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THE DIGNITY OF A CALLING IS ITS UTILITY.

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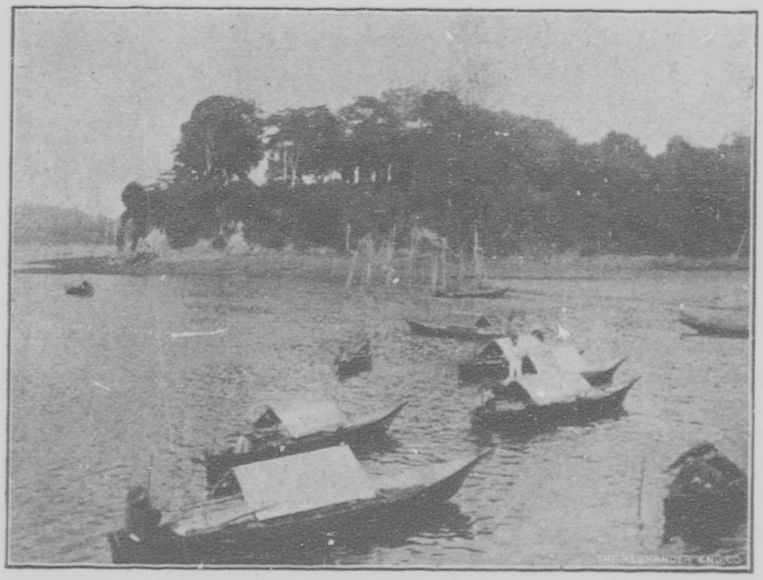
SCENES IN MALAYSIA.

To the European or Westerner coming to Singapore for the first time there are many objects to be seen of a peculiar and most interesting kind. The chief is the splendid natural harbour, protected from almost all the prevailing winds, affording a safe anchorage to ships of any tonnage, and at nearly all times of the year free from the rollers, so disturbing to the unloading of ships in an open roadway. As we sail into port through the narrow western entrance between two forts whose hidden guns frown at us from behind their masks, the artificial portion of the port first comes slowly into view. Having cleared that little mangrove covered heap, called by courtesy an island, off to the right we get a glimpse of the numerous chimnies of the Pulo Brani Smelting Works, the largest of their kind in the world, while dead ahead are the wharves of The Tanjong Pagar Dock Co.

The shipping of the port, as the chief item of commercial interest, is typical of the nationalities which may at all times be seen in this, the Hub of Eastern commerce. So let us examine the occupants of the Piers. First, there is the Peninsular and Oriental

steamer which has just brought out the mail from London by Marseilles, giving us our letters in twenty-four days after a journey of 8,000 miles. Seldom are these steady, princely ships late with their valuable freight, while the French mail opposite to us now, is only discharging our last week's budget of news after several break-downs and stoppages by the way. Here is a Matheson-Jardine boat just down from China with a cargo of kok, that a Dutchman clearing for Batavia, and here a small Britisher for local ports. The next one, from outward appearances, is a "tramp' steamer, with a cargo of coal from Japan, adding a few more tons to the 150,000 tons already stored behind the wharves. All the carrying from the ship is done by Chinese labourers, who may be seen swarming like ants up and down the long gang planks. They are indefatigable workers if



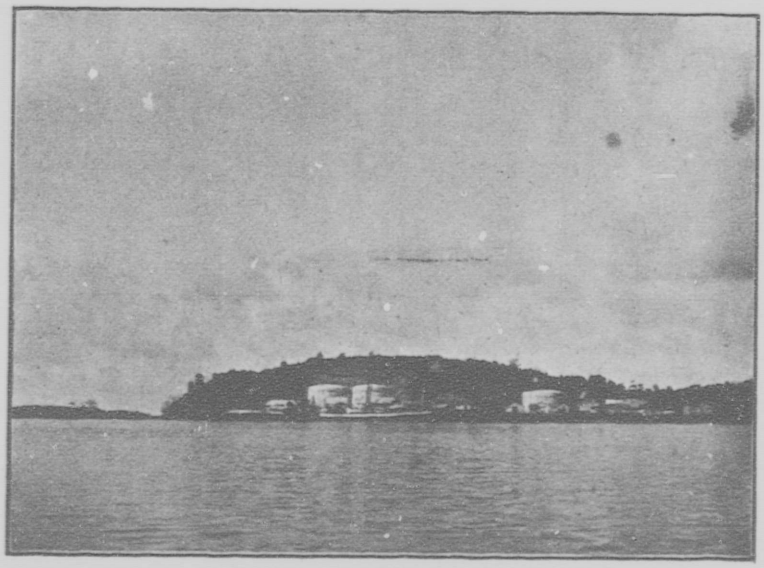
View of Singapore Harbor.

1800 Coolies for the Straits, tea for trans-shipment to Europe, taking in exchange some thousand bags of flour. Next comes a huge British India steamer, the Onipenta, of Glasgow, with a cargo of 8000 tons of rice for Siam, where there has been a flurry on the market, a sudden rise in the price of that staple, due to crop failures there. Now there are a few local steamers. This, a Frenchman waiting for his late mails bound for Bang-tried. When H. M. S. Terrible was coaling alongside a few months ago, these men carried coal in baskets to the ship's bunkers at the rate of 400 tons per hour—no small feat to boast of in such a climate as this. The next two steamers are Holt's Blue funnel ships, one going westward with 2000 pilgrims bound for Mecca, the other to China and Japan with a general cargo. There is a canny Ben Liner from Leith, an Austrian Lloyd for

Trieste, an Italian for Genova, and a Russian Volunteer fleet steamer for Vladivostock. The agents for the last steamer are Messrs. Stcherbatchoff Tchokoff & Co. In the graving dock is a Yankee skipper's barque undergoing repairs for her next trip to 'Frisco,' and lastly a host of smaller ships, tugs, and steam launches, tied up at the repairing quarters of the dock, the total length of which is one and a quarter miles.

where many of the large warehouses are situated. Outside of these are a few warships, British, German and Russian, and, John Bull like, though the port is his own, and his interests paramount, his craft is almost as a toy beside these enormous vessels of the mailed first nations.

But all our attention is now required for the host of small craft by which we are surrounded, few of which are more than 500 tons capa-



Oil Tanks near Singapore Island.

Steaming into the roads, and directly opposite the business part of the town, an almost indescribable scene presents itself. To the right, anchored in deep water, are a number of large vessels of varied types, some discharging their freight into tongkangs or barges of 50 tons capacity, and others loading up from similar craft, the wharfage of the port being insufficient to accommodate them, or, as being more convenient to the river city, the majority of less than 100 tons. Each one has numerous sampans, kotahs, and twakows, holding from one to five tons and manned by yelling Chinese or other natives. Long sampans hurrying to and from the shore with their living freight, huge water boats at anchor requiring careful navigation on the part of our helmsman, splendid Government launches, or smaller sturdy ones belonging to some of the commercial

firms, hurry about as their orders require. And away to the right an uninterrupted stream of craft propelled by a single oarsman at the stern, or by a number with long poles on either side, and punted towards the mouth of the River, up which they are taken, their contents put into stores to be redistributed at some future time.

The stage at Singapore for the landing of passengers, though small, is an excellent one, and, being centrally located, affords a good starting point to the visitor who may wish to spend the day about town. Directly opposite the pier is the most handsome building the city can boast of, The Hongkong Shanghai Bank, contrasted with which the offices of the principle business firms on the left appear dingy indeed. But, nevertheless, in these same dusty looking places, the shipping and commercial houses, which are so connected, have built up the solid trade which is so prominent a feature of the Hub.

But while we look at these offices, a motley crowd are gazing at us. A single constable in khaki, with his native subordinate, keeps his eye on the new arrival. The wily Chinese 'Ricksha' puller spots us for his own, thinking in his own hideous dialect—

Bungalow and Cocoanut Trees.

grinning and gesticulation free,—that there are big profits in store. A Kling or Malay gharry (cab) driver salaams and offers his vehicle for use, but the pony is wicked looking, or may be a wreck of his former self, so we leave it and take a humble 'Ricksha,' which, going more slowly, affords time to note what is going on about us.

The European stores or shops are few, but have an extensive custom.

Surrounding a small square, wherein grow tropical trees, giving a freshness to the otherwise dusty spots, may be seen at one glance all the houses which supply western goods to the whole community of whites, who, out of a population of almost 200,000 persons, number only about 2000. But such is the influence of custom that the better educated Chinese who speak English patronise very freely these stores for all purposes. These buildings are interesting in a small way, but are as nothing to the people we now see emerging from the various offices. The day's work is done. A number of clubs claim their members for an hour or two after labour is over, and there they go. First, the Managing Director of one of the large firms is driven off in his landau drawn by a pair of spanking horses. Here the manager of another 'kongsee' going home in a different direction. Next a number of young men of good ability driving off in their dog-carts, while the majority of juniors are wheeled away in the cosmopolitan Rik. So much for the Europeans, but the Chinese, a very wealthy and influential class, are numerous, and deserve some attention. Towkays (a wealthy Chinaman) loll back in splendidly upholstered Victoria's, drawn by the finest high-stepping animals in the city, whose silver mountings create a feeling of envy in the junior class, and whose three attendants, look (in the eyes of the native) gorgeous in liveries of red, yellow, and green. Younger Babas, straits-born Chinese, drive fancy colored traps, for the native liking for hideous colors will show itself, sometimes making an otherwise pretty scene like some gymnkhana. The remainder of individuals choose either a gharry or Rickshaw, the effort of walking home being too great.

Continuing our ride, we come across a body of volunteers, Artillerymen and Rifles, some of the latter being Eurasian, and some Chinese, their pig-tails carefully stowed beneath their wide hats, most of them having newly learned the goose step, their corps only having been formed a few months. The esplanade, a large level lawn of about 20 acres in extent is the chief scene of action at this moment. Lawn tennis and cricket practice occupy one part, a football ground the next, and the Eurasians the third. But it is at the football the native can be seen to enjoy most. There is excitement—without him having to exert himself for it—and he loves that. Malays in bright Baju and Sarong, a jacket and a kind of kilt, with long striped trousers, generally of some hideous combination such as bright red and green, no stockings, but shoes of sorts. Chinese with pig-tails (though why they should be called that is a conundrum, since there is not the vestige of a curl in them), and very loose baggy trousers, shoes on their feet composed of two parts, the sole of wood and from one to four inches thick, the uppers a strap across the toes. Klings, whose only garment is a long white robe, the edges of which have been dipped in some cheap dye and the whole wrung together, the result being marvellous. Their hair and body, covered with rancid evil-smelling cocoanut oil, add to the reputation they have gained of being the dirtiest race in the east. Chetties, with shaven heads, a white spot on the forehead between

the eyes, streaks of chalk across their brow, bare to the waist, a single white cloth constituting their only dress, part of which is often thrown over their shoulder, and carrying an umbrella, most probably to protect that book under their arm, and which contains data of moneys lent at exorbitant interest, the bulk of which goes to their homes in India without any consideration to some duties that might be expected of them toward the country wherin they amass such wealth, while the Chinese, who are really the backbone of the settlement are, generally speaking, liberal and thoroughly patriotic, giving substantial support to any project of a municipal or national sort such as the Victoria Memorial, in memory of our late Sovereign.

