

PAGES

MISSING

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THE DIGNITY OF A CALLING IS ITS UTILITY.

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The White Water Lily.

By J. W. EASTHAM.

THERE are few flowers more striking than those of the White Water Lily. They are conspicuous not merely on account of their size, though they are amongst the largest of our native flowers, nor solely on account of their intrinsic beauty, though the elegance of the white waxy cups poised upon the surface of the water, is of a quality hardly to be surpassed. The interest merited by the size and beauty of the blossoms, is increased by the contrast with the still surface of the deep waters in which they delight, and the abundance of floating green foliage by which they are surrounded. There is, too, a tantalizing charm in the inaccessible situation of the plant, for the White Lily, unlike its near relative, the Yellow Water Lily (*Nuphar*), disdains the shallower pools, and does not readily surrender its spoils to a land attack. Even to the occupant of boat or canoe the tough, slippery flower-stalks offer more resistance than might be anticipated, and the unwary collector, instead of securing conveniently the coveted bloom, may end by dragging up twenty or thirty feet of slimy water-

weed, or even by incurring an involuntary wetting.

To the student of botany, water plants possess a special interest. The peculiar conditions under which they live have brought about modifications of structure in marked contrast to those of typical terrestrial plants. Water plants, too, of widely separated families, living under similar conditions, become altered in the same direction so as to bear superficially a close resemblance to one another. Many aquatic plants, like the hornwort, the water milfoil, and some water buttercups spend their entire life submerged in the water. Obviously the circumstances of life must be very different in these cases from the conditions surrounding the ordinary land plant. To be immersed in a fluid medium in which the tissues lose a large proportion of their weight; to have the supply of mineral food brought into contact with the entire plant surface; and to be cut off from all supplies of oxygen and carbon dioxide, except what exists in dilute solution in the water, must necessitate profound modifications in the structure and habits of a plant. We

find, indeed, that such plants have little strengthening tissue, few conducting channels for sap, no stomata or breathing pores, no impervious cuticle to the epidermis and chlorophyll even in the outermost layer of cells.

In addition, the whole plant is usually permeated by air-channels, often of large size, giving the tissues a spongy texture. These air spaces serve to give buoyancy to the parts and also for the aeration of those parts which have not ready access to the dissolved gases. Frequently the volume of a plant member taken up by these air spaces is greater than that occupied by the plant cells.

We shall find, however, that the plant we have taken for consideration is not quite so far removed in structure from a typical land plant as is the case in those totally submerged forms.

Roughly speaking, we have two types of truly aquatic plants—that is excluding those forms which grow in swampy situations on the edges of the water—namely, those which are rooted in the mud or gravel at the bottom, and those which float freely at the surface. To the latter division belong a few higher plants like the common duck-weeds and many lower forms, such as filamentous algae and diatoms, whilst our lily is an example of the former class.

We will now consider, in some detail, the form and structure of the Water Lily, beginning with those parts which serve to anchor it securely at the bottom of the pond or stream.

The stem, which consists of a thick rhizome or "rootstock," is fixed more or less horizontally in the mud, and is blackish in color. It is about the shape and thickness of a man's arm, the thicker end being the basal or older one. At the tip is a kind of bud formed

of undeveloped leaves, and from the part a little behind this, spring the leaf-stalks of the present season. Further back again the surface of the stem is covered with the bases of the old leaves which have fallen away. These show very clearly the characteristic air channels—in fact the whole rootstock contains so much air that it floats readily if cut from its moorings.

Numerous rootlets spring from the sides and undersurface. These are about the thickness of a goose-quill and about a foot in length. Since they are growing in a muddy substratum they are provided near the tip with numerous root-hairs, whereas truly aquatic roots rarely possess these structures, absorption being carried on through the entire surface of the root. Even such land plants as a geranium or buckwheat, when grown artificially in a culture solution, produce rootlets devoid of the characteristic root-hairs.

The leaves all float on the surface of the water, their excessively long, flexible petioles serving to spread them out in such a way as to prevent overcrowding. They are oval in shape, with entire margins. The petiole is attached near the center (peltate attachment), whilst behind this the leaf is notched. This is a common type of floating leaf, representing a simple plan of development. Acute points to drain off rapidly a weight of rain water are not necessary, and furthermore, as a continuous plate offers more resistance to a downward pull, it is an advantage that the leaf should be entire.

The upper surface possesses a thick cuticle fortified with wax, so as to prove very effective against rain. The leaf, too, is raised slightly at the base, whilst the edges are somewhat crisped. Water falling on the surface collects in drops without wetting the leaf, and a

very slight vibration serves to roll these drops to the edge, and then off through one of the depressions in the margin.

We should naturally expect the structure of such a leaf, as revealed by the microscope, to show considerable differences from the foliage leaf of a land plant. This, indeed, is the case. A section shows that the lower part contains numerous large air-spaces, much larger than those present in an ordinary spongy parenchyma, for the cells merely form slender strands at wide intervals. The spaces, too, are not connected with stomata on the under surface since air pores would be of no use in contact with water. The chief function of the cavities is undoubtedly to render the leaf buoyant, though the adjacent cells are no doubt able to do some assimilation from the gases of the space. Stomata are present on the upper surface of the leaf, and beneath them is a layer of palisade tissue of the usual kind. It is interesting to note that in *Nelumbium*—a closely-allied genus—in which the leaves are thrust out of the water instead of floating upon it, rudimentary stomata are found on the underside in addition to the functional ones on the upper surface, as though the plant were endeavoring to conform once more to aerial conditions.

The leaf-stalks, like other parts of the plant, are full of air-spaces. It is noteworthy that throughout the plant we find curious star-shaped hairs projecting into these spaces, with walls stiffened with calcium oxalate. Their function is not very clear, but it has been suggested that they serve as a protection against the gnawing of water-snails or similar animals.

The Yellow Water Lily (*Nuphar*) differs from the white one in having

submerged leaves in addition to floating ones. These are bright green and wavy, and of a much more delicate texture. They have no stomata and no cuticle, thus affording an easy passage to diffusible substances. Their presence is explained by the habit of the plant, which grows in shallow water. Sufficient light can penetrate to them to enable them to carry on some assimilation, and they are probably especially useful to the plant early in the year, before the floating leaves have made their way to the surface.

The flower, which attracts most attention from the casual observer, is by no means lacking in interest for the botanist. The family *Nymphaeaceae*, to which the water lilies belong, is a very ancient one—the flowers show what must be regarded as a very primitive structure. On the outside are four green sepals, which enclose the more delicate parts in the bud and serve for their protection. Next come the petals, which are quite free from one another, and variable in number. They are not arrayed in whorls, but in a spiral, like the foliage leaves of most plants, but with the axis of the spiral much shortened. Within the petals are the very numerous stamens, also arranged spirally and variable in number. The most curious character of the flower, however, lies in the fact that there is no clear line of demarcation between petals and stamens, one passing gradually into the other. In the center we have typical stamens with round filaments and large anthers full of pollen. Further out we find the filaments flatter and broader and the anthers less perfect. These are succeeded by petaloid stamens with abortive pollen sacs at their tips, and these again, by what are apparently, true petals. This gives us an indica-

tion of the origin of petals in general, as staminal structures modified to render the flower conspicuous to the insect visitors which shall effect cross-fertilization.

The pistil consists of numerous united carpets, forming an ovary with many compartments, the whole being embedded in the fleshy tissue (receptacle) which terminates the flower-stalk. The stigmas are numerous and arranged in radiating lines, there being no styles.

The flowers only come to the surface when fully developed. After opening, they close again on the approach of evening beginning as early as 4 o'clock in the afternoon, and they also close in wet weather. Pollen is supposed to be carried from one flower to another by certain beetles, which are thus the agents of cross fertilization. It is to be noted, however, that in the absence of such visitors the anthers bend over

the stigmas, thus effecting self-fertilization.

After a time the developing fruit becomes detached by the decay of the flower-stalk and sinks until mature. It then bursts and liberates a rounded mass of slimy seeds which rise up to the surface, still adhering in clusters. Each seed has previously produced an outgrowth or *aril* which takes the form of a spongy membrane surrounding the seed, and within this gases have been secreted which render the seed light and enable it to float. The floating seeds are scattered by currents. Birds also eat them, and some, as a result of their sliminess, may adhere to a bird's plumage and so be carried to other waters.

After a short time the aril loses its contained air, the seed becomes water logged and sinks to the bottom, to germinate and give rise to a new plant.

