excellent, but if in the early part of the season all the shoots are cut as soon as large enough, the eggs do not get a chance to hatch. However, in young plantations where no shoots are cut, and also in the older plantations, later in the season, the plants should be sprayed with arsenate of lead, using about three pounds to 40 gallons. It will be necessary to add a sticker.

Cabbage and Cauliflower.

The root maggot is the insect that attacks the roots of cabbage, cauliflower and radish, causing the first two to die and the last to be maggoty. The flies are busy laying eggs in the spring, just when the plants are being set out, the eggs being deposited on the ground very close to the roots. The maggots on hatching out work their way to the roots and begin their destructive work, inside them. As the flies winter over among the rubbish lying around, it is essential to keep all remnants of the crop destroyed. The best direct method of control is the use of tarred felt paper discs, one ply, which must be put on around the plants immediately after they have been set out. These prevent the flies from laying their eggs near the plant as they will not lay on the felt paper, and if the discs have been placed carefully, the plant will not suffer from one maggot.

The white butterfly that is com-

monly seen fluttering about is the adult of the cabbage worm, the green fellow usually found on cabbages. When the plants are small dust them with paris green and air-slacked lime when the dew is on, but when the heads have begun to form there is danger from careless use of this poison. Pyrethrum powder, 1 ounce to two gallons of water, sprayed right down on the plant is now the best remedy to use. Be careful to keep the pyrethrum powder in an air-tight receptacle as it loses its strength if exposed to the air.



The Cabbage Worm
Showing the life cycle.

Turnips.

The turnip flea beetle or the turnup fly, as it is commonly called, is a small, blackish beetle with wavy yellow lines down the back. He is responsible for the destruction of the young turnip plants just after they have come through the ground and before they get a good start. The radish and cabbage plants are also attacked. If turnips are sown about June 20th, they will not be up until the adults have disappeared. However, if the plants are up and the beetles are at work spray every third day with Bordeaux mixture, using four pounds arsenate of lead to 40 gallons of solution. For cabbages and cauliflowers it will be necessary to add a sticker.

Who has not seen fields of turnips each plant in which is covered with the grayish-blue aphis? In some years these are very destructive and if allowed to become bad cannot be destroyed. Therefore spray just as soon as the aphids are appearing, with common soap solution, one pound hard soap to eight gallons of water. Destroying the remnants of

the crop in the fall will do away with a great number of eggs. Usually, however, fungous diseases, parasites, and predaceous insects are sufficient to hold this pest in check.

The Cut Worm

a, the cut worm; c, adult moth.

Cut worms are the greatest foe that vegetable growers have to contend with, but they are commonly troublesome to every farmer, usually attacking such crops as turnips, tomatoes and corn. The adult of the worm is a dull brown moth which flies chiefly at night and are generally known as "millers." The worms are brownish in color, are smooth bodied and from 1½ to 2 inches in length when full grown, and they have a habit of curling up when disturbed. A spoonful of the poisoned bran mash placed near each plant at sunset is an effective means of destroying the worms. The mash is made by moistening fifty pounds of bran with one pail of water sweetened with molasses or cheap sugar. To this add one pound of Paris green and mix well to ensure an even distribution of the poison. Do not use too much water but just enough to moisten so that the mash will fall through the fingers like sawdust.

Onion.

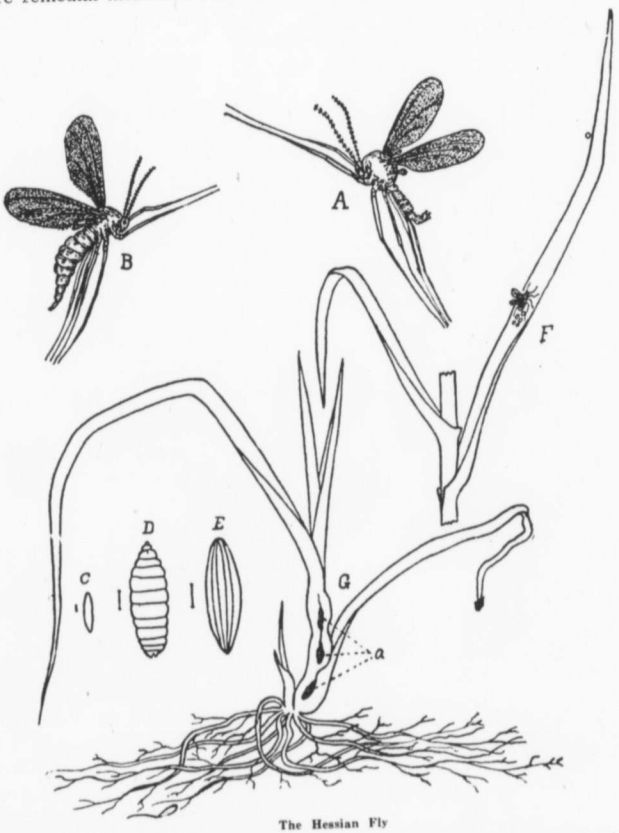
The only serious pest of the onion is the root maggot, an insect closely allied to the root maggot of the cabbage and radish. If the dying plants are picked up many maggots can be destroyed in this way. Cook's carbolic wash is usually a deterrent. This is made by dissolving one pound of hard soap in one gallon of soft water, to which is added one-half pint of crude carbolic. After boiling for a few minutes we have the stock solution, each gallon of which may be diluted to forty gallons for use on the plants. Spray once every five days for five applications, immediately after the onions are up. There are really no satisfactory control means for this pest.