Here and there amongst the crowd are stalwart Sikh police, whose very presence awes the native element. Soldiers from the various corps in the forts, Blue Jackets from the aforementioned ships in harbour, and a number of civilians of several European nationalties complete such a scene as could hardly be seen in any other city in the world.

Such is the brighter side of everyday life as seen in Singapore. But back in the slums, where natives of only the lowest classes live, one wonders how they manage to exist in the reeking vile dens where many must pass years of their lives, with hardly a hope to better their lot. But if the energy of the white man is directed to anything, it is to supply a good sanitary board where wants may be made known and the life of the humble, but indespensable, coolie made better, for were it not for the Chinee labourers who come and go in such vast numbers, the wealth of many eastern towns would vanish.

To some of the natural products of the east, as seen in Singapore, a glance will show their range. Cocoanuts, from which we obtain oils and fibres, coffee, rubber, pepper, spices, and tin, all of which are shipped from the Malay Peninsula via Singapore to all parts of the world, and valued at many millions of dollars, tell of a country remarkably fertile in soil, but as yet, very little cultivated. Some large estates there are, but these are few and far between. The timber of the country is now receiving the attention that it sadly needs, for here, as in various other countries the cry is, "What is becoming of our forests." Agriculture is in a primitive state, and were a number of live, energetic men to be posted to various centres in the Peninsula, either with experimental plots or on estates, the valuable products could be increased and items of interest and value become known, to benefit those who labour in the dark.

Did space permit, a few more sketches of scenes about Singapore and Malaya could be given without in any way adding to or detracting from the qualities found in the native as seen daily. Compared with poor classes at home, his lot is an easy one. The climate is gloriously warm, needing little expenditure for clothes, and the food eaten, chiefly rice, fish and vegetables, so cheap that for the sum of 10 cents daily a native can be comfortably well off and enjoy life better than those at home with ten times the sum.

BUSINESS METHODS ON THE FARM.

That farmers, as well as those who are engaged in trade, should adopt some systematic way of keeping account of their business transactions from day to day, there is no question. The farmer should also keep records which will enable him to calculate what the returns and profits are from the different crops sown and the different kinds of live stock kept. The tiller of the soil has a greater problem in determining these facts than the men in general business has in arriving at the profits upon the different classes of goods dealt in.

Estimates, valuations and markets are greater factors in the case of the farmer than with the tradesman, the latter selling what he deals in at a given percentage of increase over cost, while the former very seldom knows what the selling price will be until he is ready to market his goods, the price received not being determined by the cost of production so much as by the supply and demand. Again, when the farmer is called upon to make valuations or estimates of what he has on hand, he has a greater task than the tradesman. For these and other reasons the farmers' profits are very uncertain, and he should always have records from which he can determine the selling price which will give him a reasonable profit. As soon as the markets will not give him a working margin he should turn his attention to those branches which will give him a substantial return. He must not, however, be guided by every fluctuation in the market. It might be advisable to follow the line upon which he is established at a loss for a time rather than to make a change to another branch at an expense or sacrifice greater than the loss suffered by continuing along established lines. It is always expensive to change from one branch to another, and, generally speaking, such changes should be brought about gradually.

It is not the intention in this short article to give full directions as to what accounts should be kept, in order that a full statement could be given at any time of the results of the operations in any one department of the farm work, but only to suggest the keeping of certain accounts which will enable the farmer to determine just what he is making in all departments combined, and also approximately what each department has given him in profits. It is doubtful whether the keeping of a set of farm books upon the usual double entry plan is advisable or not. A great many farmers who have undertaken the task of keeping such records and opened accounts with each kind of stock and each field, have found the task too great a drain upon their time at the busy season of the year, and as a consequence have discarded all records. The wise plan for the beginner is to keep a few general accounts, which can be enlarged upon as experience is gained. In commencing the records an inventory of all food stuffs, live stock, implements, etc., should be taken; then the following accounts should be started: Cash, Live Stock, Grain, Farm Implements, Permanent Improvements, Household Expenses and Sundries. The cash

account should have columns on both the debit and credit sides for each of these accounts. Then, by taking an inventory at any season of the year, one can easily calculate what the profits of the total business have been during the year to date. After one has successfully kept these records he is in a position to enter more into details and keep such records as will enable him to tell exactly what the profits are in each department. Very simple forms of time books, crop, feeding, and other record sheets can be procured; and they are all very useful in keeping exact records.

The beginner is warned not to undertake a system which will be found to be too elaborate and will probably discourage him from keeping any records at all; whereas, if he starts with a few essential accounts, he will find the task an easy one, and the results quite satisfactory.

It was intended to state, among other things, something in reference to the capital necessary to successfully carry on a business of a given volume, and the necessity of arranging for obligations to fall due at a season which will be most convenient for payment to be made, but space and time will not allow.

EX-STUDENT.

A HOME FOR MILLIONS.

For Canada's great West a new era has dawned. Across a thousand miles of fertile prairie land the sun of prosperty may be seen brightly beaming above the agricultural horizon, and already the strong rays of progress are being felt. Not a cloud is to be seen upon the sky, and a brilliant future is held to view. The days of the sturdy pioneer are over. No longer is heard the war-whoop of the Redman. Where the buffalo roamed supreme, busy reapers go their round. A country has been born, and its growth is well begun. A steady stream of immigration is doing its work. Thousands have come, and upward a thousand chimneys rise. Forever the once desolate scene is broken; broken by the happy homes that here and there have risen to dot the plain. Monuments of industry, faith and hope they stand. By their industry did the early settlers first make known the possibilities of a great Canadian West; through faith in the land of their adoption were they carried through the trying days of pioneer life, and by hope do they to this day remain buoyant with expectation, and happy in the thought that "A maider empire's growing a mother empire's bread."

Bright as are the present prospects for the rolling plain, its greatness has only begun. Suddenly the world has realized that the richest agricultural fields in the world only awaited the arm of the plowman to bring forth bountifully. An output of 60,000,000 bushels of wheat in 1902 is but a mite in the granary that must hold the product of a few years hence. It is not a time for idle speculation. Western Canada is now building upon certainties. The pulse of a

young country throbs as onward, ever onward, it goes. Enterprise is in the air, but confidence pervades each heart.

The flood of immigration for 1902 so exceeded all previous years as to be considered phenomenal. Great as this influx of settlers was in point of numbers and far-reaching in its benefits to the country, the probabilities at present are that it will be thrice eclipsed during this year. From the sunny south they are coming—Texas, Oklahoma and Kansas sending large contingents. Farther north, into Indiana, Illinois and Iowa, thousands have disposed of their holdings, and will join the anxious throng. In the north-western States the movement is little less remarkable. These newcomers from the domains of Uncle Sam are coming with considerable capital. They are largely farmers who know how to farm, and when settled on our fertile prairie soil their future is assured.

In Eastern Canada the cry is "Westward I'll go, a happy home to make." Their relatives are here, and have become indeed wealthy; so they must come. Across the Atlantic and in the British Isles, Canada has been heard of and is known. Her sons joined hands for freedom on the far-away veldt. Wars being over, to the wheat fields of the Empire they must go, and join the peaceful fortunes of the greatest colony of the Crown. Hence it is that Atlantic liners have been overtaxed, and a comfortable passage is at a premium. On the continent, too, that air of liberty which floats wherever the Union Jack is unfurled has been heard of as being the very breath of Canada. Sons of lands under iron taskmasters come here for equal rights. They are leaving their native land. In traditions to them it may be dear, but the hope of a home where peace and plenty dwell is dear. So they too are coming in thronging thousands, and the end is not yet.

Some have said that a century would elapse before our agricultural lands would all be peopled; but idle is the mind that now would speculate. True, we yet have fertile acres by the million, but fast they are being overtaken. What shall the story be, when Westward for ten more years the tide of progress has rolled on? Who can tell? Shall the world not be heard to say that in Canada—the land of opportunity, where civil and religious liberty is the birthright of every citizen, where education is free, and where good laws, sure justice, and equal rights forever are assured—millions have received a welcome and the heritage of a prosperous and happy home?

W. J. BLACK, B.S.A.

Agricultural Department.

EDITED BY A. P. KETCHEN.

Building the New Barn.

(Concluded.)

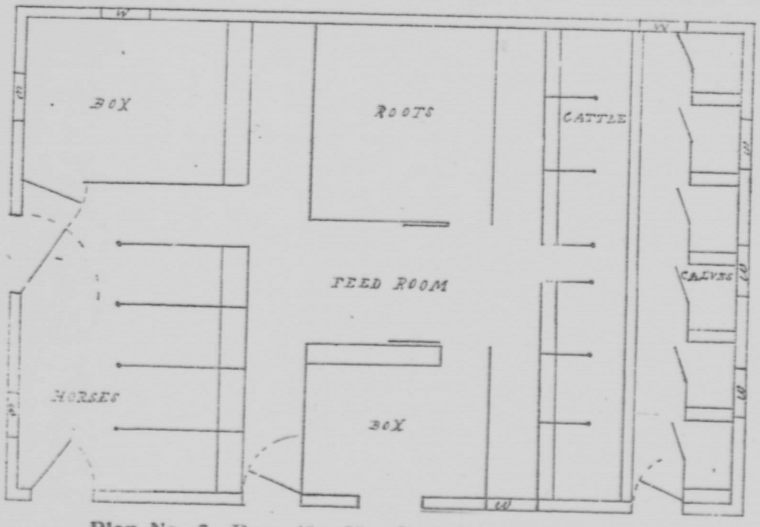
VENTILATION.

The requirements of a good system of ventilation are:—

1. A constant change of air in the stable.

2. The introduction and distribution of fresh air without draughts.

There is a marked similarity in many respects between a stable and a furnace. The necessity for draft in a furnace is caused by the combustion of carbon, in which process oxygen is used up, and carbon dioxide and other gases given off. Heat is evolved; and consequently, the products of combustion are warmer than the elements entering into it. These heated gases



Plan No. 3—Barn 40 x 60, adapted to a small farm.

3. The removal of foul air without condensation and consequent dripping.

4. Economy in cost of installation.

Many systems have been devised, nearly all of them fulfilling some of these requirements, but comparatively few fulfilling all of them. Some of these devices are very simple, but only partially effective. Others are quite effective, but too cumbersome and expensive for use in farm buildings.

rise by convection until they are cooled to that temperature at which their specific gravity is the same as that of the surrounding air, when they tend to diffuse.