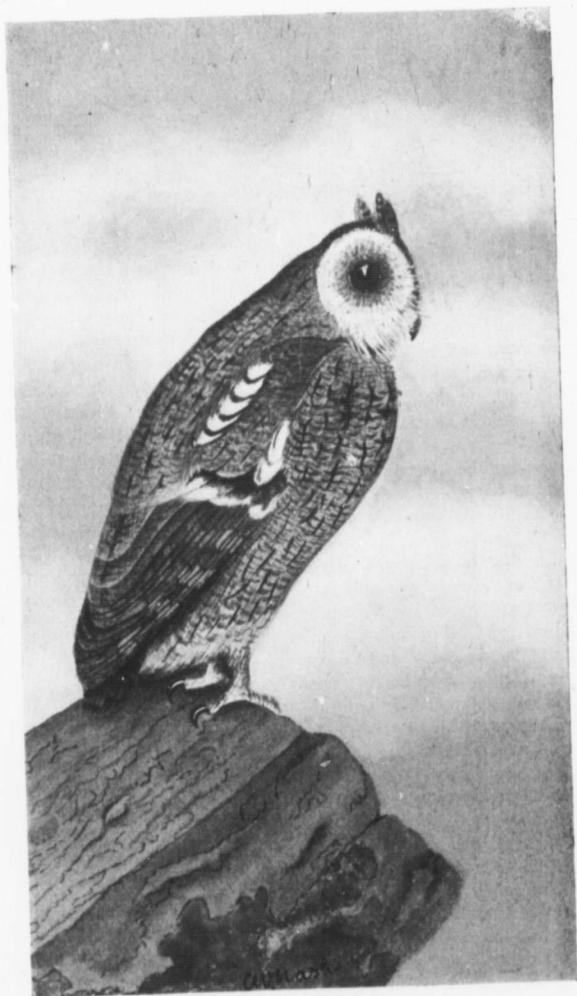


Voices of the Night.

By C. W. NASH.

WHAT very different appearances well known places present at early morning, mid-day, twilight and after nightfall. With the various sights and sounds of nature during the first three parts of the day, people are more or less familiar; they have been in the habit of noting, unconsciously perhaps, the changes which take place between sunrise and sunset, and so the general aspect of the landscape under the changing light is not strange to them, and rarely excites comment. Natural sounds, too, are generally understood, and in a way, recognized; the creaking of trees, swayed by the wind; the ripple and wash of waters; the buzzing of insects, notes of birds and other animals fall upon accustomed ears and cause neither surprise nor alarm, but after darkness closes down conditions are altered, the path through the bush which is travelled with assurance earlier in the day, is now followed in doubt; well known trees have lost their identity and become merged in the general blackness; sight can no longer be relied upon as a perfect guide, and the senses of touch and hearing become painfully acute. A nervous person under these circumstances is apt to become fidgety and unhappy, to imagine all sorts of queer things, and at last develop a clear case of fright, should one of the unknown voices of the night break the solemn silence

with a cry, which it seems to the uninitiated, could only have been produced by some terrible creature in search of human prey or by an evil spirit in agony. It is said that a whole company of Highlanders were one night, during the war of 1812, awakened by the sepulchral notes of a Great Horned Owl and promptly fled from their camping ground, under the impression that the "auld deil" himself was after them. There is something uncanny about the voices of all the owls, but under certain conditions as to time and place, their notes have a charm which appeals strongly to me. One evening many years ago I heard an owl concert under most favorable circumstances. I was camped on the bank of the Assiniboine River at a spot where the timber was large on both sides. In front of this and along the border of the river was a belt of willows and alders, borne down and tangled by the ice of many winters, which had been carried through and over it by the spring freshets. The sun had gone down, but it was not dark, for the after glow had lighted up the water with golden reflections. There was absolute silence save for the splash of a muskrat playing under the bank or a fish rising at a fly. Silently as a shadow, a large bird floated over the tangle of willows and gently alighted on the top of a high snag almost in front of me. From this perch the great bird could see all around it, and, after careful scrutiny,

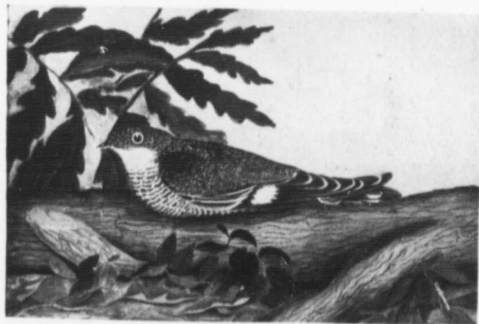


THE SCREECH OWL.

seemed satisfied that no danger was near. A shake or two settled its loose plumage in place, and then leaning forward, the owl sent its hooting call vibrating along the river valley. In a moment this was answered from above, and then at intervals from all around me, there must have been half a dozen of them within hearing at one time, and they continued to answer each other, until the last glimmer of light faded out, when no doubt they settled down to the night's hunt.

The Great Horned Owl is a bird of the woods, and its hoot is not now

on through the summer night, there sometimes comes from above a curious hollow booming sound, difficult to locate and rather startling. It does not last long, nor is it repeated with any regularity. This is produced by the male Nighthawk, though how it is done is not yet explained. The evolutions of the bird when "booming" may sometimes be seen, for they are not confined altogether to the hours of darkness, and the swift-descent and sudden swerve upward which accompany the outburst, are as remarkable as the sound itself.



WHIP-POOR-WILL.

often heard in the older settlements, but its little cousin, the Screech Owl, visits the orchard and the roadside shade trees, from which it utters its peculiar and sometimes gruesome notes. Its usual call somewhat resembles the whinny of a young colt, but it has besides that a medley of screams, trills, moans and gurgles, simply indescribable. They probably mean something; if they do, the something must be very uncomfortable to the bird, one would think.

In the dim light of late evening and

Very different from the harsh note of the Nighthawk is the clear-cut, musical song of the Whip-poor-Will, which comes full and distinct from the edge of the wooded ravine, all through the calm summer nights, but is never heard in the "garish light of day." So very retiring is this bird that to most people it is a voice and nothing more. If by any accident it

should be disturbed from its seclusion in the woods where it hides during the day and should be seen as it flits silently into the deeper shadows, it would go unrecognized or be mistaken for its relative, the Nighthawk, to which it bears a family resemblance in appearance, but not in habit. So far as I have been able to observe this bird never soars high in air, nor is its flight prolonged, but rather it skims rapidly and noiselessly along the edges of the woods at no great height from the ground, taking only short flights, and

then alighting upon some log, stump or fence rail, from which the song is uttered several times before the bird starts off again. Besides the Whip-Poor-Will song, our bird has other notes, one a sharp "chuck," invariably precedes the song and sometimes, particularly on cold or windy nights, this will be the only sound they utter; this note is only audible at a short distance, and is therefore not often noticed.

During the month of May, by woodland, marsh or meadow, the nights are never silent; there are voices everywhere. From the pond holes and swamps come the incessant purring trill of the toad and the shrill "peep" of Pickering's Hyla, a lovely little creature, whose note is by the country people attributed to lizards, turtles and many other things, but never to the delicate little batrachian, which really utters it. Later on this tiny tree frog leaves the ponds, becomes silent and ascends the trees, where, by reason of its small size and pale green color, it is seldom seen. In the air migrant birds are flying over, and from the passing flocks the varied calls drift to the listener's ear, sometimes clearly enough to denote the species, but more often too indistinct to be recognisable. Over the marsh a Snipe is circling, bleating at intervals its curious notes, which, like those of the Nighthawk, are said to be produced mechanically, while from the near-by covert may come trembling and vibrating the love-song of the woodcock, a

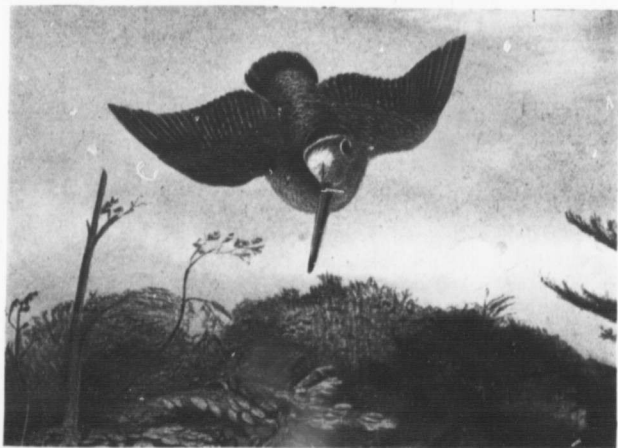
song so peculiar as to be indescribable by any form of words and so different from any other as to at once arrest attention. The bird commences his serenade on the ground by uttering a loud "paate" several times, after which he rises, producing, as he does so, the familiar whistle, so well known to sportsmen. Up he goes in wide circles, until having attained the desired height, the whistling ceases and the song commences. This he continues as he descends in an erratic course, until about fifteen feet from the ground, when the song ceases and the bird flies



THE NIGHTHAWK.

rapidly, but silently, in a straight line to near the spot he rose from, where, no doubt, his mate, for whose pleasure the performance was enacted, is awaiting him. In a short time the ground note will be uttered and continued until the bird is again inspired to repeat his aerial evolutions and song.