Cucurbids.

The striped cucumber beetle is the worst pest of these plants and is very destructive some seasons to the young plants, the adults being the chief offenders. Either cover the young plants with cheese-cloth or spray with Bordeaux mixture and four pounds of arsenate of lead to 40 gallons applied as soon as beetles are observed attacking the plants. Be careful to keep the plants well covered with the poison. Later in the season, throwing dust or ashes over the plants will frequently drive the beetles away. In the fall of the year, gather the vines together in heaps and as the beetles congregate under these heaps, cover the heaps with straw and on a cold morning burn them.

Pea.

In some districts peas cannot be grown at all because of the prevalence of the pea-weevil but in others, where remedial measures are resorted to, they can be grown safely. The eggs are laid outside of the pod, the larvae on hatching out boring into the peas where they remain all season until about cutting time, when they transform to adults. It is advisable to cut the peas slightly on the green side, thresh as soon as possible and treat the seed with carbon bisulphide. If treated in barrels use one ounce to 100 pounds, scattering the liquid over the grain and immediately covering the barrel with a blanket, while in the bin use 5-8 pounds to 100 bushels of grain. Be absolutely certain that there is no fire in the neighborhood of



The Hessian Fly

A and B, adults; a, pupae in positions usually found; E, pupa, enlarged; D, maggot, enlarged.

the liquid as the substance is very inflammable.

Wheat.

A field badly infested with the hessian fly appears as if poultry had run through it, but if the broken plants are examined they will be found to be usually bent near the ground. This is due to the fact that a maggot has been working in the stalk and has weakened the plant to such a degree that it has bent over and broken. Towards the last week in August and the first in September the adults lay their eggs near the crown of the young wheat plant. The larvae on hatching out feed on the central shoot, causing the plants to become sickly in color before the winter. They pass the winter in the pupal stage and about the end of May the adult fly emerges and the eggs are laid again, but on the upper side of the blades of the plants. The lavae work down between the blades of the stem and suck the juices, the pupal or the flax-seed stage being reached shortly before the grain is ripe. In controlling the pest select the best seed and prepare the seed bed carefully. Sow the seed late, especially in dry seasons, from the 5th of September to the 10th. If the field has been badly attacked plow down or burn over wheat stubble as soon as possible after the crop is off.

Cricket at the College

The cricket season for 1913 opened most auspiciously on the College campus on Saturday, May 17th, in the game played between the City and College. It was without a doubt one of the best opening games of the many that have been played between the College and the town representatives, though not by any means, however, the most evenly contested. On one previous occasion a tie was the ultimate outcome of the struggle, and in others, only the small margin of a few runs on either side was the result. This year's game, however, was all in favor of the city men, their bowling, batting and fielding being far superior to the College team. The score at the conclusion of the game stood 78 to 56 in favor of the City, with two or three City players to yet finish their innings, Carter and Card retiring with well-played scores of 36 and 16 respectively to their credit. A unique and pleasing feature of the game was the presence of Dr. Creelman playing for the College team, the first time in the history of the College, I am told, that its President has taken part in a match game of cricket on the campus. His score of 17 at the bat was a very creditable one, being the highest score made for the College. A very nice catch made by him at point, while fielding, should also be noticed. Downie was the only other batsman on the College team who got into double figures. The bowling for the City team and their smart all-round fielding helped very materially to secure the victory. It was a most enjoyable game, and it was very apparent that exceptionally strong league teams can be selected to represent Guelph-O. A. C. in the Western Ontario Cricket League games this season.

The following are the dates of the games as arranged to date, to be played on the College Campus this season and the opposing team:.