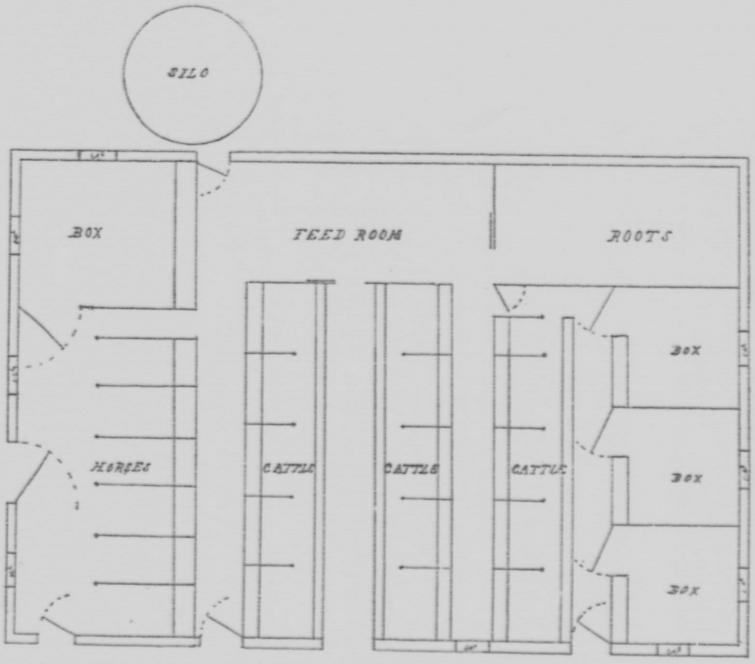
Similarly, in a stable, the necessity for fresh air arises from the continuous combustion of carbon in the animal body, using up oxygen and giving off carbon-dioxide and other deleterous gases. As in the furnace, so in the animal body, heat is evolved,

and the gases exhaled are warmer than those inhaled. They tend, therefore, to rise by convection until partially cooled, when they begin to diffuse through the stable atmosphere.

The problem, it seems to me, is the same in the both cases: the prompt removal of the products of combustion, and the continuous renewal of the supply of oxygen. I contend, therefore, that the solution of the problem, in both cases, lies in the application of the same physical principles.

Now, to secure draught in a furnace, it is essential that the fresh air be admitted below the grate, and the gaseous products of combustion removed from above. If these conditions are reversed, the draught ceases, and the fires smothers, unless mechanical means of forcing a current are resorted to.

The system of ventilation that I am about to describe seems to be based on accurate, scientific principles; it has given excellent results, is practical; and it is comparatively inexpensive.



Plan No. 4—Barn 50 x 75, adapted to dairy farm of 100 acres.

One of the box-stalls in the cattle stable may be fitted up as a separator-room.

To provide for the fresh air conduct (a) (See Fig. 3), the floor of the feeding alley is elevated twelve inches above the level of the stalls. The conduit may consist of a ten inch tile, or a wooden box about twelve inches square. This will admit enough fresh air for fifteen cattle; if more are to be supplied, a conduit placed on each side of the feeding alley will be sufficient. The main conduit is tapped

opposite each pair of cattle by the distributing pipe (b). These lead into the mangers, as shown, and are placed close against the parting blocks, their open ends being protected against plugging with dirt by a leather flap, or some other device. The foul air is carried off by means of ventilating shafts, leading from the ceiling of the stable out through the roof. Most farmers now run the purline post straight from the floor to the purline. Beside these posts is a very convenient place for the ventilating flues; they are out of the way,

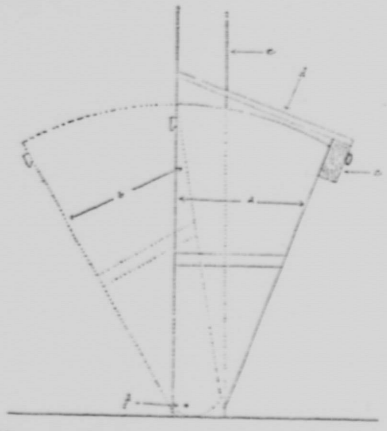


Fig. 4—Swinging manger for horses.

(a) Manger in position.
(b) Manger swung out into alley to receive the food.
(c) Stationary scantling to which the horses are tied.
(d) Bars placed 12 inches apart to prevent horses from throwing out the hay.
(e) Post.
(f) Bolt on which the manger is hinged.

and they are not so readily chilled as when placed against the side of the barn. Excessive chilling of these foul air outlets not only reduces the convection current, but condenses moisture, causing them to drip.

It will be seen by this method, the fresh air is admitted, as in the furnace, below the heating area; it is distributed evenly and without drafts; it is liberated at the heads of the cattle, giving them a chance to use it before it has been diluted by the poisonous gases of the stable; as it is heated by inhalation and by the heat radiated from the bodies of the animals, convection currents are set up towards the ceiling, and out through the foul air shafts. The system is automatic in its action; the more stock in the stable, the stronger the convection current, and the more fresh air introduced.

PUTTING IN THE STABLING.

To lay out a stable in such a way as to effect the greatest economy of space and convenience for feeding is an art for which no hard and fast rules can be laid down. One must "cut his coat according to the cloth," so to speak. There are, however, a few general principles which we should be careful to observe, in so far as the conditions will admit.

The feed room and root cellar should be centrally located, for convenience in feeding, and also in filling the root cellar, which is most easily accomplished when the latter is directly under the barn floor.

The horse stable should be so located as to admit of two entrances: one opening into the barnyard, for cleaning out the manure, the other so placed that the horses may be taken in and out without going through the barnyard.

Apartments for loose cattle should be long and narrow rather than square, to admit of plenty of manger room. They should be located so that a team may be driven through for cleaning out.

The alleys behind the stock should be of good width: not less than eight feet behind the horses, and not less than five feet behind the cattle. It is better, if necessary, to narrow up the feeding alley, than to have a very narrow alley behind the stock. The floor of the alley behind the stock should be two inches lower than the stalls. The animals look much better if standing a little higher.

The mangers for tied cattle should be put in on the floor level, as shown in Fig. 3. If elevated eight or ten inches, as was formerly the custom, the cattle, when lying, are forced back into the gutter; but when put in on the level, they lie with their heads over the mangers, and not only greater comfort but also greater cleanliness is secured. The mangers for loose cattle should be raised at least twelve inches, especially if the manure is to be allowed to accumulate.

The bottoms of all mangers, except for horses, should be of cement concrete trowelled to a smooth finish. It is cleaner and lasts longer than wood, which rots out surprisingly fast in a manger. The whole manger may be made of cement if desired; but I prefer that shown in Fig. 3; of which the bottom and back are of concrete. The face plank may be moved backwards or forewards if necessary to adapt the length of the stall to the animal tied. If it is necessary to tie cattle of various ages in one row, the gutter may be put in on an angle as shown in Plan 2. This looks better, and is more convenient for cleaning, than to make part of the stalls of one length and the rest of another, with a sharp turn in the gutter.

The best horse-manger I have seen is illustrated in Fig. 4. When pulley out into the alley, the food may be put in and any necessary mixing done without molestation from the horse; or if, for any reason, it is necessary for the man to be absent for a part of the day, the mangers may be left swung into the alley with the necessary food in them, and at feeding time, any child can push them through to the horses.

No stable is complete without some provision for watering the cattle inside. Many more or less ingenious and complicated devices have been patented; but I believe that there is nothing better than a continuous wooden trough, lined with galvanized iron. It is more easily kept clean and is less liable to get broken, choked up, or otherwise out of order. This may be made to serve a double purpose by placing in the position of the scantling (d) shown in Fig. 3.

All inside partitions and stalls should be kept as low as possible, to prevent all unnecessary obstruction to the light and view. A man standing almost any place in the stable should be able to see every animal in it. The stalls between milking animals should be no longer than is necessary to prevent the molestation of one animal by the other, in order that they may be out of the way of the attendants while milking. Stall-posts should be grooved to receive the planks. This, although slightly more trouble, is very much to be preferred to cleating.

An excellent device for feeding loose cattle consists of a row of old-fashioned, stationary stanchions, the

movable bars of which are connected, by a rod, with a lever at one end of the building. When the cattle are fed, each animal thrusts his head through an open stanchion to reach the manger; all the stanchions are then closed at once by means of the lever. In this way, the cattle are prevented from crowding one another away from the mangers until through eating, when they may be quickly and easily released. This I believe to be the ideal method of handling all classes of cattle except milking cows.

It is well to provide one or two box-stalls for breeding animals, and for colts. At least one in connection with the horse stable should be not less than fifteen feet square; a small stall is a very dangerous place to keep a mare and foal.

For calves, the most convenient device is a row of boxes behind the cows, as shown in Fig. 1. These should have little mangers, so arranged that the calves cannot upset, and spill the milk when placed in them.

I would make no provision for housing sheep, hogs or poultry in the main barn. It is too warm and also too expensive for sheep; hogs create an undesirable odor; and poultry are apt to infest the stock with vermin. Of the three, I prefer to accommodate the hogs; for, with good ventilation, the odor may be largely overcome.

I append a number of plans for stabling, adapted to various conditions.

These plans are not submitted as models of perfection, from which we may not deviate; they are added to illustrate some of the principles that I have attempted to outline in this essay, with the hope that they will be helpful to the prospective builder as suggestive outlines, which he may modify to suit his own peculiar conditions and tastes.

It will be noticed that in no case does the width of the barn exceed fifty feet. A wider barn could often be laid out more conveniently below, but is too wide for convenience in storing hay and grain above. When stuff is hoisted with the hay-fork or slings, it is as far as a man can pitch nicely to throw it to each end without handling it twice. Again, at threshing time, a very wide barn is inconvenient for getting stuff to the machine, and also for getting straw away from it. I find that nearly all of those that have built barns wider than fifty feet regret it.

It will also be noticed that I have made no provision for an "overshot." The basement should be the full size of the barn above. I regard an overshot as a wasteful device for building the stable outdoors. It entails a waste of valuable space, it darkens the stall very considerably, it is apt to be draughty, and, as an off-set to all this, it has few, if any, redeeming features.

Live Stock Department.

EDITED BY PROF. M. CUMMING.

An August Day at Windsor.

The view from Windsor commands one of the fairest landscapes of all England. Broad, rolling fields of green, the glimmering Thames wending its way through flowery mea-

M. Cumming, B. A., B. S. A.,
Associate Professor of Agriculture.

dows, and skirted on either side by spreading elms, stately oak and hazel copse, the Great Park and Forest, among whose trees pheasants, deer, and Highland bullock live their little day, are all mingled in one vision from the castle windows. History, song, and story, have added their spell of romance, and, as one drives or strolls about the grounds, there lives again in memory sovereigns who, long years ago, dwelt in yonder castle, and, "fair women and brave men," who have traversed the glorious long walk with its rows of noble trees, or followed the hounds through wood and glade in the great park. From London to Windsor is in reality little more than 20 miles, and yet the train that bore us there in but a brief hour changed our environment from hazy, bristling, noisy, walled-in streets, to quiet, peaceful fields of green, where, beneath the shade of spreading oaks, we watched the clouds drift lazily through the blue and felt within that spirit which makes us all lovers of nature.