Man is probably by nature a diurnal animal; for him the night is a season of rest, but it is not so with many millions of living creatures. Their activities are called forth during the



WOODCOCK—"EVENSONG."

hours of partial darkness, and it is then their voices may be heard. Though the voices of the night are not wholly those of creatures which are silent during the day, for there are many of our familiar birds which, in the heat of summer, sing but little until after sunset, but almost continuously under

moonlight. Of these the White-Throated Sparrow is a good example, and it is well worth while spending an hour of the night beside one of our northern lakes, to hear the plaintive notes of this bird float over the sparkling waters. "Sweet, sweet Canada, Canada, Canada."



Nature Study Material for Rural Schools.

By E. A. HOWES.

MANY reasons might be given why the place of Nature Study in the public school work should be of paramount interest to all connected with the O. A. C., particularly to the student body. Some have been teachers and all have had acquaintance with school life as pupils. All must exert influence on school progress during the years to come, as ratepayers, perhaps as school trustees, not to speak of the more immediate interest which the local school teacher excites in the mind of the farmer's son. Who can say where and how the heaven will work.

A plebiscite taken for the purpose of ascertaining the teacher's definition of Nature Study would result in nearly as many definitions as teachers. If this were indicative of the stamp of individuality on the work we might rest satisfied. Such is sometimes the case, but for the most part it evidences lack of appreciation and faint-heartedness. Some teachers look on Nature Study as an additional task grafted on something already too top-heavy. Some are heartily willing to fall in line with the idea but plead inability, lack of preparation and general unfitness for the work. Then there are others ready to fall in with anything that appears to be the fashion, and this class is responsible for that "goo-goo" Nature Study that has served to make the cause at times appear ridiculous.

In school garden work and Nature

Study generally the question of time is the first to provoke discussion. It is true that the teacher's work is somewhat crowded, and it is but natural that teachers and others, without careful consideration of the matter should consider this as an additional tax on time. Pity it is that they cannot sooner realize that Nature Study is truly an antidote for the poison which has permeated the school work during past years. As to lack of preparation and information, the teacher is indeed slow and dense who, with the aid of the pupils, cannot keep ahead of them, continually growing stronger from past experiences. The teacher in the ordinary rural school need not set apart any specified time for Nature Study—let it be perfectly informal. He need not hesitate to interrupt a discussion as to the use of "thou" and "you" in the second person singular to listen to a cat-bird's imitations in a tree near by—the grammar will not suffer. Of course we prefer to have a specified time for things, and the teacher can easily carry the above suggestion to the extreme, but, "welcome straw when you have no hay." Let him make the most of his opportunities, and he will be well repaid.

Perhaps the field of plant study offers readiest opportunities to the beginner, and hence it is that most teachers commence operations along that line. However there are two other fields, just as important and just as

interesting to which we shall here refer—insect study and the study of bird-life. Most teachers have studied botany at High Schools, and because they have not dabbled in entomology and ornithology, they fancy those sides of the study of Nature are beyond their reach, and therein they make a great mistake. They do not know much about insects and birds perhaps, but they will know a great deal more in a year hence if they make the attempt. It is wonderful sometimes to note the effect of such study on the relation of teacher to pupil. One striking example comes readily to mind. In a school in Eastern Ontario the teacher had one tough little moon-faced pupil who went around with an intellect apparently as barren as his expression, the only intelligence shown being along ingenious lines of mischief. He seemed perfectly inaccessible until insect study at last revealed a line of communication, and on its introduction into the school this lad entered another incarnation. He was a natural entomologist. His interest in other things took on a new life, and now his teacher no longer needs a surgical operation to get an idea into Jack's head. This lad could not have told the teacher the name of the tomato worm (perhaps the teacher knew little about it), but Jack could give a very interesting description of the life and habits of "dat big green feller wid de horn on his back," and to-day his English and entomology are more in keeping with each other.

Let the teacher who is not an entomologist refrain from worry on that account. Let him begin on whatever material is handiest. Never mind extensive collections, do not encourage individual ones; specimens for school reference will be enough to attempt along this line. This is really but a

small part of insect study in school work, destroying beneficial as well as injurious insects, but most of all drawing the mind away from the proper attitude toward the work—the study of the insect from a dynamic standpoint, a study of what the insect does. There is no place in the public school for insect study that is first and last an anatomical one. It is not so much to the point to know how many legs a Colorado beetle possesses as it is to know that he is a biting insect and can be fought because of that knowledge. It is not so important to know the structure of the lady bug as it is to know on what that pretty little insect feeds. An interesting phase is the study of insect homes, chiefly of the preparation of the insect for passing the pupa stage. Have you never caught the larva of the polyphemus moth or "dat big green feller," and watched preparation for the winter homes, watched how one ties himself up in a cocoon, and how the other buries himself and spends his winter in a hard-shelled case with a handle on it? How much do you know of the structure of the home of the tent caterpillar, that scourge of a few years ago? How easy it would be for the teacher and children to study this fellow. If it were the only benefit derived it would be in itself sufficient recommendation that insect study will do away with that senseless squeamishness, real or affected, which so many exhibit at the proximity of some beautiful moth or caterpillar, as clean and perhaps as little objectionable as the human creation in which it inspires the horror.

And now for the consideration of birds as material for Nature Study. Having eyes we see not, and having ears we hear not. We are all agreed

that birds are beautiful and that their songs are beautiful. What could have told us so? Is it an inherited instinct handed down from the time when our forefathers were more in touch with Nature than are their descendants? We might almost be inclined to think so, but we prefer to believe George Elliot when she says "the thoughts and loves of our first years will always make part of our lives. We could never have loved the earth so well if we had had no childhood in it. Our delight in the sunshine on the deep-bladed grass today might be no more than the faint perception of wearied souls, if it were not for the sunshine and the grass in the far-off years, which still live in us and transform our perception into love." Ah, there it is! It is the interest aroused in and the pleasure derived from the beauty and song of the birds when we were children in the fields still throwing its blessed influence around us and we do not know it, at least we do not stop to think of it. If, then, we had been led to observe more correctly, and consequently with more interest led to note these beauties when we were young, how would that interest have been sustained, serving as a sort of wireless connection between the grown-up life with all its worries and cares, and the child-life with all its association with loved ones and home. Would such subtle connection be a detriment in later years, think you? No, train the child to hear and see the birds and you are making for good. Was it time lost on the part of the writer when he spent hours watching the blue-bird that had its nest for three summers in the old stump in the back pasture at home. Those hours were profitably spent. What a picture the sight of a blue-bird now calls up? May each reader have

as vivid a reminder of the dear old home-life.

How to study birds? Just watch them and listen to them, that is all. What aids do you need? Take along a field-glass, and a good conscience. As in the case of the insect, so when you study the bird, do not put too much stress on structure; get at what it does, where it builds its nest and how and why, what it eats and how it gets it; in brief, study how the bird lives.

So far nothing has been said about the economic side of this study of insect and bird life. Would that we could secure universal realization of the importance of this matter touching agricultural interests; the teacher's duty lies in arousing the pupil's interest and through him that of the parent. None too soon can the farmer and his family awaken to the fact that every bird which survives the season makes the country richer, just as surely as every bird destroyed makes the country poorer. However, the outlook is encouraging. Rapidly the robbery and destruction of birds' nests is becoming a thing of the past, and rapidly too a sentiment against bird destruction is chasing the boy with his gun. A more rational taste in dress is reducing the slaughter of birds for hat ornamentation, but there are evils to remedy. The English sparrow chases the wrens, the chickadees and other insect eaters from the building and orchards; the grackle destroys the nests of other birds; the cow-bird and the coo-coo shift their household responsibilities by laying in their neighbor's nests, the great intruder when hatched smothering the rightful occupants of the nest. The greatest cause of bird destruction is the household cat, and here one loses forbearance. There is a certain formula which states that a poor man keeps two

yellow dogs, and a certain other kind of a poor man keeps three, but there seems to be no formula, law or order in the realm of cat maintenance. It is claimed that the cat is not at all a necessity, but in any case we could easily do with one-fifth of the stock in hand. A well-known naturalist is authority for the statement that one pet cat killed sixty-nine birds, old and young, in the course of one summer. It has been sometimes stated that elderly unmated ladies constitute the power behind the cat, and there may be as much truth as fiction in the statement, but how many farmers keep more cats than they need, running half wild around the outbuildings and fields? We can prove how injurious certain insects are; we can prove that nearly all birds eat enormous quantities of injurious insects; we can prove that the relatively unnecessary cat kills vast numbers of birds each season, and in the light of all this it is up to any old maid, male or female, to show justification for the existence of the number of useless cats of which they are nothing less than the aiders and abettors.