July 12—London Asylum.
May 31—Galt.
July 1—Eaton A. C. C.
July 5—X Stratford.
July 21—X Twin City.
July 26—X Galt.
August 23—X Paris.
Sept. 21—Island Aquatic (Toronto).

These marked X are League games.

Rugby Football---1913 Season

AS September approaches it behooves us to think of the rugby prospects for the fall. Rugby this past year received a great boom at the O. A. College, and, although the premier junior Canadian honors were not obtained, we were so near to this achievement that the coming season should find us out on the gridiron determined to obtain nothing short of the Junior Dominion Championship.

Our prospects are just as bright as last year with regard to players. In fact, we have always had an abundance of material, but our teams have never had any degree of success until the past season. This success was undoubtedly brought about by the earnest endeavors and faithful work of the players, the splendid leadership of the captain and the manner in which the manager and trainer looked after the team. Having seen the results of training and teamwork in the past season, we should endeavor to have the team this fall in the highest physical condition and players working together like so many cogs making up a smoothly-running machine.

It is not too early to commence training now for the fall. Every player when he turns out in September should be as fit as possible. He should come out with the idea that he is trying to help bring honor to his college as well as great physical benefit to himself. If this season we can have the faithful practice and training that we had the past year, with a little more zest we should stand a good chance for success. Although everyone did well, still some weren't doing their best and we want every man to do his best this fall.

Another matter of importance is to have a good second team. In order that the College team may be in the best of shape and have a good offence and defence, they must have as good a team as possible with which to practice. More games will be arranged for the seconds this year in order to keep up their interest to the last. The men playing second team should feel that they are helping the College fourteen while also getting into better shape for the next season. Our third team which we developed last year will also be kept up. This will give us a chance to teach the game to men new to it and thus make more material available for succeeding years.

To all who are interested in the success of the team and are unable to play there is always an opportunity to show this interest by the use of their lungs in concerted action on the sidelines. Put all your loyalty and feeling into each yell. Feel that that team is yours playing for the honor of your College and not a group of individuals playing for their own interest. If this spirit is manifest it will be communicated to the players who will be encouraged in their struggle for victory. Also let the individual who is a star player and thinks he need not train feel that this action of his is discountenanced by the student body. With perfection in all these lines we should be most successful this fall.

Most of us have some idea of how to train, but to give a clearer guide, I will repeat the instructions given by

Captain Webster to last year's players which he obtained from the course of physical training prescribed at Yale University:

Food.

I. Avoid:

1. Indigestible foods: pork, fat meats, boiled cabbage, all food fried in grease, pastry, crackers, hot bread and biscuits, dough puddings, rich cakes, confections, candy, cheese, pickles, vinegar, soda water.

2. Injurious foods, stimulants and narcotics, tobacco and alcoholic drinks, tea and coffee, pepper and other spices, mustard, catsup, Worcester sauces and other condiments.

II. Choose your diet from the following:

Lean beef, mutton, fowl, roasted or boiled vegetables, eggs, boiled, poached or scrambled, whole wheat or graham bread, milk, cocoa, chocolate and water. For dessert eat fresh fruits, canned peaches or pears (no preserves or jams). Eat light breakfast of cereal and fruit. If convenient let the hearty meal come at mid-day. Eat regularly—do not eat between meals.

FOURTH YEAR BASKETBALL TEAM, INTER-YEAR CHAMPIONS, 1912-13.

G. J. Culham, centre; E. F. Palmer, forward; W. H. Tisdale, guard; E. F. Neff, guard; G. G. Bramhill (capt.), forward.

Care of the Body.

1. Sleep eight hours every night, ten if possible.
2. Take cold sponge bath or plunge every morning on arising.
3. Insist on fresh air at all times.
4. Take exercise regularly—each day—until tired, but not exhausted.
5. Avoid exercise in the day preceeding any athletic contest; allow your muscles to become limber and save your energy.

(Ed. note:—This article is contributed by Mr. H. A. Braithwaite, who has been chosen to captain the College football team during the coming season.)

O. A. C. FIRST BASEBALL TEAM, 1912-13.

Rear Row—Burrows, r. f.; Chambers, spare; Hales, p.
Middle Row—King, c.; A. H. McLennan, Mgr.; Forsythe, r. s.; W. H. J. Tisdale, Pres. A. A.; Rowland, l. f.
Front Row—Winslow, p.; Neelands, l. s.; Palmer (capt.), 1b; Duff, 3b; Culverhouse, 2b.