As we boarded the train at Paddington station we found many visitors, like ourselves, intent on spending a day at the home of English Royalty, but of all that number, there were but two who, loving the gentle art of agriculture, found our way to the vine-clad cottage of Wm. Tait, the manager of the Royal farms and herds. Perhaps we can scarcely be blamed for a slight feeling of pride when we say that we alone, the devotees of agriculture, were met and driven to our destination, whilst our fellow travellers wended their way on foot.

Some men are seen to best advantage away from home, where the companionship of kindred spirits arouses all that is brilliant within them, and makes them shine as nowhere else. Wm. Tait does not belong to that class. When first we met him at the Royal Show we im-

agined him somewhat distant, reserved, and uncommunicative, but, in his own home, and amidst the fields and herds, which have so flourished under his management, we found him the very essence of hospitality and geniality—in fact all that one expects of a host. At the Royal he was in charge of the stock from Windsor, and we observed that, despite his already successful career in the show yard, he could not conceal a look of satisfaction as one after another of his favorites were decked with their ribbons of red and blue. At the Highland we saw him in the capacity of judge, and few there were who would gainsay his judgment. But it was at Windsor itself where we really felt the genial flow of his personality, and, now that we look back to a summer day at the Royal farms, there remain no more pleasant memories than those of Wm. Tait himself.

There were many things which caused us to look forward to Windsor. Naturally one likes to know how Royalty manages its farms, and whether, perchance, the grass grows greener, or the cattle flourishs better, under Kingly patronage. Once there, however, amidst the well-cultivated fields, and walking through pastures, in which broad backed, thickly-fleshed cows were lazily grazing, we forgot all our preconceived ideas. No ostentatious display, or extravagant equipment was evident. In fact, there was little but the castle in the distance to distinguish the royal farms from many another English holding that we visited in the course of our trip. The stabling is of plain, long, low buildings of brick construction, roofed with tile, and the crops the same, though, perhaps, a little more luxuriant, as those by which the thrifty Aberdeenshire farmers pay their rent and gain their livelihood.

We had often read and heard of the prizes won by stock from Windsor at the various live stock shows, and it was with no little anticipation that we went a-field with Mr. Tait to see those matrons whose progeny were giving such account of themselves at the Royal, Birmingham, and Smithfield. Only a few weeks previously, we ourselves had seen the highest honors of the Royal Agricultural Show bestowed upon Royal Duke, a Shorthorn bull, that was bred and fed at Windsor, and whose name is known throughout cattledom as having, for the third year in succession, captured this coveted honor. The herds are not considered large ones in England. Some seventy-five Shorthorn cows and heifers, possibly fifty Herefords, about thirty Devons, forty odd Jerseys, and some grand grade Shorthorns of the dual purpose kind, together with a retinue of bulls and calves, constitute the whole number. For their size, the herds have certainly given a splendid account of themselves in the show ring against the keenest competition of the world. Not a few of us remember that phenomenal heifer Cicely, a half sister of Royal Duke, whose show yard career, on both sides of the ocean, has been almost as sensational as that of her famous stable mate. But a catalogue of the honors that have fallen especially to the Shorthorns, Herefords, and Devons, would fill too many pages, and, leaving this aside, we venture to say a little upon a mistaken

idea which we confess to have shared with not a few others on this side of the Atlantic.

It seems almost natural to suppose that undue deference would be paid by judges to stock exhibited by His Majesty the King. But such is not the case. We have seen many a splendid animal from Windsor returning to its stable without even a white ribbon to decorate its halter. At the very same show at which Royal Duke was awarded premier honors, a bull from Windsor, in the two-year-old class, of very similar breeding, did not even get a recognition, and this, despite the fact that no more popular decisions are given than those which rate the stock from the Royal farms among the first. No judgment is infallible, and we have heard as much criticism of the verdicts at the Royal or the Highland as at any ringside in Canada or the United States, and yet, never once did we hear it mooted that judges, of the class that officiate at these shows, could be prejudiced by the prestige of the Royal herds.

Nowhere have the cattle from Windsor been rated so highly as at the great fat stock shows at Birmingham and Smithfield, and it is doubtful if any herd of the same size has produced more winners. On the occasion of our visit we saw some very excellent Shorthorn, Hereford, and Devon cattle in training for these winter shows, all of which have, since then, given a high account of themselves. Mr. Tait informed us that, such is the Royal patronage of these fat stock shows, he often sacrifices his very best pure-breds in order to win, if possible, a high place among the beef producers. One of the finest specimens we saw was a white Shorthorn heifer that, we think, afterwards stood at the top of her class. When at Balmoral, a few weeks previously, we enquired about the breeding of an Aberdeen Angus heifer, which had just won championship honors at the "Highland," and found that she, along with one or two other of the best "doddies" in that herd traced to a Smithfield champion, and thereby hangs a tale, which goes to show that men may harshly judge even the unreasonableness of women. This champion was supposed to be a non-breeder, and the manager of the Balmoral farm was quite elated that he could realize as much from her as he certainly would when she was put up at auction. The late Queen, however, attracted by the smooth, glossy appearance of this, the judges' favourite, gave orders that the heifer must not be killed, but must be returned to Balmoral. Not without a little feeling of resentment, her orders were carried out, and, as if to justify Her Majesty's judgment, the heifer afterwards proved a breeder of some of the very best stock at Balmoral.

There are two farms belonging to the Royal estates at Windsor—the Shaw farm, where Mr. Tait's cottage is, and where the Shorthorns and Jerseys make their home, and the Flemish farm, some two miles or so away, where the Herefords and Devons are to be found. In all, the extent—if our memory serves us right—is about 800 acres.

We had not time to find out much about the breeding of the cattle

on the Flemish farm, but we have a most vivid recollection of a charming picture as we drove among the white faced herd, some grazing on the green, some resting beneath the shade of spreading trees, and some indifferently gazing at the intruding visitors. Lusty calves, not yet accustomed to inspection, circled away amid the grass, but soon returned, each to its mother's side, and there secure remained while we passed by.

The Shorthorn herd at the Shaw farm has been in existence for at least fifty years. Booth, Bates and other old English strains, such as the Knightley, formed the foundation. But it was not until some 12 years ago that, by the use of Field Marshall (47870), rented from Mr. Duthie, Scotch blood was interfused and the herd became prominent. The success of the venture encouraged Mr. Tait to dip more deeply into Aberdeenshire blood, and he has been loyal to it ever since. Any one who has heard of the career of Royal Duke and Cicely would, of course, be eager to see Prince Victor (73320), the sire of both. He was purchased by Mr. Tait from J. Deane Willis, and is a son of Count Victor (66877), out of an Uppermill Princess Royal cow. Both of these illustrious descendants were begot by him when he was but thirteen months of age. In color he is a red with white markings, and as seen by us last summer, is a wonderfully impressive looking sire with a strong masculine head and neck, broad chest and deep middle. He is not kept in high flesh and appears a little prominent at the hips, but in substance, in impressiveness, and in actual results, he is every inch a sire. Royal Duke (75509), his most illustrious son, is out of a cow called Rosewater, belonging to a family of Ruth's, got from Mr. W. Trethway, and is a fine illustration of a good "nick" of a Scotch bull upon a mixed English foundation. And, by the by, one might mention a great many other famous cattle in England of somewhat similar breeding, which go to show that a Shorthorn need not be "straight Scotch" in order to be a good one. Mr. Duthie is using in his herd a bull, Rosicrucion (75483), of very similar breeding to Royal Duke. But one cannot linger long even among such aristocratic cattle as the Windsor ones.

When at the Flemish farm we were very much struck with the massive appearance, and yet fine quality, of some drafters which we found were of mixed Shire and Clydesdale breeding. Though a Scotchman, Mr. Tait has never been carried away by the demand for quality at the expense of size, which, it must be confessed, is characteristic of not a few of the best Clydesdales north of the Tweed. On the other hand, he quite concedes the popular criticism of not a few Shires as to their lack of quality of limb, and his practice is to try to unite the fine pasterns and hocks of the Scotch horses with the more massive bodies of the English ones, believing thus to produce the ideal heavy draught farm horse. He certainly has some horses at Windsor which prove that theory and practice, so far as he is concerned, are not far alienated.

Pleasant days pass quickly by and soon we are off again to London.

The lapse of months has not dimmed our memory, but the pen seems dull and the paper cold as we try to transcribe the impressions we carried away. It was an inspiration to see such a practical demonstration of farming and stock breeding as is given there at the home of England's King, and never have we realized more deeply the loftiness of our calling. Sometimes it seems strange that all the world should look to little Britain as the leader in live stock breeding, and yet when we see that, from the throne itself, there emanates such an influence, raising that art to its high position in the realm, we can scarcely wonder. May the day soon come, when, not only in Britain, but the world over, those who hold the destinies of countries in their hand will come to recognize the dignity and power of one of the noblest of human avocations—the development of soil and crop and the modelling and nurturing of God's creatures.

M. C——g.

Horticultural Department.

EDITED BY A. B. CUTTING.

The Ocean Carriage of Fruit.

"We have, in the apple, an extremely delicate article, one that will not stand shipping or handling like other merchandise. Potatoes, which we have been shipping largely from this valley, can be dumped into a schooner's hold, and, after a four or five weeks' passage, open up in good condition. Hay requires only the most ordinary storage to be shipped to any part of the world. Consequently the merchandise formerly shipped from this province has not been beneficial in building up transportation facilities equal to our present requirements, and to-day we are confronted with a serious problem, the solution of which must be along an entirely different line from anything we have dealt with heretofore. In the growing of apples we do not take second place with any country, but the moment we consider our method of marketing them, we find we are away back in the dark ages.

"Let us look at the state of affairs in other fruit raising districts. Ontario ships through Montreal, during the open season, large quantities of cheese and butter, which have been keeping pace with their fruit raising. As those articles require even better storage than our fruit, that part of Canada is able to-day to properly forward all their apples and pears, as well as their other products. Then, take the United States, where there has been such an influx of immigration and so much commercial travelling to and from Europe that for them has been built up so many fast lines from all its ports that now a six or seven days' journey in their Atlantic greyhound is no longer an uncertainty, and our fruit growing competitors from there have no trouble to secure one of the very best means of transportation, excessive speed.

"Australia is a country that should not even be on a parity with us, when we consider its geographical position,

but we find, through the immense quantities of frozen meats that have been continually shipped from there, that the fruit growers have not only the choice of more means of exporting, but have three distinct separate routes to England. One by Cape of Good Hope, another by Cape Horn, and the third through the Suez Canal; all of which carry a perfect system of cold storage, enabling the shippers to place their fruit on the same markets we are catering to, in a far superior condition to what we have ever been able to approach. The variation of prices received has been less in pence to them than it has been in dollars with us, more particularly this past season. After considering all of this, is there any excuse for us to continually drift along without trying to improve our present conditions?