It will be noticed that emphasis has been placed on the consideration of birds and insects, first for the interest and educational benefit derived from

the work, and second for the economic advantage of such a study. These considerations should not be separated. If either is omitted, and we usually incline in one direction or the other, the work will suffer from one-sided effect; either it will become a round of mere sentimentality, or it will develop into dry and hard technicality. It is a mistake to show the child the beauty of a bird or insect without letting him see the conditions of its existence and its life-history. Many insects are beautiful; all become so to the careful observer, but if the child's training ended there, his sensibilities would surely be hurt if, in the interest of saving the crop, he saw his father destroying certain beautiful insects. But sentiment should not be left out; it would be a dry old world without it, and Nature Study without it would be Nature Study no longer. We tire of the naturalist who humanizes the lower creatures, but less use have we for the man who neglects to use the means of knowing, as far as in him lies, the life-histories (accent on "life") of the creations by which he is surrounded. Let us avoid either extreme, and we will have reached a proper attitude towards Nature Study.



Camping Out.

THE birds are stirring in the wood, are piping loud and clear,
 The night has gone, the day has come, the blessed morn is here;
 The blessed morn has come anew to greet our waking eyes—
 Arise, my brothers, from your sleep; the morning bids you rise!

The blades that quivered yesterday and trembled in the haze
 Are washed this morning in the dew; and down the woodland ways
 A sweeter breath than evening knows comes soft and pure and clean,
 And sends a cheerful murmuring through all the hanging green.

And is the world so weary then, and is the world so old?
 Last night you were philosophers, but this should make you bold!
 Oh, this should make you see the gold where then you saw the gray,
 Oh, this should make you glad to greet another newborn day!

I laugh to see you breathe the air and drink it in awhile—
 Is this a sad philosopher with such a merry smile?
 Is this a sad philosopher that flings his arm so free,
 That tramples down the woodland ride and laughs and talks with me?

Oh, here are some of last year's leaves and oakwood for the fire,
 Oh, sweet to see the curling smoke mount higher yet and higher,
 Oh, sweet to scent the savor of the soon-enkindled wood—
 On such a morn as this, my lads, to be alive is good!

New buds are bursting in the glade, new pleasures in our minds,
 And we have flung our cares away to ride upon the winds,
 To ride upon the winds and float and disappear and die,
 And he's a coward knave that says they'll settle by-and-bye!

For now we sup the morning cup and feel our tingling veins;
 A merry quip on every lip, wherein no barb remains;
 A merry thought, a jest unsought, good-humor frank and free,
 And, now and then, the voice of men out-clamored from the tree.

And now the smoke of more than oak goes curling down the wind,
 The moment flies, and we must rise, and leave our camp behind;
 Yes! now the back must take the pack, and we must get away;
 Oh! step along, and start a song to greet the new-born day!

—A. R. Thurlocke.

Reproduction of Forest Trees.

By E. J. ZAVITZ.

IN that branch of Forestry known as Silviculture, the study of reproduction is one of the leading problems. Even the child at school knows that the grain of wheat produces a new plant, but the great majority would be at a loss to explain the manner in which a pine tree originates. In a conversation with the foreman of a large lumber company, I discovered that he was greatly surprised to find that White Pine originated from seeds which were contained in the cones. This man had been reared in the woods, and is considered an expert in logging operations. The pine trees were there, and it was his business to make them into logs and get them to the drive at the river. He never saw the seedling pine, although he had trampled them under foot all his life. He only recognized them as pine when they had developed into log material. He was looking for logs and logs were all that he saw.

Forest trees reproduce in various manners, although all reproduction may be put into two classes, namely, sexual and vegetative.

Sexual or reproduction by seed, is the most common, and it may be of interest to discuss some of the outstanding features. The production of seed by trees, depends upon the age of the tree, which also varies with different species. Seed production also depends on the storage of food material in the tree, which again depends upon such factors as quality of soil upon

which the tree grows. That is, the tree produces seed at an earlier age and seed of better quality, if growing on good soil.

There are many factors which influence the chances that trees have in the natural fight for possession of the soil. Where one species is found to be strong in reproductive power another may be weak, but upon summing up the various factors, we find that no one species has a general advantage.

The different species of forest trees vary in the age at which full seed production occurs; White Pine begins producing its best seed at about forty years of age, while White Oak may not produce good seed till at the age of seventy. As the crop of seeds depends upon the storing of certain reserve materials in the tree, most species have special seed years, when a heavy crop of seed is produced. In White Pine this good seed year may occur about every five years, while with Scotch Pine it occurs every three years.

The number of seed produced per tree must also influence a species' chances in keeping possession of the soil. A White Pine about fifty years of age has been known to produce about 200,000 seeds. This would indicate that there should be a large reproduction of young pines in the vicinity of the parent tree. The fact is that very few seeds which fall to the ground ever produce trees, owing to the following reasons.

Many seeds are abortive or have no

germinating power. In White Pine tests it has been shown that about thirty per cent. of the seeds are useless.

In natural conditions, seed falling to the ground often has no opportunity to germinate, owing to lack of seed bed conditions. The seed does not find proper lodgment in the mineral soil, and is finally destroyed. In this manner we find many seeds, such as acorns, sending out the radicle which may enter the ground, but owing to lack of protection the vital parts of the seed are dried up or otherwise destroyed, as

Forest tree seeds have many enemies, such as insects, rodents and birds. A large percentage of such seeds as acorns, chestnuts, hickory nuts and basswood are destroyed by insects, which live in the vital parts of the seed. Mice, ground squirrels and other rodents destroy many seeds, but frequently the squirrel's destructive propensities are turned to good account. Acorns and nuts have been hidden in various nooks which were good seed beds, and have been left to germinate and grow—through neglect or otherwise of the squirrel. The seed eating



FIG. 1.—Showing the radicle or primary root of the acorn just entering the ground. The natural protection of leaves has been burned off, leaving the acorns exposed.

may be seen in Fig. I. In this case the lack of leaf litter is detrimental; but we frequently find the other extreme, especially in northern coniferous forests. The ground is so covered with leaf litter, or duff, that it is impossible for the seeds to reach the mineral soil.

The vitality of the seed has a great influence on the chances of a species to reproduce. We find that the seeds of Elms and Soft Maples will lose their vitality within a few weeks, while the seed of some pines will remain good for several years.

birds are very destructive, and devour the pine and other coniferous seeds with great avidity. Birds will even eat the young, tender coniferous seedlings, and it is probable that a large percentage of young seedlings are so destroyed.

The hardness of the seedling must also be considered, as some species seem better equipped from this standpoint. The White Pine is weak at this point. As may be seen in Fig. II, the one-year-old White Pine is a very delicate structure. Such a plant must

necessarily have considerable protection to withstand the climatic changes, such as exist in its natural range.

tected during the autumn and spring, it will surely succumb to sudden changes of temperature.

The Oak, as may be seen in Fig. II., is well equipped for the struggle during the seedling stage. After germination of the seed the first movement is the descending of the primary root into the soil. The root goes down three and four inches before the upward growth commences, which is possible owing to the fact that the cotyledons are filled with reserve nourishment. In this manner the seedling becomes well established, and is ready to withstand adverse conditions of soil or climate.

It may be said that each tree species under natural conditions, has about an equal chance in the struggle for possession of the soil. If it were not so some would have long ago disappeared. One species may be strong at one point and weak at another, as is the case with White Pine. White Pine has a large crop of seeds about every five years, and a large percentage of the seed has good germinating power as well as prolonged vitality. However, both the seeds and the seedlings have many enemies, so that this species is not given an advantage in the struggle.