The Amelioration of Our Fruits

F. S. REEVES, HYBRIDIST AT THE HORTICULTURAL EXPERIMENT STATION, VINELAND STATION.

SINCE the publication of the Origin of Species by Darwin, and more recently still since the publication in 1900 of the Abbe Mendel's experiments on heredity in peas, many theories have been advanced to account for the diversity of individuals of plants as grown from seed. The old hypothesis that our fruits revert to the original species or wild types when grown from seed has been proven false by many observations and experiments and notably among others those of Luther Burbank, the great plant breeder of California, who has devoted his whole life to breeding, selecting and above all close observation of the behaviour of plants in heredity. But so far no definite rule or law can be laid down to state what will be the results when two fruits are crossed or to act as a guide in the crossing of fruits in order to gain a desired object in view.

Therefore we are all working in the dark, as it were, with regard to results; but at the same time nature has produced many improvements in our fruits, evidenced by the many chance seedlings that were of decided improvement over anything else known in its place before; for instance, the Northern Spy apple, which originated in this way in New York State, and the Crawford peach, which originated in the same way in New Jersey. There is no reason to believe that plant breeders and biologists cannot by experimentation and observation learn nature's secret and improve upon her ways, or at least take advantage of her ways and accelerate the improvement of our fruits.

It is perfectly patent to all who purchase their fruit from the stores that they can never procure the high quality in the tender fruits as they get when visiting an orchard and can select the fruit off the trees. Perhaps they are not always aware of the true reason. With a large number of our fruits, the varieties of the highest quality are too tender in the skin for long distant shipments, and in order that the business shall be profitable, the fruit grower must grow varieties that will stand shipment better, although the quality may be of a lower standard. Hence it is that the highest quality varieties are frequently grown only for home consumption.

This point is one of the first improvements for the plant breeder in securing varieties of a higher quality that will stand shipment and handling as well as the tough-skinned fruits. In other words, we want a firm strawberry that will stand shipment with the quality equal to that of the Brandywine (this latter strawberry I may say is scarcely ever tasted by others than those who grow it, it being altogether too tender to carry to market), we want a peach with the high quality of the Crawford and the tough skin of the Elberta, and a grape that will thrive in our climate with the quality and toughness of skin of the European grapes, not to mention numerous other improvements in all our domestic fruits.

Many of our choicest fruits are very subject to disease, either fungicidal or bacterial, besides being beset with numerous insect enemies, the combating of which all adds to the cost of production and lowers profit, and in one particular case has made the fruit a very precarious crop, namely: the growing of Bartlett pears, the trees of which are so susceptible to a bacterial disease known as pear blight, that unless great vigilence is exercised in its control, will eventually destroy the trees. This disease in Ontario was the subject of a special investigation by the Fruit Branch of the Department of Agriculture in the summer of 1912. As a result of investigation by American experimenters they have proven that this character in some plants can be eliminated in heredity and there is no reason to believe why the same cannot be accomplished in the amelioration of our fruits by well planned and careful experiments.

All the efforts heretofore on the improvement of our fruits has been carried on at Ottawa by Dr. Saunders, whose work has since been taken over by Mr. W. T. Macoun and his assistants. It has also been taken up by Prof. J. W. Crow at Guelph, and a department of Plant Breeding has been organized at the Horticultural Experiment Station, Vineland, but the latter is only just beginning to get under way.

In this modern age of industry, progress and education the government, by means of legislation and grants, has done considerable to raise the standard of living, and especially to raise the science of agriculture and the importance of this work will appeal to all who enjoy our luscious fruits. This work requires long, patient and personal application and takes many years to carry an experiment through to completion, and even then may have a negative result—in Luther Burbank's experience, he having taken as much as twelve years to complete one experiment.

The practice of horticulture has been well expounded and all progressive fruit growers at the present time have all their methods of cultivation, spraying and growing their fruits developed to such a stage where each man knows exactly what particular method applies best to his conditions, and he realizes now the great need of improved varieties that will meet the demands of the market and at the same time prove profitable to the grower. Formerly all this work was left to chance, but now we are seeing its importance and the attention it demands of scientific men, especially in United States and the Old Country. In the former country they have a special department with three plant introduction gardens for the introduction of plants from foreign countries that will prove of benefit as introduction or for plant breeding on this continent, and through the generosity and courtesy of the officials in charge, we, in Canada, are given the privilege to take advantage of that department free of cost.

In conclusion I might add that if those interested in the improvement of our fruits, should observe any particular character out of the ordinary, they would honor the writer by communicating with him.