"We appear to be very energetic about setting out a large acreage of orchard, some of our prominent farmers planting a thousand trees and more at a time, cultivating and fertilizing the already bearing orchard, barreling up the fruit and hauling it three to five miles through the mud in the fall, then loading it on the cars at the station and not giving one moment's reflection to the damaging effects which these perishable articles are subjected to as they pass through the many different temperatures while in the cars to Halifax and the steamers to England. We wait patiently about six weeks for the returns, and then find as much fault with steamers that carry them over as we do with our government for subsizing such boats, especially if we happen to be on the opposite side of

A cover crop of rubbish and weeds in an orchard that has furnished for many years an excellent breeding place for insects.

politics, and blame the steamship companies, solely, for all the damage done, when perhaps, as in the case of the lost Evangeline and Loyalist, they were running at a loss last summer, simply because we had not enough traffic to keep them sufficiently employed, even when we allowed them to stow apples and deals one on top of the other.

This latter occurence, above all others, we should particularly guard against, for when these steamers are loading deals (during winter months) there will be men employed to cut the ice from off them to prevent broken stowage, and that left on, which is generally equal to what is taken off, melts as soon as the ship gets into warmer water or atmosphere, forcing the steam up through the apples. Now, rather than to have this occur again, we had far better let the steamer sail with short cargo allowing the apples to pay dead freight on the remaining space, rather than sacrifice what we do send forward and lower the standard of our Nova Scotia apples in the English market. What serious results this must eventually bring upon us has been very plainly and pointedly shown in a letter sent from London to one of our large apple growers, who had established such a name for his brand that the broker who handled them on the other side had been selling them on the guarantee of the owner's name, and on one shipment alone by the Ulunda he had had undone by that steamer what it has taken him years to accomplish. No doubt there are many other similar instances which we never heard of, but we suffer just the same, either directly or indirectly, and this damage will become greater as competition becomes keener, when the supply follows close to the demand.

"Out of these difficulties there are but two ways, one being a fast line, so that when our apple steamers strike the warm waters they will pass through quickly, allowing the apples to retain part of the cooler temperature they were packed under if it is winter time. This fast service cannot be anything else but the most expensive, and the fruit grower who ships a barrel of apples, a box of pears, or a basket of plums must expect to pay a much higher rate of freight than today. From Montreal is where we see the necessity of this higher rate exemplified. There the charges on cheese for 1901 have run from 20s to 22s 6d per ton, whereas the rates from Boston have only been 10s 6d, less than half, simply because this latter has sufficient traffic to warrant a fast line. In our case the fruit must bear the burden until the general traffic is sufficient to demand a fast service, but it is very doubtful if Canada will in the near future see the so long talked of faster line a reality, for the government would stagger under a subsidy such as would be required to run boats as proposed, going, probably, as high as a million dollars per year.

"The other method, and the one most feasible for our circumstances, is cold storage. In this we can have the storage compartments for our fruit, by artificial means, kept at any temperature, to suit the kind of fruit. Those carriers who claim that the fruit deterioriates more quickly after being held in cold storage, should consider our apples while stored in the

warehouses all winter where the temperature is kept as near freezing point as possible, then shipped, and, after two days out from Halifax, ushered into a surrounding sea temperature of 55 to 60 degrees even in the late winter months, and still, after spending ten days or more at sea and exposed to a similar temperature on arriving in England, often selling for sufficient to net the shipper $5 or $6 per barrel, showing that the reputed good keeping qualities of the apples in such a low temperature is not a mistaken idea. Those who think cold storage is not what we want should store their Gravensteins this fall in a warm place and it won't be very long before they will wish they were in "THE WARM PLACE!"

"In every instance where our fruit steamers on the way to England have met with any mishap, causing delay, our apples have paid the penalty. This was the case with the Evangeline last summer, when through an accident to her machinery she was compelled to call at Newfoundland. The delay cost the owners of the fruit on board in the neighborhood of $22,000. Again, the Wyandotte, while she, to begin with, was not fit for carrying perishable cargo across the Atlantic, nevertheless the enormous loss to the owners of the fruit she carried was increased by the longer exposure our apples was subjected to, the sea temperature working out its most destructive effects, while the boat was trying to paddle her way into London with a broken propeller.

"Also, again, we have a similar case coming from the United States, where one of the fast Cunard boats, the Etruria, bound from New York to Liverpool, last winter, broke her tail end shaft, causing her to be towed in by another steamer, where the delay resulted in her landing on the Liverpool market those beautiful California Newton Pippins, of which the English people speak so highly, in such a condition that they did not realize enough to pay the freight across the Atlantic, to say nothing of the expense of boxing them up and transhipping them across the continent. In cold storage we have our fruit so protected that if a steamer was to have a break down she might drift about the ocean for twelve months and still deliver her fruit in the pink of condition. The proof of this we have in the excellent manner our apples were kept for a whole year in cold storage for the last Paris exposition.—*Capt. C. O. Allen, of Kentville, N. S., in Maritime Farmer.*

The O. A. C. Review.

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MAY, 1903.

Editorial.

As Eddie is very busy at the present time, and his —torials are not much in demand at this time of the year, we shall not bother our readers with many comments.

* * *

We would recommend our readers to pay particular attention to the article by J. McK. Russell on "Malaysia." This is a very vivid and interesting description, and gives us a good picture of life in the far East. We are also indebted to Mr. W. J. Black, Manager of the Winnipeg *Farmer's Advocate*, for a short article on the growing West, and to an ex-student, who is well known to most of us, for another on "Farm Book-keeping."

* * *

We were much pleased and greatly honored to have Lord Minto and his party visit the College during their short stay in Guelph. The greater part of the time at their disposal in this city was spent in looking over the College buildings and the Farm, and, before leaving, Lord Minto thanked Dr. and Mrs. Mills for their kind attention, and expressed himself as well pleased and satisfied with his visit. We wonder what Guelph would do to amuse their visitors if it were not for the College, where any one may come and spend an enjoyable half-day. During the Convention of the Presbyterian W. F. M. S., which was lately held in Guelph, and which was largely attended by delegates from all over the Province, the College was daily visited by many of these delegates. More than one of these expressed themselves as surprised, first, at the absence of any buildings or places of interest in the city, and, secondly, at the greater beauty of the College buildings and campus than they had expected to see.

Another thought that came to us during Lord Minto's stay in Guelph, was the extreme conservatism or absence of any display of effusiveness on the part of the people. But for the presence of the militia as a body-guard, and the notice in the daily

papers, one would not have known that Vice-Royalty was among us. For a young nation we have quickly caught the northern spirit of sobriety and restraint, and can look with amusement on the boastings of our Southern neighbors on their reputed demoeracy.

* * *

We should like if our readers could be with us now to see their old Alma Mater decked in her spring colors. It would be hard to find a more beautiful spot. The blending of color is delightfully fine and soft, especially the different shades of green in the opening leaves, and probably now more than at any other time, the artistic arrangement of shrub and tree, clump and row, can be seen to greatest advantage. We cannot attempt to picture these colors, and we doubt if an experienced artist could do them justice. We only wish that all could be on the campus at this time of the year in a joyful re-union. What with the help of nature at its best and eager recollections of past years—what could not be done! and how all could be inspired with new energy and enthusiasm! Think it over and do not wait until we are lost to this world—its beauties and the earnestness of its work.

* * *

We feel it our duty to apoligize for the late appearance of our last issue and the somewhat irregular appearance of all our issues. Anyone who has been connected with the work in past years will understand the difficulties to be met. Although we try to run this periodical in as business-like a way as possible, still we consider we should have some license from strict business, because the work is done by a few, and our time freely given without practically any material recompense. So, should any one at any time have felt annoyed at the irregularity of our appearance, we would ask for a little toleration on their part.

* * *

We have much pleasure in being able to present to our readers in this issue a number of portraits of different professors of the College. We should like to have included everybody—all our officers connected with this institution—but our finances would not permit. We are also publishing the result of the final examinations, which we hope will be of special interest to those concerned.

* * *

Read the advertisements in this issue. They are of special importance. If you wish to buy anything that these firms advertise send your order to them and you will get the best. At any rate send for their catalogue, which will be gladly forwarded free of any charge. We say again; look over our advertisements, every word should be good reading.

* * *

To whom it may concern:—Know ye now that the scribes of '03 hereby claim the right to lay down their quills and to henceforth rest in peace. For many long months and bitter we have striven to picture to our worldly brethren the tales of woe and hunger in this little world of ours. We all, in the name of our Local Editor, wish to thank the student body especially, for the few cases of assault and battery that have been made on our august bodies. Their gentlemanly intuition has undoubtedly restrained them from any acts of personal violence and restricted them to only comprehensive and emphatic epithets. Our succeeding comrades of the type have our sincere sympathy. Let them enter the arena with a bold front.

"Lay on, Macduff;
And damned be he that first cries,
'Hold, enough!'"

Personals.

R. Craig, B. S. A.

Mr. Craig entered the O.A.C. as a student in '95, and at once took a high standing in his class. He graduated in '98 with his reputation as a student further enhanced. For a couple of years he assisted Prof. Reynolds in the Department of Physics. In '01 he left for Cornell, where he enrolled himself as a student in the forestry course. At present he is spending a while at practical work in the Adirondacks, and will shortly graduate, taking the degree of F. E.

R. H. Williams, '98, is managing a farm at Pike's Station, New Hampshire.

G. A. McIntyre, B. S. A., '97, is agent for the Sharples Co. Tubular Separator.

F. M. Logan, '05, is now inspector of creameries in Nova Scotia.

Mr. R. J. Deachman, '05, is working for the Farmers' Advocate in the far west.

M. Ross, B.S.A., '95, is assistant manager of the Biltmore Farms, Vanderbilt estate, North Carolina.

Mr. A. S. Pipes, '03, left here on the 18th to take charge of a large farm in Indiana, devoted largely to experimental work in agronomy and stock breeding.

J. A. McFeeters, late instructor in the O. A. C. Dairy department, and now district inspector of creameries, was married on the 22nd of April to Miss Laura Linton, of Guelph. The REVIEW extends the customary felicitations.

We are pleased to announce that Dr. W. O. Stewart, our medical adviser, is regaining his health and shaking off the illness to which he has recently been subjected. We hear, before going to press, that he is out of the hospital at last.

Mr. J. H. Ross, '99, who took a special course in Agriculture at this college, and won second prize in the oratorical contest that year, is now here with the Macdonald Institute teachers, taking the nature study course.

College Reporter.