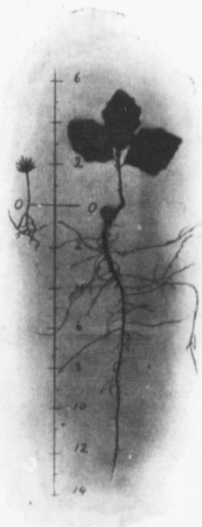


FIG. 2.—Root development of year old White Pine and Red Oak.

During this first season it may be killed by too much sun, and if unpro-



Nature Revealed.

By F. M. LOGAN, at the Oratorical Contest, 1903.

IN this age of gain and gold, how few among us give any reflection to the splendor and magnitude of Nature. Ambition, with its lust of pelf and power, longing to place on its breast distinction's worthless badge, betrays us to shun Nature's charms, and to gaze upon the gilded glitter of man's achievements. Therefore it is only when we cast aside the cares and distractions of life and withdraw to some quiet spot where Nature abounds in most luxuriant profusion that we are impressed with her grandeur and beauty.

In the springtime visit some woodland where all Nature is bursting forth in all her mantle of leaf and flower, and you are inspired with feelings of emotion when you view the wonders and mysteries of this great universe. The harmonious music of the trees almost persuades us to quit our life of solemn trifles and to come and live with them. The tempered light of the woods is like a perpetual morning, enfolded us in that mysterious spell which obliterates all memory of the past, and we are led in triumph by Nature.

How varied is Nature in her charms! For the man who loves might and magnitude and power she has provided the great mountains, towering heavenward until their snow-capped peaks are lost in the billowy vapors of the sky. Or he may stand on the verge of some great canyon where the dissolving forces of the centuries have carved

their way to a depth almost incredible. Does he prefer majesty in motion? If so, let him dwell on the rugged shores of old Atlantic, and watch her ceaseless waves roll leeward, dashing in the air their silvery spray with a force which baffles imagination, or tossing on their foaming crests the helpless forms of some great ocean greyhound.

Behold the revelation of Nature when on some fine summer night you gaze into a cloudless sky. What a spectacle of peerless grandeur greets your vision. You wonder if all those shining orbs which so gorgeously decorate the firmament are clothed with tall trees and leafy bower, with high mountains and verdant vale. You ponder whether those dazzling spheres which hang suspended in silent majesty are peopled with individuals as unworthy and ungrateful as we. And as you watch them trace their pathway through the endless realms of space, you are impelled to believe, in spite of all your doubts and dogmas, that there is a Guiding Hand which shapes the destinies of this great universe. The grandeur and beauty of this spectacle are the eloquent witnesses of peace and progress, and justify our long cherished hope of immortality.

What lessons of truth and wisdom are to be drawn from Nature's exhaustless store! Can it be possible that all through these years our elementary training has kept us in unpardonable ignorance of this knowledge, and that it is only with a dawning of the

twentieth century that our leaders in educational thought have awakened to view the sacred truths which are here revealed.

Four centuries ago, the great Shakespeare was impressed with this vision which he poetically portrayed as "Tongues in trees, books in the running brooks, sermons in stones, and good in everything." The golden beams of a new era are breaking when we shall banish the artificial and insincere; when each student shall be privileged to hear and understand the tongues in trees; to read the books that are being written by the running brooks, and by the knowledge of their language delve into the ponderous volumes of the ages; to interpret the sermons of the stones, and to see the good in everything.

The light which reveals these hidden mysteries is the knowledge of natural science. A study of these subjects unfolds to man the marvellous processes of Nature, the great laws of harmonious forces, and tell him the long and intricate story of the past. Set in a knowledge of their relations, the commonplace becomes beautiful, and the beautiful sublime. Let us gaze for a moment upon the picture which a knowledge of botany reveals. The botanist who can interpret the whispering of the trees may hear them declare in language too eloquent for utterance. "We take the impurities from the air you have breathed and transform them into fragrance and beauty; we gather the gases from your fires and factories and change them into energy and life; we steal the sunlight from the sky and preserve it all through the ages for the comfort and benefit of man."

Researches in chemistry reveal Nature in still more wondrous ways. By

the study of this great branch of natural science, we become familiar with the materials of which the great mountains are composed, as well as the atoms and elements which form the bone and sinew of animal life. We learn something regarding those forces which give us motion and energy, and which fan the flickering spark called life. By a further study of this subject we learn that no way is yet revealed to man by which one atom of matter can be either created or destroyed. This great law is as steadfast as eternity, therefore we must believe that every particle about us, as well as the varied elements of which our bodies are composed, have been in existence since time immemorial, and that the present order of nature, as revealed to us, is merely a passing picture in the great procession.

Consider for a moment the mysteries of Nature revealed by the study of geology. It is only by a knowledge of this subject that we are permitted to peruse the countless volumes which are being written by the running brooks, and to understand the eloquent sermons which are spoken by the little stones on the wayside. The geologist who appreciates his calling realizes that every fact of nature is significant, and provides a broader and loftier platform from which to view the receding and hazy vistas of the past. A study of this subject reveals the chemical, mineral and biological changes which are ever occurring in the air and the ocean, in the solid globe, and the organisms by which it is inhabited. Geology attempts to unravel the processes by which we have arrived at our present state of existence and to read to us the history of the ages. These processes are continuous, the cycles move ever onward, each progressing toward some

distant goal which human wisdom can yet but vaguely apprehend.

What a curriculum is here for the student, and what inspiration for the teacher of the twentieth century! It was with the simple truths of Nature that the Great Instructor of Man impressed his hearers. "Consider the lilies how they grow, they toil not, neither do they spin," has been ringing all through the centuries, and has moulded more characters and inspired more lives than all the classics of the Greeks or Romans. Wordsworth was so inspired with a vision of these truths that he declared, with poetic eloquence:

"There was a time when meadow,
grove and stream,

The earth and every common sight,
To me did seem

Apparelled in celestial light;
The glory and the freshness of a
dream."

Let us consider the marvellous influence which revealed Nature as exerted over the mind and genius of man. We are told that every great thought or invention is but the result of some vision flashed upon man's mental lens. James Watt saw that steam from the boiling water in the kettle could raise its lid. This simple act of Nature left its impression upon that receptive mind, and the picture produced was the steam engine, that mighty power with its countless achievements and its unlimited possibilities; that master force which lightens the labor of man, which climbs the mountain slope, and conveys us with the fleetness of a bird from ocean to ocean and from land to land.

Witness the effect of Nature's law as revealed to Newton. He saw the apple

fall from the tree, and it reflected upon his great brain the power and possibilities of gravitation. Contemplating, as nature suggested, he was able to explain that great force which prevents the destruction of this rapidly-revolving globe, and to tell us how Mother Earth ever journeys on her trackless path guided by the steadfast arm of this great power.

Franklin saw the lightning flash, and it revealed to him the possibilities of the air, and beheld to-day the wonders of electricity. By its gigantic force ponderous machinery is made to move, by its subtle influence our homes are brightened, our sick are made well, and our criminals meet their doom. Marconi heard the echo of the song bird wafted by electric waves vibrating on the far off hillside. The sweet cadence of the music inspired the genius of his young brain to study Nature's laws, and to-day man speaks with man in mid ocean or upon the shores of some far-distant land.

Imagine, if possible, the influence which revealed Nature as exerted upon the mind and genius of poets. The poet of Nature gazes upon the landscape tinted by the gilded rays of the setting sun, and to him all creation is clothed in beauty and splendor. His imagination and very soul are pierced with unusual vividness, and the expression of that thrill, that glow of emotion, is Poetry. Nature woos his spirit in manifold and mysterious ways. She elevates him with her vastness and grandeur; she gladdens him with her beauty; she restores him with her calm. The light which science and philosophy shed upon life is reflected by Nature, and the poet permeates their messages with a higher meaning and transfigures them with a splendor almost divine. It needed not the classics

of man's university to enable Wordsworth to read their books and to

"Murmur near those running brooks,
A sweeter music than their own."

Robert Burns required no knowledge of Greek or Latin to interpret the whisperings of the mountain daisy. He needed no study of Roman classics to understand the great truths which Nature reveals. Those truths which he has stamped with his poetic genius, which have inspired the great men of centuries past, and which will be the rule and guide of man as long as time shall last.

The brilliant thoughts of Nature's poets are among the brightest flowers bequeathed to man. Their leaves may have long since withered and died, but the fragrant nectar of their bloom has been wafted down through the centuries, brightening and beautifying life and adding lustre to the brain and genius of man.