ALUMNI

For the past two months we have been examining the careers of some of the men who, while at College, carried off gold or silver medals for general proficiency, in an endeavor to either support or explode the theory that medallists were of no use in practical life. It seems that the theory, as far as the O. A. College is concerned, is exploded, for some of the most successful graduates, both at practical farming and in professional or business life, were brilliant scholars. We give below the names of the remainder of the medallists, with a very brief note, all we have been able to obtain.

Mr. C. R. Brown, of Norwood, Ont., won the medal in 1886. From last reports he was in Gladstone, Manitoba, Principal of the High School there.

Mr. F. J. Sleightholm, Humber, Ont., 1887, was for some time superintendent of the Western Dairy School, and proprietor of a creamery at Strathroy, Ont. When last heard from Mr. Sleightholm was in Toronto, Crown Life Building.

Mr. J. F. Scrugham, tied with Mr. Sleightholm in 1887, was a B. A., Toronto, but we have not succeeded in finding any trace of him.

Elmer Lick, Oshawa, carried off the silver medal in 1887, and has since graduating been engaged in fruit farming at Oshawa. Mr. Lick takes an active part in public affairs, is president of the fruit-growers association, and has been on the staff of the Dominion Horticultural Society.

Mr. Geo. Harcourt, 1888, was in 1905 appointed Deputy Minister of Agriculture for Alberta, and in 1908 was elected to the Senate of Alberta University. Mr. Harcourt is too well known to need further mention.

Mr. G. A. Brodie, medalist of 1889, received mention in a recent Review. He is noted as a breeder and importer of Shropshires, Shorthorns and Clydesdales, at Bethesda, Ont.

T. H. Tinney, 1889, is an extensive breeder of Galloway cattle at Medicine Hat, Alberta, and although we have no recent news from him, we expect that he has profitted materially by the exodus to the Northwest.

R. E. Cowan, 1890, is farming at Galt, Ont., and is Secretary of the Farmer's Institute.

F. A. Wilkins, prize winner in 1891, who afterwards was graduated in engineering at McGill, has been stationed at Yokohama, Japan. He was, or is, in the construction department of the C. P. R.

Mr. R. M. Morgan, silver medallist in 1891, originally of Kerwood, Ont., is District Manager for B. Avery & Sons, manufacturers of farm implements, New Orleans, La.

R. S. Shaw, medallist 1892, graduated 1893, is Director of the Michigan Experimental Station, Lansing, Mich. Mr. Shaw farmed for several years after leaving College, but finally entered professional life.

H. L. Beckett, 1892, is farming

near Hamilton, specializing in dairying with a large city milk trade.

A. M. Soule, 1892, Niagara Falls, is now President of the Agricultural College at Athens, Georgia.

J. J. Ferguson, 1893, from Smith's Falls, is manager of the Stock Food Department, Swift & Co., Chicago.

Jno. Wheatley, 1894, is farming at Seckerton, Ont.

G. A. Robertson, medallist 1894, horticulturist, has been growing fruit and breeding poultry between St. Catherines and Port Dalhousie since leaving school. Mr. Robertson has now seventy acres of choice fruit land on the bank of the Old Canal, and still retains an interest in the College.

W. A. Kennedy, 1894, of Apple Hill, is ranching at Fertile Valley, Saskatchewan.

Dr. J. F. Clark, Bay View, P.E.I., now in Vancouver, B. C., has accumulated a very respectable portion of No. 1 hard, through the development of the lumbering industry in British Columbia. Mr. Clark graduated in '96, received his degree of Ph. D. from Cornell in 1901, and after being for some years on the U. S. Forestry Staff was appointed Provincial Forester for Ontario, later moving to British Columbia.

P. W. Lang, 1896, St. Mary's, Ont., has been farming at Wild Wood, Ontario, since being graduated.

G. O. Higginson, gold medallist 1896, has combined several interests at his home at Hawkesbury, and is prospering.

P. W. Hodgetts, 1896, St. Catherines, has held for some years the position of Provincial Horticulturist for Ontario, and has been connected as well with the Fruit Growers' Association.

Mr. E. Beam, 1897, Mr. A. W. Partridge, 1901, and H. W. Houser, 1902, are farming, respectively, at Netherby, Crown Hill and Campden, Ontario.

R. M. Winslow, Governor-General's medal 1905, Class medal 1908, is at present Provincial Horticulturist, British Columbia.

H. Sirett, Governor-General's medal 1907, Rosseau, Ont., was from last accounts a financial broker in Toronto.

G. LeLacheur, 1908 medallist, did not graduate from this College, but strayed to Macdonald, where he remained after obtaining his degree.