On his tour through Ontario, Lord Minto reached Guelph on the 11th of this month. People were out en masse to welcome the distinguished visitor,

H. H. Dean, B.S.A.,
Professor of Dairy Husbandry.

and flags were flown and colors and bunting were displayed to such an extent that every place upon which a person might set his eyes seemed robed in holiday attire and to sound forth the one word welcome. At 10.30 a.m. the special train arrived at the station, and was there met by the mayor of the city and other officers of the reception committee, among whom was Dr. Mills, representing the O. A. C, and by the guard of honor, made up largely of College boys. After presentations were over, inspection of the troops was made, and then, entering carriages, the party, formed in procession, was escorted to the City Hall. Here an address of welcome was read by His Worship Mayor Hamilton, after which luncheon was served. Succeeding this a short drive was taken through the principal parts of the city, and then up to the college. Here, perhaps, the most enjoyable part of the stay was made. A thorough inspection was made of several of the departments, including the Experimental, Massey Hall and Library, Horticultural, Dairy and residence. Altogether the Governor-General was well pleased with what he saw here.

From this the visitors returned to the city and thence to the depot, where, amid hearty cheers of farewell, they departed for the west. Those with the Governor-General were Lady Minto, his daughter, Lady Eileen Elliot, Major Maude, Aide-de-camp, and wife.

The Macdonald buildings of the Domestic Science School are being pushed

W. P. Gamble, B. S. A.,
Associate Professor of Chemistry.

forward rapidly. Immense amounts of material are now on the ground, and a large force is working diligently on the construction. The foundation

of the school is about finished and ready for the brick work, while that of the residence is being made ready for commencement. These will be imposing structures when finished, and will be magnificent monuments to the beneficence of Sir William Macdonald.

F. C. Harrison, B. S. A., D. P. H.,
Professor of Bacteriology.

With the present third year began one of the most interesting and valuable courses which is afforded by the institution. This is the two months devoted to Nature Study, commencing on April 20th and lasting until the 20th of June. Most people do not appreciate nature. They go through this world and do not see one small fraction of her beauties. To them everything that happens to *force* itself under their observation is nature and nothing else, merely a freak. It gains a passing glance and that is the "end all here." If a Vesper sparrow flits across their track, it is a gray bird; if a white-throated sparrow is seen perched on a twig, it is a grey bird. Still, if the least attention is paid to these two birds there is as much difference to be found between them as there is between a horse and a cow. If an apple tree in the orchard is seen to be dying, or if it fails to produce the expected amount of fruit, only a casual glance is forthcoming, or only a passing remark is elicited, whereas, if but the least bit of attention be paid, the bark will be found literally hidden with oyster shell bark lice, sapping the life out of the tree; or, within the buds, working slowly and silently but surely and deadly, will be found the bud moth, growing fat and healthy in a regular elysium of surrounding and prospective fruit. What a dull world this is. And yet, if one may be allowed to say it, what a lot of careless and helplessly ignorant people, made so by themselves, it contains. That this world is dull can be explained in no other way. Let us arouse ourselves and overcome this listlessness. If we see a sick plant growing in the field, struggling hard for existence, let us get down and whisper in its ear and ask it what it

R. Harcourt, B. S. A.,
Professor of Chemistry.

wants, what we can do for it. In no other way can life be lived or life be enjoyed. There is always a great fascination in unfolding a secret, and nature is so full of secrets that a per-

H. L. Hutt, B. S. A.,
Professor of Horticulture.

son can spend his whole life unravelling them and then at the end not have even begun. Thus, if such is fascination, life is full of it. If one once gets a taste of it he will never let up, and this is just what this nature study course is doing for the members of the third year, giving them a taste of it, for no more can be done in two shorts months. On the 12th Prof. Lloyd, of Teachers' College, Columbia University, N. Y., gave two excellent lectures to the class, and we are much indebted to him. The work is in charge of Prof. Lochhead, of the biological department, assisted by Messrs. Henderson, Page and Jarvis. There is also a meterological side under charge of Prof. Reynolds of the physics department.

The teachers who are being prepared to take charge of the consolidated schools which are to be established in several places in Canada are now attending the college here. They are taking the nature study course, and are also being drilled in the making and care of school gardens. These gentlemen had been, before coming here, at Chicago and Cornell Universities, studying along similar lines of work. One of the schools is to be established here.

Prof. Dean is having established at the dairy department an artificial cold storage plant on the carbon dionide system. An ammonia system is already in operation at the residence. These two systems, being in use here so close together, will give an excellent

W. Lochhead, B. A., M. S.,
Professor of Biology and Geology.

chance for comparison in convenience, efficiency, etc. No doubt results along these lines will be worked out.

Athletics.

Summer games are now in full swing here. Footballs, baseballs and lacrosse sticks are often seen on the campus, but our principal games are cricket and lawn tennis. Our cricket team

J. B. Reynolds, B. A.,
Professor of Physics and Lectures in English.

has already played four matches, of which they lost one and won three. Their first game was with the Guelph Cricket Club, which the college team lost because many of their best men were absent. The second and third games were also played with the city teams, but this twice the tables were turned, and our boys won by a substantial margin. In the first of these two games the score was 105 to 40 in favor of the college, with only six wickets down. In the second game the total score was 70 to 14, also in our favor. The Guelph batsmen made a remarkably low score, which was due to the effective bowling of N. Rudolf. On the 14th instant the team played Galt on the Galt grounds and succeeded in defeating that good team by a total score of 79 to 69. Galt batted first on a fast wicket, and compiled a total of 69 runs, largely due to the brilliant cricket of Mr. Milligan, their captain. Mr. Birks also helped very materially in the batting. The O. A. C. bowling, which was entrusted to Messrs. Rudolf, Howitt (R), Harrison and Logsdail was good. The O. A. C. began batting at 3 p. m. and scored 79 runs, winning the match by 10 runs. The highest scores were made by Prof. Harrison and Messrs. MacLachlan, R. Howitt and Stayner, who showed good form. The hitting of Mr. R. Howitt was the feature of the game. The scores were as given below:

GALT.

McKenzie b Rudolf	4
Milligan, b Harrison	36
Wheadon, b R. Howitt	1

J. Hugo Reed, V. S.
Professor of Veterinary Science.

Jaffray, J. P., b Rudolf	1
Main, b Logsdail	3
McKinnon, c Rivett, b Howitt	0
Birks, c and b Harrison	13

Hunt, b Harrison	3
Whittaker, b Logsdail	0
Dromgold, b Logsdail	0
Bourne, not out	0
Extras	8
	69

H. R. Rowsome,

Lecturer in Apiculture.

O. A. C.

Stayner, run out	9
Pearcy, b McKenzie	3
Prof. Harrison, b. Milligan	15
MacLachlan, b Milligan	12
R. Howitt, run out	20
Logsdail, b Jaffray	1
Baker, b Milligan	8
Rivett, b Milligan	0
Rudolf, c McKenzie, b Jaffray	8
Wheelwright, not out	0
Sneyd, b Milligan	0
Extras	3
	79

The Cricket Club have many important games already booked for this season, among which are: Hamilton S. O. E., on May 25th, Toronto-Rosedale, Upper Canada College, Ridley College, and a return match with Galt. If the boys continue in their good form we predict a winning season for them.

Locals.

(Relato refero):—

Quoth Jasper: "Where did you say these plots were, Mr. Tubby?"

Tubby—(! ! !)

Who is that lengthy beggar with a big nose that owes One Lung Chung a dime with a hole in it?

The game of the season—tennis-billiards, originated by Taylor, the chemist, who will, for a slight consideration, explain how an ordinary tennis court may be provided with the regulation pockets by the simple process of using high-heel shoes.

Miss A. Rowsome, B. A.,

Assistant in Library and Instructor in French and German.

Senior, as he reads the first question on the final agronomy paper—1. Given a farm of 250 acres, discuss, etc., etc., (d) the building you would erect, cost, etc.—"Now, how in thun-

C. A. Zavitz, B. S. A.,
Director of Field Experiments.

der can I tell what the cost of a house would be, I don't know yet how big a house I would need."

Questions on Agronomy for 1905 :

1—How many students at 10 cents per hour each, would you need at various seasons of the year, on a 250 acre farm, (a) if farm is near Guelph; (b) if it is not. Explain fully.

2—Describe the relation of the irrigation question to the manure spreader introduced by 'Dokey' Stewart, and show how the two combined affects the sale of shorthorn cattle. Illustrate frequently by quotations from Marr, Duthie and Dean Willis.

Books on Nature Study :—

"Midnight Walks with Nature" (?), by A. J. Hand.

"The Speed and the Animals Found Therein," being a detailed account of explorations made in a canoe, by the author, W. Hamilton.

"Weather in British Columbia," or what our western province has to undergo on account of its storms being manufactured in the vicinity of the Cannibal Islands, instead of being properly arranged for by the weather bureau at Washington, by Jones.

The Bird Hunters moved slowly and silently (?) through the woods. Mills, of journalistic fame, led the van, punctuating his tracks carefully as he went. "What has caused this, Mr. Page?" he asked, as his observant eye caught sight of an unusual wound in the bark of a tree.

P—g—"Oh, er— that is the work of the yellow-bellied sap-sucker. Now, there is a new bird; we will call it No. 47. Ah, it has flown away; you should describe it very carefully."

Prof. Day,
Agriculturist.

The party still moved on through the forest primeval, but the careful observer remained behind to investigate the punctured bark. What he

found: The head of a large spike which had been driven into the tree as a target, and a circle of bullet holes in varying proximity to it. Intelligent sap-sucker!

The Specials on the Experimental Department will hold their first annual literary meeting in Massey Hall, May 29, 10 p. m. The following programme will be rendered.

Inaugural address .....
..... Pres. E. C. Hart-disease
Dialogue.....M. R. Baker
Song—"Belzebub's Retreat,".....
..... Male Triplet
Debate—"Resolved that we are It."
Affiirmative,.....Us, U. S.
Negative,.....Everybody else.
Pantomine .....C. R. Klinck
Treatise—"Geordie Bard,".....
.....R. MacMillan
Chorus.....Mr. Hart
Cricket's remarks.....Mr. Whiteside

"When shall we all meet again,
In thunder, lightning or rain."

The new arrival, Arnold Hyphen Forster, as he meets a Senior in the hall—"Hi sigh, hold chappie, can hi get a groom to carry up my baggage."

Senior—"Get a freshman to carry up one end of it for you."

Later on, after the obliging freshman has done so—"Hi sigh, my lad, hif hi left my boots outside the door to-night, would they blacken them for me?"

Freshman—"It shall be done."

Later on, with the aid of Prof. D——'s stove blacking and two kindred spirits, more evil than himself, the freshman perpetrated such a polish on the unoffending boots that the steely glitter thereof was enough to make the angels weep, and was darkness visible, if anything ever was.

Later on, after the Cockney had paid the required fee of 10 cents, he sallied forth to church, and the brilliancy of his understandings was like an eighteen horsepower lighthouse, dazzling all beholders.