And now in closing, let me say, honor to the men from whose lives we have gathered these sparks of Nature's wealth, whose words have instructed, whose examples have encouraged, and whose thoughts have inspired. Honor to the men who have made us see the mysteries of this great universe through a brighter and a better lens, who have revealed to us in countless ways:

"The wondrous store of charms
Which Nature to her votaries yields;
The warbling woodland,
The resounding shore,
The pomp of groves,
The garniture of fields,
All that the genial rays of morning
gilds,
And all that echoes to the song of
even,
All that the mountains shelling bosom
shields,
And all the dread magnificence of
Heaven."



The Protective Coloration of Animals.

BY L. CAESAR, '08

THE abundance of animal life around us in the form of quadrupeds of various kinds, birds, fishes, reptiles, insects, etc., gives all of us a chance to interest ourselves during our leisure moments in studying in what way and to what extent the respective coloring of each of these different kinds of animals helps them in the struggle for existence, which they, as truly as we, have to face. Protective coloration of one kind or of another is very common in nature and is found to some degree at least in almost every kind of animal, from the polar bear to the smallest insect. To attempt therefore, to discuss the subject as a whole would be absurd, hence I shall confine my remarks to a few points of interest about fish, birds and insects.

If we look at the color of fish we find that in the great majority of cases the back or entire upper surface is dark colored, while the belly, or lower surface is decidedly whitish. Can such coloration be considered protective?—that is, does it help a fish either to secure its prey or to avoid its enemies more easily? All that seems necessary to give an affirmative answer to this question is to remember that when we look down upon water it appears dark, but when we dive beneath the surface and look up towards the light it appears almost white. It is clear, then, that a fish's colors are remarkably well adapted to fit in with its surroundings

and to assist it in its manner of life by rendering it more inconspicuous to foes and prey alike.

If this peculiar color scheme, as we may call it, is of advantage to fish, we should naturally expect to find a somewhat similar scheme in fowl that live on the water, and such we find to be the case to a very large extent, though there are many exceptions or apparent exceptions. Good examples of a similar sort of coloring to what we see in fish are to be seen in loons and in many kinds of ducks and grebes. The explanation of the exceptions or apparent exceptions to this kind of coloration is, I believe, to be found in a careful study of the difference in habits of these birds. Such a study, moreover, will lead us to observe the shore birds and waders and their wonderful adaptation in form and color to their mode of life, for instance, who has not marvelled at the inconspicuousness of sandpipers on the sandy beach? or who has not mistaken the bittern for a piece of projecting stick or root, as it stood motionless and silent in the shallow pool?

The time in a bird's life, however, when it most needs protective coloration is during the nesting season. Now, that many of our birds are beginning to make their nests, every bird-lover should endeavor to find out for himself how far each incubating bird is rendered inconspicuous by its peculiar kind of coloration. We should not

forget, moreover, that color protection is most potent when its possessor is motionless, and this state of affairs we find in birds on their nests.

The difference in color between our brilliantly-arrayed male birds, like the male indigo bunting, bob-o-link, red-winged blackbird, rose-breasted gross-beak, and scarlet tanager, and the dull or plainly colored females of these same birds, is largely to be explained on the ground that among such birds it is the female that does the hatching, and hence nature has granted her a high degree of protective coloration, which the male does not possess.

Without, however, going further into the many problems that color protection among birds suggest, let us pass at once to the insects. Here it is that we find the most interesting and richest field for studying our special subject. There are great numbers of caterpillars or other kinds of larvae, or of the mature insects themselves, that harmonize almost perfectly in color with the plants they feed upon or with the things upon which they rest. I need only mention such familiar examples as the caterpillars of the cabbage butterfly, the grasshoppers, the walking-sticks and the numerous moths that rest during the day on the bark of trees and so closely resemble it that they are seldom seen.

But one may naturally say, "We can understand how such colors as these protect insects, but how about those brilliantly-colored caterpillars, beetles, butterflies, bugs, bees and wasps that are so easily seen and yet do not appear even to try to conceal themselves, how do they manage to escape annihilation by their foes?" The answer to this is one of the most interesting things that nature can reveal to us. Nearly all of these insects will be found

to possess something that renders them undesirable morsels for birds. This in some cases, as in the case of bees and wasps, is the power to sting; in others, such as the ladybird beetles, potato beetles and some kinds of butterflies, it is the power to emit a very ill-smelling or ill-tasting fluid, or the possession of some nauseating quality that renders them unpalatable; in other cases it is the presence of rough spines or hairs, such as are found on many kinds of caterpillars. Grant Allen says that, "For a bird to attempt to swallow one of these hairy or bristly caterpillars would be much the same thing as if you or I were to try to swallow a clothes-brush." Now if each of these kinds of insects had not some distinguishing mark or color by which it could easily be recognized, a bird would have to try each insect before it could tell whether it was fit to eat or not; hence it is of mutual advantage to bird and insect alike that the latter should possess these brilliant or "warning colors" as they are usually called.

But, perhaps, even more remarkable than the system of protection by warning colors is the existence of many insects that, though quite defenceless and edible, yet protect themselves by mimicking the colors and actions of other self-defended insects like bees, wasps, and certain kinds of beetles and of butterflies. Examples of insects possessing such mimicry are rove beetles, which imitate wasps, many kinds of flies that imitate bees, and the famous case of the viceroy butterfly that looks almost exactly like the well known red monarch. There are in reality hundreds of similar cases of mimicry, but an interesting fact is always found to hold true of each case, namely, that the insect that mimics

always lives in the same district as the one mimicked, and always is less numerous than the latter. Of course this stands to reason, because if it were not so birds would have no reason for avoiding these mimickers, and in fact there would be no sense in the name.

Lack of space, however, forbids our discussing color protection at greater length, but in conclusion let us not exaggerate the benefit received from protective coloration and imagine that any one claims that it is a perfect safeguard for animals against their foes. The fact is that all of the above-mentioned animals are to a greater or less extent attacked and killed by other enemies than man in spite of their

coloration, but there is no doubt that many more would perish if they had not these colors; hence color protection is a very important factor in the preservation of the species.

The peculiar pleasure a subject like this can give to those who devote their attention to it reminds us of the following lines by Longfellow:

"And he wandered away and away,
With Nature, the dear old nurse,
Who sang to him night and day
The rhymes of the universe.

And whenever the way seemed long,
Or his heart began to fail,
She would sing a more wonderful song,
Or tell a more wonderful tale."

NATURE.

As a fond mother, when the day is o'er,
Leads by the hand her little child to bed,
Half willing, half reluctant to be led,
And leave his broken playthings on the floor,
Still gazing at them through the open door,
Nor wholly reassured and comforted,
By promises of others in their stead,
Which, though more splendid, may not please him more;
So Nature deals with us, and takes away
Our playthings, one by one, and by the hand,
Leads us to rest so gently, that we go,
Scarce knowing if we wished to go or stay,
Being too full of sleep to understand
How far the unknown transcends the what we know.

—Longfellow.

Nature For Its Own Sake.

BY A. E. SLATER, '08.

The beauty which old Greece or Rome
Sung, painted, wrought, lies close at hand,
We need but eye and ear
In all our daily walks to trace
The anthems of incarnate grace,
The hymns of God to hear.

—Whittier.

HOW many have stopped to consider seriously what "Nature Study" implies, and yet the agriculture problem of this country depends largely upon the solving of the Nature study idea.

To some it would seem that this question of Nature Study has but recently attracted attention, and yet it is as old as the hills themselves. The greatest writers and thinkers of these and other days have been keenest students of Nature. It was from Nature that Huxley, Darwin, Browning, Tennyson, Wordsworth, Eliot and Chaucer drew their inspiration. Nature, with her mysterious forces everywhere at work, gave to the Greeks, the Romans and the Norsemen material for the wonderful myths that have told so markedly in the history and culture of these people. The principles, upon which great inventions have been made, were first in nature's keeping, locked in the realms of the unknown. Upon a nation's power to discover and apply these hidden forces is determined her place among the nations.

Nature study is a many sided problem. Thus it may be approached, from an economic, aesthetic, educational, ethical or religious standpoint, with

one of two objects in view: either to discover new truth for the purpose of increasing the sum total of human knowledge, or to put one in a sympathetic attitude toward Nature for the purpose of increasing the joy of living. The first object is more of a science-teaching movement, and its professed purpose is to make investigators and specialists. The second object is purely a Nature study movement, and its purpose is to enable every person to live a richer, fuller life, whatever his business or profession may be.