Wade Toole, 1909, after graduating in 1911, joined the staff of the Farmer's Advocate, has since married and lived happily ever after.

Mr. Percy Vansickle, high man in 1910, returned to the paternal estate in 1912, and has apparently not yet had an attack of that restless feeling.

Mr. J. F. Nash, 1912, has not yet returned to complete his course, and is at present assistant manager of the C. P. R. nurseries, Cluny, Alberta.

This completes the list of medal-winners, and although we still believe

that the "plugger" with but a single aim is to be condemned, yet we are convinced that it is no great handicap to be the possessor of a medal won for scholarship.

Mr. "Prixy" Weir, Business Manager of the Review during his final year at College, and winner of the Barton-Hamer medal for securing the greatest number of points on the O. A. College Judging Team at the Chicago International in 1911, who has been for the past year assistant to G. A. Putnam, Superintendant of Farmer's Institutes has resigned. Weir has embarked in journalism in Winnipeg, with the Farm and Ranch Review, and we wish him all success. Billy Brad and Forbidden Fruit

J. H. Sterling, '08, formerly of Simcoe, is now assistant to Prof. Herner at the Poultry Department of Manitoba Agricultural College.

A new appointment to the staff of the Saskatchewan Agricultural College is announced. G. H. Cutler, B. S.A., a 1909 graduate of the O. A. College and subsequently lecturer, then assistant professor in cereal husbandry at Macdonald College, Que., is made Professor in Field Husbandry.

F. C. Paterson.

Carnegie Scholarship in Entomology

Mr. John D. Tothill, B.S.A., a graduate of the Ontario Agricultural College, Guelph, has been awarded the Carnegie Scholarship in Entomology in order to enable him to take a year's post graduate course at Cornell Univerity. The value of the scholarship is $625.00 and includes travelling expenses. These scholarships are somewhat similar in character to the Rhodes scholarships at Oxford, and are intended to enable qualified young men in various parts of the British Empire to spend a year in study at some University in the United States. Mr. Tothill is a field agent of the Division of Entomology at Ottawa, and is at present carrying on investigations under the direction of Dr. Hewitt, in the work of parasites of the Brown-Tailed Moth in N. B., his headquarters being at Fredericton.

Our Graduates, 1913

A GREAT testimony to the value of our graduates and to the training of the students at O. A. College, is manifested each year when practically the entire graduating class is engaged for a variety of professional agricultural positions for days and even weeks before Convocation. In spite of the fact that of late years the graduating class has been increasing in numbers, it is even more difficult than formerly to graduate a sufficient number of men to meet the demand. Ontario is retaining a greater number each year, which testifies to the increased agricultural organization and development. This is especially gratifying and encouraging to the College for it can feel with no small degree of certainty, that its efforts are being appreciated more and more by the people of the Province.

With the graduation of Class '13, forty young men, trained in the science as well as in the most approved practice of agriculture, enlist their services and abilities with the agricultural interests of their Province and country. For most of these men life has reached an interesting and important point where they enter upon their life's work with serious earnestness. Upon them will evolve responsibilities calling for judgment, common-sense and decision; and as one year succeeds another, each individual of Class '13 will become of greater importance and of greater usefulness to the community, and his country. Each graduate possesses at least a degree of ambition to rise in his profession and to prove of as great service as his ability will allow. All other graduating classes have in time contributed men to positions of influence and great responsibility, and, no doubt, such a future awaits members of Class '13; but let us remember that all will not attain to prominence. The greatest satisfaction of life is of duty well and conscientiously performed. By keeping this before him every college graduate will reach the maximum of his usefulness and his life will be a thorough success.

A partial list of appointments from Class '13 follows:

Beckett, R. S., District Representative, Northumberland County.

Boddy, R. R., Chemist with British Columbia Government.

Brown, R. W., Dairy Department, O. A. College.

Culham, G. J., Fruit Branch, Ontario Department of Agriculture.

Davies, E., Bacteriological Department, O. A. College.

Grange, J. B., Canadian Flax Mills, Ltd., Toronto.

Harding, P. S. D., Assistant Representative, Napanee, Ont.

Hextall, L. J., Agricultural Survey Work, Dominion Commission of Conservation.

Johnston, S. C., Fruit Branch, Ontario Department of Agriculture.

Keegan, H. L., Assistant Superintendant, Government Farm Agassiz British Columbia.

King, H. M., Agricultural Representative, Haldimand County.

McElroy, H. M., Agricultural Representative, Rainy River District.

McKee, D., Chemical Department, O. A. College.