The Vice-Regal party was "doing" the "lions" at the O. A. C. The Massey Hall and Library came next in their line of march, and thither they directed their steps. In the library, "Alphonso," he of the certificate course, was reading a magazine in the innermost recesses of the stock room, dressed in an old shirt and other characteristic neglige attire. Entirely oblivious of his costume, he sat there in peace, until the sight of the tall, commanding form of His Excellency's aide-de-camp recalled it to his mind with crushing force. Hastily deciding not to wait to be presented, a frantic game of hide-and-seek ensued. Upstairs and down the hunted man raced, but at last, on the top flat, he was cornered. There was but one thing to do, and he did it. Jumping through the window, he wound his prehensile toes around the water pipe, and, breathing a short prayer to the effect that he hoped their well known strength would do the trick, he let-er-went. Zie!!! From where he struck the embryo lawn to where he struck his room he broke all previous records for speed, arriving in time to don his dress suit and wave the sweater of emerald hue over the departing carriages in a farewell benediction.

NATURE STUDY.

After Tennyson—60 years after.

When the dreary term was over, and the dread exams were passed (?),
When the Sophomores and Freshmen left the O. A. C. at last.

They, the faculty, decided that the Juniors should remain,
Study nature in the springtime, resting (?) both the eye and brain

Whistle back the songster's call, and learn the language of the brooks,
Not with blinded eyesight, poring o'er miserable books.

Far too long o'er books they'd pondered, nourishing their youth sublime,
With the fairy tales of science and the long result of time.

In the Spring a fuller crimson comes upon the robin's breast;
In the Spring the wanton lapwing gets himself another crest.

In the Spring the lively tadpole makes appearance in the pond,
And the flowers and trees and insects to the warming sun respond.

In the Spring the gay mosquito doth present his little bill;
(So do other beasts, but of these it were better to keep still.)

These, the books they were to study, from while yet 'twas early morn,
Till the golden sun had set, or else been hidden by a storm,

Bursting all the links of habit, there to wander far away,
On from forest unto frog pond, every week and every day;

Till the mysteries of nature triumphs over time and space,
By acquaintance and observance shrink to commonest commonplace.

Not in vain the course was started; forward. forward still we range
Bringing daily to the journal observations wild and strange.

Climbing trees to study birds' nests, on investigation bent,
Finding out when branches break that there is something in descent.

Knowledge comes, but wisdom lingers, this is truth the poet sings,
That a sorrow's crown of sorrow is remembering happier things.

Through the term each gay Romeo thrice a week down town had strayed,
Putting "Alf" and "Cousin Amy" quite completely in the shade.

Now each night the weary Junior draws his trees and birds and flowers,
Sees the maiden fair on Sunday, only during preaching hours.

Howsoever these things be, come there wind or rain or snow,
Still the course goes slowly onward; one more month and then we go.

In a more funereal strain—

Little Willie had a mirror,
And he licked the back all off,
Thinking, in his childish error,
It would cure his whooping-cough,
At the funeral Willie's mother
Gaily said to Mrs. Brown,
"'Twas a chilly day for Willie
When the mercury went down."

EPITAPH.

Under this stone there lieth
The body of Ephraim White.
"Cheer up," the parson told him dying,
"Your future's very bright."
Slowly the sick man raised his head,
His weeping friends amazing,
"Parson," he said, "It's most too bright,
For I can see it blazing."

Ontario Agricultural College.

The examinations on the work of Fourth Year at the Ontario Agricultural College are conducted by the University of Toronto, and the results will appear in the University class-lists in June. The results of the examinations of First, Second, and Third Year students on the work of the past session are as follows:

FIRST YEAR.

(In order of General Proficiency).

1. Bracken, J., Seeley's Bay, Grenville, Ont.; 2. Hart, F. C., Wallace Bay, N.S.; 3. White, G.G. Perth, Lanark, Ont.; 4. Colwell, H. H., Toronto, Ont.; 5. Stayner, H.S., Toronto, Ont.: 6. Ballantyne, R., Sebringville, Perth, Ont.; 7. McMillan, H. R., Aurora, York, Ont.; 8. Dickson, J. R., Seaforth, Huron, Ont.; 9. Hamilton, C., Dundela, Dundas, Ont.; 10. Tucker, H. S., Chapman, Hastings, Ont.; 11. Merkley, G. H., Chesterville, Dundas, Ont.; 12. Nixon, C. C., St. George, Brant, Ont.; 13. Munroe, J. F., South End, Welland, Ont.; 14. Hawtin, A., Newmarket, York, Ont.; 15. Smith, H. B., Wanstead, Lambton, Ont.; 16. McKenney, A., Corinth, Elgin, Ont.; 17. Ramsay, R. L., Toronto, Ont., 18. Fife, K. E.. Shelburne, Dufferin, Ont.; 19. Logsdail, A. J., Nagphur, India (*4); 20. Northcott, S. A., Solina, Durham, Ont.; 21. Farmer, P. P., Arnprior, Renfrew, Ont.; 22. Scott, H. W., Lancaster, Glengarry, Ont.; 23. Bailey, C. F., Coldbrook, N. S.; 24. Ketchen, A. F., St. George, Brant, Ont.; 25. Marshall, C. A., Westbrook, Frontenac, Ont.; 26. Lund, T. H., Chorley, England (*12); 27. Jones, D. H., Bedford Park, York, Ont.; 28. Middleton, M. S., Vernon, B.C.; 29. Murray Wilson, J. G., Monte Video, Uruguay; 30. Robertson, A., Brantford, Brant, Ont.; 31. Somerset, H. R., Crickhowel, Wales, England (*2 and 4); 32. Halliday, C. Pakenham, Lanark, Ont.; 33. Taylor, H. E., Colchester, Essex, Ont.; 34. Duncan, R. S., Huntsville, Muskoka, Ont., (*13); 35. Bean, W., Haysville, Waterloo, Ont.; 36. Weylie, D. B., Glanford Station, Wentworth, Ont.; 37. Weir, D., Montreal, Que.; 38. Elderkin, J., Amherst, N. S.; 39. Atkin, J. P., Aldershot. Wentworth, Ont. (*4); 40. Evans, W. G. E., Ottawa, Ont.; 41. Irving, A. J., Vernon Bridge, P. E. I.; 42. Johnston, D. N., Navan, Russell, Ont.; 43. Leavens, H., Chisholm, P. Edward, Ont. (*14); 44. Woolverton, N. D., Grimsby, Lincoln, Ont.; 45. Birley, R. B., Paris, Brant, Ont.; 46. Nancekivell, J. H., Ingersoll, Oxford, Ont.; 47. Brown, L. A., Port Antonia, Jamaica (*13); 48. Sumner, A. L., Montreal, Que., and Williams, R. P., Corbetton, Dufferin, Ont.; 50. McVannel, A. P., St. Mary's, Perth, Ont.; (*7 and 13); 51. McKenzie, J., Queen Hill, Bruce, Ont.; (*1); 52. Metcalf, H. M., Grimsby, Lincoln, Ont. (*4); 53. Gamble, T., Mosgrove, Carleton, Ont. (*8 and 14); 54. Baker, M. R., Swarthmore, Pa., U. S. A. (*14); 55. Manchester, P., Apohaqui, N. B, (*10 and 12); 56. Macdonald, C. M., Halifax, N. S. (*7 and 13); 57. del Carril, A., Buenos Aires, Argentine Republic (*4 and 13); 58. Hutcheson, J. C., Montreal, Que. (*9 and 10); 59. Fairman, L., Melrose, Hastings, Ont.; 60. Goodfellow, F. L., Barrie, Simcoe, Ont. (*6); 61. McBeth, D., Ormsby, Hastings, Ont. (*13 and 14); 62. Zubiaur, A., Buenos Aires, Argentine Republic (*11 and 13); 63. Smith, A., Pinkerton, Bruce, Ont. (*6 and 14); 64. Monkman, R. K., Castleberg, Peel, Ont. (*6 and 7); 65. Willey, D., Strathburn, Middlesex, Ont. (*7 and 14).

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1. English
2. Book-keeping
3. Physics
4. Manual Training
5. Chemistry
6. Geology
7. Zoology

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8. Horticulture
9. Agriculture
10. Field Experiments
11. Dairying
12. Poultry
13. Apiculture
14. Veterin'ry Science

SECOND YEAR.

(In order of General Proficiency.)

1. Howitt, J. E., Guelph, Wellington, Ont.; 2. Esmond, C. W., Blessington, Hastings, Ont.; 3. McKillican, W. C., Vanleek Hill, Glengarry, Ont.; 4. Deachman, R. J., Gorrie, Huron, Ont.; 5. Albright, W. D., Beamsville, Lincoln, Ont.; 6. Eddy, E. D., Scotland, Brant, Ont.; 7. Craig, J., Glasgow, Scotland; 8. Wade, R. W., Smithville, Lincoln, Ont.; 9. Reed, F. H., Georgetown, Halton, Ont.; 10. Bell, H. G., Orangeville, Dufferin, Ont., 11. Bower, J. E., Harriston, Wellington, Ont.; 12. McDonald, D. J., Crawford, Grey, Ont.; 13. Bustamante, D., Juyuy, Argentine Republic; 14. Leitch, A., Cornwall, Stormont, Ont.; 15. Hoodless, J. B., Hamilton, Wentworth, Ont.; 16. Westover, C. A., Frelighsburg, Que.; 17. Groh, H., Preston, Waterloo, Ont.; 18. LeDrew, H. H., Toronto, Ont.; 19. Mayberry, H., Ingersoll, Oxford, Ont.; 20. Scott, P., Waubuno, Lambton, Ont.; 21. McDiarmid, H. S., Fingal, Elgin, Ont. (*2); 22. Evans, J., Randolph, Simcoe, Ont.; 23. Pearce, S. M., Iona, Elgin, Ont.; 24. Brereton, F. E., Bethany, Durham, Ont.; 25. Hand, A. J., Stanton, Dufferin, Ont.; 26. Cohoe, W. J., New Durham, Oxford, Ont.; 27. Rudolf, N. N., Hamstead, Jamaica; 28. Winter, M. H., Wicklow, Northumberland, Ont.; 29. Hankinson, L. D., Grovesend, Elgin, Ont.; 30. Teeple, H., Jaffa, Elgin, Ont.; 31. McAulay, J. W., Winnepegosis, Manitoba; 32. Mortimer, R. E., Honeywood, Dufferin, Ont. (*8); 33. Murray, R. S., Toronto, Ont.; 34, Mason, W. E., Tyrrell, Norfolk, Ont.; 35. Whyte, G. G., Paris, Brant, Ont.; 36. Nicholson, C., Mount Forest, Wellington, Ont. (*17); 37. Cameron, R. R., Ailsa Craig, Middlesex, Ont.; 38. Lennox, W. J., Newton Robinson, Simcoe, Ont.; 39. Cooper, G. H., Oshawa, Ontario, Ont.; 40. Barber, E. R., Yorkton, Assa.; 41. Chrisholm, J., Briley Brook, N. S.; 42. Robinson, G. H., Walkerton, Bruce, Ont. (*8); 43. Logan, F. M., Amherst Point, N. S. (*10); 44. Thompson, H. H., Heathcote, Grey, Ont. (*7); 45. McDonald, T. D., Olinda, Essex, Ont. (*8 and 17); 46. Davison, J. H., Starrat, Parry Sound, Ont.; 47. Barberree, G. L., Corwhin, Halton, Ont.; 48. Clark, E. E., Meaford, Grey, Ont. (* 7); and Crane, R. N., Montreal, Que. (* 7); 50. Taylor, F., Cumberland Mills, Que.; 51. Prittie, F. H., Toronto, Ont. (* 14); 52. Bartman, R. W., Hamilton, Wentworth, Ont. (* 7 & 8); 53. Martinez, R. C., Santa Fe, Arg. Rep.; 54. Warner, G. C., Coulson, Simcoe, Ont. (* 1 & 19); 55. Panelo, F., Buenos Aires, Arg. Rep.; 56. Stewart, D. F., Hampstead, Perth, Ont. (*7); 57. Granel, J.; Buenos Aires, Arg. Rep.; 58. Prittie, R. D., Toronto, Ont. (* 7, 8, & 17); 59. McAuslan, A. T., Heathcote, Grey, Ont. (* 1).