As an agricultural people it is to the accomplishment of this latter purpose that we must strive to attain. Nature study, then, is not to be approached as a science or an art, but rather as a study of Nature for its own sake. We look to our scientists and investigators for knowledge that will enable us to combat insect foes and plant diseases; for improved methods of feeding live stock in the most economical manner, and for new and improved varieties of field crops. This is largely the work of our agricultural colleges and experiment stations, and rightly so. But does this solve the problem that now confronts this country—how to keep the boys on the farm, and thus stay the

mad exodus into the cities? What is needed is rather to awaken an interest in the things with which the farmer lives and has to do, but does not see, or sees but blindly; for a man is happy only when he is in sympathy with his environment. The value of this method lies not in learning, but rather in interesting and inspiring a man to a nobler, stronger and higher life by showing him the wonderful beauty all around him and enabling him to realize the divine plan which universal nature obeys.

Pope beautifully expresses this thought thus:

"Slave to no sect, who takes no private road,
But looks through Nature up to Nature's God."

Nature is above all. Men and their deeds pass away, but Nature is immortal. And the great peace of it. There are times in a man's life when, tired and disappointed with the struggle, and with the gross materialism of our age, he seeks to escape, to be alone with Nature, and there to learn obedience, patience, peace.

Who has not felt the peace of the river, as it steals over one, with its stillness and freshness. A day spent in a canoe is not only a revelation of Nature, but of ourselves. The quiet drift along between the wooded banks, and the coolness and shade from bank and bush wake memories perhaps of an earlier, a simpler, and a nobler life. In spite of our materialism we can

never forget the nature that sent us forth.

Then, too, where are we to go but to Nature to learn reverence and law-abiding qualities as well as to see the beautiful and harmonious in all their different forms. "Lead the child out into the world of nature, it is his native air," cried Froebel. A scientist filled with the spirit of nature becomes a better, a greater, and a nobler man. A farmer filled with this same love becomes, in addition to this, a better agriculturist.

Finally, if we can find a Nature study that shall insure a sincere love for Nature we shall be laying the surest possible foundation for strong, religious character.

When one feels the mighty silence of the unknown, is rapt in admiration at the infinite realms of violet blue sweeping outward and upward, the spirit leaps out in response to the Great Silence—the hush that tells of limitless space. Instinctively all races of men, whether savage or civilized, raise their eyes toward the heavens, as though beyond the blue dome rested the seat of final justice, and its shining light was a manifestation of Supreme Power.

We are all unconsciously touched by the hand of Nature, therefore let us remember that the true Nature study idea consists not in classified knowledge of botanical terms, or scientific formulae, but rather in closest contact, keenest observation, and deepest enjoyment of the beautiful, sublime and emotional around us.

The O. A. C. Review

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Editorial.

The present month sees the Third year students engaged in the Nature

Nature Study course. In the past a good deal of grumbling has been done by those taking this course, for it has seemed to many to be very largely a waste of valuable time. They have thought that there was but little to be obtained from the course, and consequently they have not made very strenuous efforts to utilize the possibilities which have lain around them.

It is important that students catch the true import of the subject of their studies and that they see it in relation to other phases of activity. Especially is this true regarding Nature Study. This has two principal values; first, the strengthening of the powers of observation and the collection of accurate information regarding the common things around about us; and second, the formation of a deep appreciation of these things for their own sake, and

not for the sake of the knowledge gained. This second phase of the subject probably in many instances grows out of the first, but it does not necessarily arise therefrom. In order that a Nature Study course may fulfil its mission the students must come to a realization and an appreciation of the common sights and sounds of the countryside, and of the coloring of sky and landscape. In a course of but six weeks duration it is not possible for students to collect a very large store of information, but in that time it is quite possible that a student's whole outlook upon nature may be changed and his world correspondingly enriched and enlarged.

Undoubtedly one of the fields in which most can be done for the cause of true Nature Study is the Public School. Public School children are at an age when curiosity is keenest and when the mind, unfettered by a multitude of technical studies, and fresh

because of its youth, is most impressionable to the song of birds and the richness of landscapes. Starting with a child with keen perception and love for the things of the open air, it is possible to develop a scientist, but with a scientist only to start with, it is difficult and perhaps impossible to produce a nature student in the true sense of the term.

J. Bracken, '06.

R. W. Mills, '07.

The second winner of the '05 trophy has just been announced by the class of '07. We need not refer to the conditions upon which this prize is won, as it has already been dealt with in

**Winners
of the '05
Scholarship
Medal**

back numbers of this journal, but one point is unique about the winning of the medal, and that is that the winner's classmates are his judges. This feature makes the award of special interest to all the members of the class, and the distinction of being chosen very gratifying to the successful candidate. To be the best all-round man in the year means more than is suggested in the term at first sight. It means that



R. W. MILLS.

a man must give largely of his time and talent to the interests of the student body, as well as to his personal interests. Thus it comes that the trophy is given largely to the unselfish man, and is a tribute to the winner's altruistic views. To the various college societies Mills has lent himself willingly throughout his entire course, and there is scarcely an association that has not got some good thing to show as a tribute to his ability and energy. The Review extends to him its heartiest congratulations.

A PICTURE.

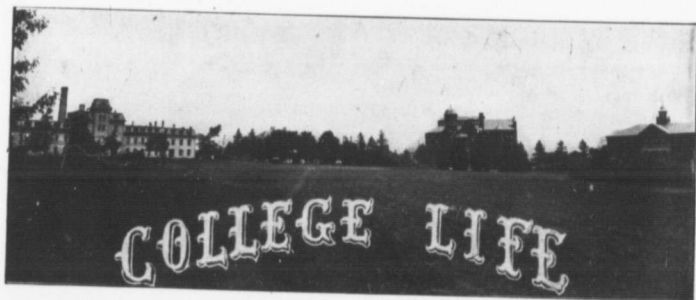
Gray skies, gray streets, and dreariness,
A tired woman and a fretful child;

A crimson leaf whirled by a vagrant breeze,
A wreath of something fresh and sweet and wild!

A woman smiling through her weariness,
A little child with happy laughing eyes;

How close is heaven when a crimson leaf,
Can open thus the gates of paradise.

—Helen Field Fischer in the "Outlook."



SINCE our last issue great changes have taken place in and about the college. Where are the Freshies? They aren't here. They're everywhere, in every corner. It's just like them. Where are the jolly, hooting, complacent, consequential, wise (in their own estimation) Sophs? "All over," too, but all over in a wider sense than are the Freshies, for the former, many of them, will not be returning and so have gone to their widely separated homes—Japan, British Columbia, Manitoba, England, Quebec. And the Juniors and Seniors, what of them? The former rejoicing in the fact that exams are over and that for them there will be no more exams for a whole year, are engaged in the rambles, excursions, and discussions incidental to Nature Study. The Senior year! Care sits upon their brows. May fortune attend them. Their fate hangs in the balance. May they get their B. S. A.'s, if not now, why some other time. May they arise and shine and do their country great and noble service, as so many of their predecessors have done in days gone by.

Another addition is being made to the college equipment in the shape of a huge steel tank, which is being erected by the Walkerville Bridge Company. This supplies a long-felt need, the old tank in the tower having long since proved itself inadequate. The present structure in course of erection is to be 120 feet high and 45x45 at the base, with a capacity of 50,000 gallons. It is situated between the east wing of the college and the car tracks. This should furnish abundance of water under strong pressure in case of fire, which in Canada in the last few months, has been unusually active in the destruction of human life and property. Too much care cannot be taken to keep fire apparatus in the very highest state of efficiency and to provide every needed auxiliary for fire fighting purposes. Moreover, there will now be an abundance of water for ordinary purposes in both this institution and the Macdonald Institute, which latter heretofore has been using city water.

On Wednesday evening, April 2nd,
Prof. McCallum, of Toronto University,

delivered a lecture in Massey Hall on "Victoria Falls." The lecture graphically described his long journey to the interior of Africa, giving much information regarding the general nature of the country and people in the African regions passed through. Many lantern slides were exhibited, showing even plainer than words what manner of people they are who live in the remoter parts of Africa.

On Easter Sunday the usual special service appropriate to the occasion was held in Massey Hall. Rev. Dr. Balantyne, of Knox College, Toronto, preached an able sermon. Special music was provided by the choir.