Presant, H. E., Assistant Representative, Welland, Ont.

Shaver, F. D., Assistant to Superintendent of Farmers' Institutes, Toronto.

Tennant, J. L., Agricultural Representative, Renfrew County.

Tisdale, W. H. J., Agricultural Representative, Peel County.

Webster, C. A., Assistant Representative, Frontenac County.

Tregillus, C. A., Manager Clay Products Co., Calgary.

Bland, A. G., Entomology Division, Dominion Department of Agriculture.

Of the remainder of the graduates, Messrs. L. B. Henry, Winona; H. Nixon, Harrisburg; H. S. Ryrie, Oakville; H. Sirett, H. Stamforth, Aldersyde, Alta.; and Geo. Wilson have adhered to their resolution to follow

Part of the Graduating Class, 1913.

Bramhill, G. G., Weekly Sun, Toronto, Ont.

Diaz, R., Secretary to Minister of Agriculture, Argentine Republic.

Ferguson, W. M., Extension Work, Maine Agricultural College.

Jenkins, G. J., Laurentian Milk Co., Toronto.

Millen, F. E., Apiarist, State of Michigan.

Palmer, E. F., Assistant to Provincial Horticulturist, Toronto.

practical agriculture, and have returned to their respective homes. Messrs. Wm. Cook and Clive Rogers return to South Africa, while E. G. Hood goes to Iowa for post graduate work in Bacteriology and M. Howitt enters the U. of T. next fall in preparation for the ministry.

The Review, which has received such invaluable support from the Class of 1913, wishes the graduated class the best of success.

Poultry on the Farm

J. E. BERGEY, '14.

UNTIL recently the poultry on the farm had received but little attention. Any old place was good enough for the hens. They were fed with anything that was handy, at such times when some one had leisure. In many cases this only happened two or three times a week. They were kept merely to supply a few eggs for the table, and were not considered as a source of revenue. A few chickens were hatched in May or June to replenish the flock. As they received little or no attention during the summer they became undersized hens by the next winter. There was no systematic weeding out of the old hens, and consequently there remained in the flock some hens that were years past their usefulness. Consequently the farmer finds himself with a flock of hens that have an average yearly egg production of about ninety eggs per hen.

But this system, or lack of system, must pass away if the farmer wishes to realize a revenue from his flock. If increased egg production is desired, considerable care must be taken in the selection of a flock. Good clean quarters must be given them; feeding must be done regularly and carefully, and care must be taken that the birds are kept free from insect pests. But if the farmer is willing to give his poultry even half the attention he gives to his other stock, he will find his time amply repaid.

There is probably no particular breed that is a best breed. It is strain that counts. Generally speaking it does not pay the farmer to raise the fancy breeds, or keep any of the breeds for exhibition purposes. The farmer wants a bird that will lay a large number of eggs. Also a kind, the cockerels of which when put on the market will bring the top price as dressed poultry. To get such a strain they must be bred for egg production and vitality. Very seldom do we find hens bred for exhibition purposes that are heavy layers. Often, too, we find these low in vitality. The only way to get a heavy laying strain is by trap-nesting and then selecting the heavy layers for the breeding pen. The cockerels must also be selected, as they have considerable influence on the laying capacity of their progeny. All this will take considerable time, and is altogether too arduous a task for the farmer to undertake. Therefore, some other method must be adopted to increase the egg production of the hens on the Ontario farms.

Undoubtedly the best method advocated is the one by Prof. W. R. Graham. This system is under the supervision of the district representative of the counties, and as far as it has been tried has proved very satisfactory. The eggs, which are all from a heavy laying strain of Barred Rocks, are distributed by Prof. Graham to the district representative, who in turn distributes them in the different school sections to the scholars. The scholars hatch out these eggs and raise the chickens. In the fall the good pullets are taken and put into some central place, and a breeding station is started. The males for these stations are selected and supplied by Prof. Graham. This is roughly the outline of

the work undertaken to improve egg production in the province. This, of course, will take some time to accomplish, but it seems feasible, and the farmer should grasp the opportunity of improving his flock of poultry.