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1. English	13. Live Stock (written)
2. Thesis	14. Judging Live Stock (except horses)
3. Public Speaking	15. Judging Horses
4. Economics	16. Dairying
5. Physics	17. Poultry (written)
6. Engine	18. Poultry (practic'l)
7. Agricultural Chemistry	17. Veterinary Pathology
8. Animal Chemistry	20. Veterinary Obstetrics
9. Horticulture	
10. Botany	
11. Bacteriology	
12. Entomology	

THIRD YEAR.

(In Order of General Proficiency.)

1. Fulmer, H. L., Ruthven, Essex, Ont.; 2. Thom, C. C., Elma, Dundas,

Ont.; 3. Bray, C. I., Kleinburg, York, Ont.; 4. Readley, J. C., Rosetta, Lanark, Ont.; 5. Carpenter, G. H., Fruitland, Wentworth, Ont.; 6. Hamilton, W., Ravenshoe, York, Ont.; 7. Barber, T. C., Yorkton, Assa.; 8. Henderson, T. B. R., Rockton, Wentworth, Ont.; 9. Rothwell, G. B., Ottawa, Ont.; 10. Johnston, J., Fingal, Elgin, Ont.; 11. Irvine, A., Habermehl, Grey, Ont.; 12. Galbraith, S. M., Ellesmere, York, Ont.; 13. Guy, J. T., Columbus, Ont.; 14. Mills, P. G., Sussex, N. B. (*9); 15. Fansher, B. W., Florence, Lambton, Ont.; 16, Rivett, B. T., Spanishtown, Jamaica; 17. Williams, M. G., Corbetton, Dufferin, Ont. (*4 and 6); 18. Everest, R. E., Scarboro, Junction, York, Ont. (*9 and 11); 19. Baker, R. G., Swarthmore, Pa., U. S. A. (*5 and 11); 20. Buchanan, D., Florence, Lambton, Ont. (*5 and 9).

The following third year students also passed, part of their work being covered by certificates accepted *pro tanto :*

1. Dewar, W. R., Fruitland, Wentworth, Ont.; 2. Peltzer, J., Buenos Aires, Argentine Republic; 3. McRae, C. M. Cumberland, Russell, Ont.; 4. Avila, C., Cordoba, Argentine Republic; 5. Bustamante, R. S., Jujuy, Argentine Republic; 6. Panelo, J., Buenos Aires, Argentine Republic (*2 and 11).

*

1. English Prose
2. English Poetry
3. Mathematics
4. French
5. German
6. Caliorimetry
7. Meteorology and Cold Storage
8. Inorganic Chemistry

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9. Organic and Agricultural Chemistry
10. Geology
11. Structural Botany
12. Physiological Botany
13. Entomology

HONORS IN DEPARTMENTS.

First Year.

English and Mathematics (including English Grammar, English Literature, Book-keeping, and Arithmetic)—Class I.—1. Bracken, 2. McMillan, 3. Colwell. Class II.—1. Stayner, 2. Dickson, 3. Tucker, 4. Hart, 5. Brown, 6. White, 7. Kitchen, 8. Munroe, 9. Scott, 10. Ballantyne, 21. Hawtin and Hutcheson, 13. Nixon and Ramsay, 15. Duncan.

Physical Science (including Manual Training, Physics, Chemistry, and Geology)—Class I.—1. Bracken, 2. Hart, 3. Colwell. Class II.—1. Dickson and McMillan, 3. Farmer, 4. Hamilton, 5. Ballantyne and Stayner, 7. Tucker, 8. Whyte, 9. Nixon, 10. Hawtin and Northcott, 12. Fyfe, 13. Ramsay, 14. Merkley, 15. Logsdail and Weir, 17. Jones, 18. Atkin, 19. Smith (H. B.), 20. Scott, 21. Marshall, 22. Bailey, 23. Lund, 24. Murray-Wilson and Taylor, 26. Duncan.

Biological Science (including Botany, Zoology, and Horticulture)—Class I.—1. Bracken, 2. Ballantyne, 3. McMillan, 4. White, 5. Hart, 6. Hamilton, Stayner, and Tucker, 9. Munroe. Class II—1. Fife, 2. Dickson, 3. Logsdail, 4. Colwell, 5. Ramsay, 6. Northcott, 7. Merkley, 8. Smith (H. B.), 9. McKenney, 10. Middleton, 11. Bailey, 12. Nixon, 13. Kitchen, 14. Lund and Murray-Wilson, 16. Halliday.

Agriculture (including Agriculture, Field Experiments, Dairying, Poultry, Apiculture, and Veterinary Science)—Class I.—Bracken. Class II.—1. Hart, 2. White, 3. Hamilton, 4. Ballantyne, 5. Stayner, 6. McKenney, 7. Colwell and Smith, (H. B.), 9. Merkley, 10.

Nixon, 11. Tucker, 12. Dickson, 13. Somerset, 14. Hawtin, 15. Munroe, 16. Marshall, 17. Farmer, 18. Bailey, 19. Scott.

Second Year.

English and Economics (including English, Thesis, Public Speaking and Economics)—Class I.—1. Albright, 2. Deachman, 3. Craig, 4 Esmond, 5 Wade, 6. McKillican, 7. Bower, 8. Howitt. Class II.—1. Reed, 2. Bell and LeDrew, 4. Hand, 5. Eddy, 6. Leitch, 7. McDonald, D., 8. Pearce, 9. Hoodless, 10. Evans, 11. Groh, 12, Cameron, Westover and Winter, 15. Rudolf, 16. Mayberry, 17. Teeple, 18. Murray.

Physical Science (including Physics, Engine, Agricultural Chemistry and Animal Chemistry)—Class I—1. Howitt, 2. Esmond. Class II.—1. Craig, 2. Eddy, 3. Bustamante, 4. Albright, 5. Deachman, 6. Bower, 7. Bell and Hoodless, 9. McKillican, 10. Wade, 11. Evans, 12. McDonald, D. J., 13. Leitch and Westover, 15. McDiarmid, 16. LeDrew, 17. Winter, 18. Cohoe, 19. Scott, 20. Groh, 21, Reed, 22. Mason.

Biological Science (including Botany, Bacteriology, Entomology and Horticulture)—Class I.—1. Howitt, 2. Bustamante, D. Class II.—1. Hoodless and McKillican, 3. Craig, 4. Leitch and Wade, 6. Eddy, 7. Deachman and Groh, 9. Bell, 10 Esmond, 11. Mayberry, 12. Reed, 13. McDon-D. J., 14. Evens and Hankinson, 16. Bower and Cohoe, 18. Albright and Westover, 20. Brerton, 21. Pearce, 22. McDiarmid, 23. Scott, 24. LeDrew, 25. McAulay, Nicholson and Whyte, 28. Rudolf, 29. Hand, 30. Murray.

Agriculture (including Live Stock, Dairying, Poultry and Veterinary Science—Class II.—1. Deachman, 2. McKillican, 3. Reed, 4. Howitt, 5. Eddy, 6. Albright, 7. Esmond, 8. McDonald, D. J., 9. Wade, 10. Leitch, 11. Scott, 12. Bell, 13. Bower, 14. Mayberry, 15. McDiarmid, 15. Bustamante, 17. Pearce, 18. Westover.

Third Year.

English and Mathematics (including English, Algebra and Euclid)—Class I.—1. Fulmer, 2. Bray. Class II.—1. Readey, 2. Thom, 3. Henderson. 4. Hamilton, 5. Galbraith, 6. Irving, 7. Johnston and Rothwell.

French—Class II.—1. Avila, 2. Peltzer, 3. Carpenter, 4. Barber.

German—Class I.—1. Fulmer. Class II.—1. Bray.

Physical Science (including Physics, Chemistry and Geology)—Class I.—1. Fulmer. Class II.—1. Thom, 2. Dewar, 3. Carpenter, 4. Readey, 5. Bray.

Biological Science (including Botany and Entomology)—Class I.—1. Fulmer, 2. Dewar. Class II.—1. Carpenter, 2. Thom, 3. Readey, 4. Bray, 5. McRae, 6. Rothwell, 7. Fansher, 8. Johnston.

SCHOLARSHIPS.

First Year—

1.—English and Mathematics—H. R. McMillan, Aurora, York, Ont.

2.—Physical Science—F. C. Hart, Wallace Bay, N. S.

3.—Biological Science and Horticulture—R. Ballantyne, Sebringville, Perth, Ont.

4.—Agriculture—J. Bracken, Seeley's Bay, Grenville, Ont.

PRIZES.

Second Year—

First in general proficiency, first and second year work, theory and practice—W. D. Albright, Beamsville, Lincoln, Ont.

Essay—"George Eliot as a novelist and a writer of English prose"—J. Craig, Glasgow, Scotland.

MEDAL.

Second Year—

Governor General's Silver Medal—First in general proficiency, 1902-03—J. E. Howitt, Guelph, Wellington, Ont.

Books added to the Library During December and January.

Rogers, History of Agriculture in England, Vol. 7; McMillan, Postelsia; Gummer, Beginnings of Poetry; Moor, Standards of Purity for Foods and Drugs; Greenwell, Roads, Their Construction and Use; Lloyd's, A Country Without Strike; Muir, Our National Parks; Ernst, Animal Experimentation; Matthews, Aspects of Fiction; Lounsberry, Shakespeare and Voltaire; Sharpe, Shakespeare's Portrayal of the Moral Life; Carhart, Field Book for Civil Engineers; Hastings and Beach, Text Book of General Physics; Buckingham, Outline of the Theory of Thermodynamics; Kennedy, Mechanics of Machinery; Holman, Matter, Energy, Force and Work; Finsen, Phototherapy; van t'Hoff, Lectures on Theoretical and Physical Chemistry; Cross and Bevan, Researches on Cellulose; Shenstone, Laboratory Companion with Inorganic Chemistry; Tarr, Physical Geography of New York State; Bruncken, North American Forests and Forestry; Vallery-Rodot, Life of Pasteur.