Almost all hens will lay in the spring of the year. But if hens are to be kept for supplying eggs all the year round she must also lay some eggs during the fall and winter months. A good strain will help to solve the problem to some extent, but it is not the "be-all and end-all" of the business. Most hens lay more eggs as pullets, than in any succeeding year. To get the pullet to lay the largest number of eggs possible it is necessary that she start to lay early in the fall. To do this she must be hatched early and must be fed well and properly cared for during the intervening time. Besides she must be of a quick feathering, quick maturing breed. Expensive houses are not necessary for laying hens. There is found on many farms some outhouse which can readily, and with very little expense, be remodelled to accommodate them. The main things to remember in constructing such a house are: Plenty of light, good ventilation, lack of drafts, and dryness. If these things are kept in mind the other details of construction are immaterial. If a new house must be built we would recommend the "open front" style, as used at the Poultry Department of the O. A. C. This house combines all of the above essentials, and can be erected at a moderate cost. The temperature will, in a house like this, be very low in the winter months. But after several years' experience it has been found that hens will do well in such a house and no serious harm has resulted, even in the coldest weather. In fact, it has been found that hens will lay well with the temperature ranging all the way from zero to 82 degrees Fahrenheit inside the house.

Proper housing, however, is not sufficient for the laying hens. If they are expected to lay well during the fall and winter months they must be looked after regularly and fed liberally. They must also be made to take exercise. This is best done by scattering the grain in the litter, and then turning the litter over. A good ration for laying hens during the winter months is two parts of corn to one part wheat, fed morning and night, supplemented at noon with some kind of green feed, such as alfalfa or mangles. Where possible buttermilk or skim-milk should be given as a drink. Where neither of these are to be had, some other kind of meat food should be fed.

With his poultry products, as in many other lines, the farmer fails to market his goods to advantage, even after he has produced a first-class article. With those situated around the larger towns and cities, there is sufficient demand to consume all the local supply, and good prices are realized. But those not so favorably situated, often have difficulty in disposing of their products, and are forced to sell to the village merchant, taking such prices as the grocer feels inclined to pay, regardless of market prices. In such places a little co-operation would enable the farmers to sell to good advantage by shipping to the markets in the larger cities. In this way the producer would get better prices, and the consumer a better article.

The Students' Council

It's work for the past year.

In following up it's aim—the improvement of the conditions of the student body—the council has succeeded well this year, for, after a session of energetic and perhaps stormy endeavor it has closed the year with a fine record of improvements in and around the college.

Probably the change of most value to the students was the formation of the Book Club, which the council assisted in establishing. This is a co-operative supply society, furnishing books, stationery and pennants, to the students, the dividends being divided at the end of the year among the members according to the business done with the club. It has taken over the supplies from the Cosmopolitan Club, and at present is busy receiving orders and selling to the Short Courses. This society needs the support of every student and to those boys who read this and intend coming to Guelph for the first time next fall, we would offer a word of advice. Patronize your students' supply association no matter what allurements the book store in Guelph holds out, as it may do so—because only in this way can such a society succeed. To the present students we trust that their patriotism for the college associations will keep them enthusiastic supporters of this our first co-operative venture. If the members fail the club will. So "it is up to us."

No longer will the boys need to wait impatiently to telephone to the city when someone else is having a half-hour chat over the wires with 833. No longer will they be troubled with the noise and din of uproarious Sophomores and excited Freshmen, while they vainly endeavor to make out what is being said over the 'phone. The council has arranged for a private telephone to be installed between the Macdonald Hall and the Residence, the expense being borne by the main college associations, but this 'phone will be enclosed in a perfectly sound-proof box.

For some time the boys who have boarded out have been troubled by having to cross a certain section of the walk where there is not cement but always plenty of mud in the Spring. Last winter the council took the matter in hand and succeeded in having a sidewalk laid on this portion. Thirty new lockers were placed in the gymnasium to accommodate the increasing number of boys who wish lockers. The library hours were changed, enabling the students to have a longer period in that building and the reading-room and reference shelves were arranged to be kept open in the evenings.

Previous to this winter the telephone had had no proper attention, and it might ring steadily during study hour without being answered. To assure constant attention it was arranged that the class '16 take the matter in hand. After that the Freshmen took turns watching the 'phone, each man doing his duty as his turn came around, and right well they did it, too.

Last fall when we had our most successful theatre night the students' council conducted the whole affair and carefully guided the boys past the inquisitiveness of the over-anxious Guelph police force. During the June excursions the refreshment booth was managed by them also.

Official Calendar of the Department of Education

FOR THE YEAR 1913

JULY

1. Dominion Day (Tuesday). Arbitrators to settle basis of taxation in Union School Sections if Assessors disagree. (On or before 1st July).

   Last day for establishing new High Schools by County Councils. (On or before 1st July).

3. Summer Schools open.

15. Inspectors' Reports of Fifth Forms due. (On or before 15th July).

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Moreover, the best is of more importance in the case of the Cream Separator than in anything else, since it means a saving of a waste **twice a day every day in the year** for many years.

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