The Annual Sophomore Dinner took place at the King Edward Hotel on Friday evening, April 12th. At 9 o'clock the dining-room doors were thrown open, revealing a magnificent spectacle, a spectacle which did great credit to the management of the hotel and the enterprise of the Sophomores. The tables of the beautiful dining-room were gayly decorated with a profusion of cut flowers, carnations and roses predominating, and were loaded with an abundance of tempting viands. At each man's place was a dainty bouquet, a souvenir booklet, and an elaborate gilt-edged menu card. The booklet is deserving of special mention and certainly reflects credit upon the committee which prepared it, as well as upon the publishers who printed it. On the inside of the first leaf were the class officers—W. Strong, president; H. W. McGill, vice-president; A. G. Turney, secretary, and the committee, consisting of the class officers and in addition Messrs. A. D. Campbell and A. McLaren. Next came a fine view of the college dormitory, followed by a

list of the toasts, including "The King," "Our Alma Mater," "The Staff," "Our Sister Classes," "Class of '09" and "Agriculture." Then came a list of the members of the Sophomore year, with their addresses, and on the last page a view of Massey Hall, making in all a booklet of eight pages. These having been duly inspected, everyone got busy and ample justice was done to the bill-of-fare. During the sumptuous repast charming music was dispensed by Thain's orchestra. Next followed the programme of toasts, interspersed with vocal and instrumental music by members of the class. This part of the proceedings was characterized by originality, informality and an unlimited amount of wit and humor. Various "rubs" were administered, even members of the staff who were present coming in for their share. The very best of feeling, however, prevailed throughout. Everyone must admit that this year's banquet was the best held yet by a Sophomore class; in short, it was a complete success and a great credit to the Second year, who, on this occasion, met together for probably the last time as a class. Among the guests present were President Creelman and his friend, Mr. Rittenhouse; Messrs. J. H. Reed, W. H. Day and W. P. Gamble, representing the staff; J. B. Fairbairn, College Secretary; H. H. LeDrew, Manager O. A. C. Review, and the Presidents of the Freshman, Junior and Senior years.

At a meeting of the student body, held recently, the following were elected to The Review staff: Agricultural editor, W. A. Bowes; Experimental, A. E. Slater; Horticultural, R. M. Winslow; "Old Boys," H. W. McGill; College Life, A. G. Turney; Locals, G. LeLacheur; Assistant Manager, P. E.

Angle; Assistant Editor, A. D. Campbell. D. M. Rose continues as Editor, and H. H. LeDrew as Manager.

The Literary Society is to be manned next term by the following officers: President, W. A. Brown; vice-president, (not elected); secretary, W. M. Waddell; treasurer, W. R. Reek.

The regular meeting of the Entomological Society and the Wellington Field Naturalists' Club was held at the college on Wednesday evening, April 10th. In addition to the usual attendance, there were present some of the new Nature Study class, consisting of teachers from the Maritime Provinces, Quebec and Ontario.

Dr. Bethune gave a very interesting and instructive talk on the silkworms, taking up their life history, methods of rearing and of obtaining the silk. Photographs illustrating the mode of work in Japan were shown, also specimens of moths and cocoons.

Mr. T. J. Moore exhibited a number

of botanical specimens sent by Mr. Tytler from California. Mr. Moore also exhibited some diving beetles alive in a jar of water, and gave an interesting account of their life history.

A number of observations regarding moulting habits, arrival of birds, etc., were brought before the meeting.

The meeting of the two organizations, held on March 27th, was one of considerable interest. A live red squirrel was shown and discussed as to its injurious and beneficial habits. Three counts were recorded in its favor and three against it—it helps to reforest by burying nuts, eats injurious insects, is ornamental; destroys eggs and young of birds, girdles small limbs and eats terminal buds of conifers.

Mr. Jarvis exhibited a live sparrowhawk, captured March 25th. Its habits were likewise discussed. On the whole this bird seems highly beneficial.

Other minor topics were discussed, and important points in reference to subjects under discussion brought out.



Athletics.

At our college here we have two great days of sport; one, our annual outdoor meet, held in the fall of the year; the other, our newer indoor meet, held near the end of the winter term. The latter, though a newer innovation, has met with the most pronounced success, and by its rapid growth and the interest it aroused among the students this year, bids fair to expand and rival in importance the hitherto great unrivalled outdoor meet. This year our second indoor meet was held in the college gymnasium on the afternoon and evening of March 21st, before a large and appreciative audience of about 400. Very many of our audience were Guelph people, and they went away amazed at the long and varied programme carried out by a score of skilful performers who have merely developed since Christmas time. The honorary president, Dr. Hugo Reed, was in charge of the proceedings, and acted as starter, being capably assisted in his duties by the judges, Professors R. Harcourt, G. Day, and W. P. Gamble and J. B. Fairbairn. Presidents Creelman and Mills were present in their official capacities, while Instructor

Hibberd carefully watched and guided the course of events. Jacobs, in his official position of crier, was heard clearly and well in all parts of the hall, and Wolverton and Jones, "clerks of the course," performed their duties in a manner satisfactory to all.

Baker, of the '08 class, was the grand champion of the day, with the fine total of 48 points, consisting of eight firsts, one second and a third, out of eleven entries. He becomes the possessor for a year of the new Pringle cup, and if he can duplicate his performance next year, will become the proud possessor of it for years to come. Curtis came second, with a total of 23 points, followed closely by Ryan with 19, and Lewis next with unlucky 13.

At 2 o'clock sharp the judges started the big programme of events. The first event was the 20-



W. BAKER,
Champion Indoor Sports.

yard dash, and the large number of competitors entered in this rendered it necessary to run off three heats. In the final, four competitors toed the line, and were sent off by the pistol of Starter Reed. J. M. Lewis, although hampered by a bad start, forged ahead and with a magnificent burst of speed, touched the tape first, but was unable

to stop quick enough, and so ran into the wall, injuring his knee severely. Jones, Curtis and Baker came in in the order named. In the standing high jump, Baker did some wonderful work, jumping 4 ft. 4 in. with ease. Shaw beat out Curtis for second place. The next event, three standing broad jumps, was won by Baker, with 27 ft., although Curtis and Shaw were right on his heels. Baker also took the standing broad, with Manton a good second. The next jump, the standing hop, step and jump, was another win for Baker, and the probable champion of the day was now away in the lead. Baker's jumping was a sight to see, and his long, deerlike jumps and exceptional agility won rounds upon rounds of applause from the audience time and again.

The running high jump was captured by J. M. Lewis, the crack outdoor high jumper, although Baker was a close second. The competition in this event was very keen, and Treherne, Edwards, Curtis and Shaw fought it out for third place, Treherne winning. A remarkable feature of this event was the fact that J. M. Lewis raised the record made by him last fall from 4 ft. 11½ in. to 5 ft. ¾ in., although outdoor records are nearly always easier made than indoor ones. Lewis should do some great work next fall. An altogether new and novel

form of entertainment was given in the running high dive. Great proficiency is necessary to be good at this event, and Baker, Ryan and Dennis finished one, two, three. In the jump off the spring board, Curtis and Baker tied at 6 ft. 10½ in., with Dennis next. The running long dive was of the spectacular order. Indeed these last three events are as entertaining as any circus. Think of a man jumping from a spring board, hurling himself through the air

a distance of 12 ft. 9½ in., lighting on his hands, turning a somersault, and alighting on his feet, as did Baker, Ryan and Dennis, the latter two being almost as proficient as the winner. Vaulting is an art that can only be learned by long practice, but there are now many in the college who are wise to the art. The three adepts were Curtis, Iwanami and Baker, and these three kept going higher and higher. Iwanami was a

warm favorite with the crowd, his work having a finish to it that was pretty to see, but his style was not quite so effective as that of Curtis, who took first place, while Baker was content with third. Little Haight surprised everyone by winning the rope climb, beating out both Treherne and Curtis with 10 1-5 sec. Another surprise came in the chinning contest, Dennis doing the trick twenty times, while White and Wheeler tied



The New Cross-Country Trophy.

for second place at nineteen. The result shows that great muscle is not an essential for this event, as LeClaire, the French muscle-ball, wore himself out in lifting his great weight up and down. Baker next did some of his most spectacular work, and kicked 8 ft. 2 in. in the standing high kick, about a foot higher than Curtis or Shaw, the next two best. He also won the running high kick, although Lewis was a grand second, with Curtis just a trifle lower. The last event was the dip on the parallel bars, and fine form was shown, Ryan making the record of 26 dips.

All now congregated in the basement for the aquatic part of the programme, and in the opinion of many this was the most enjoyable part of the day's sport. All the events were keenly contested, and some really grand work was done. Alexander proved himself the premier diver of the day, jumping from the spring board and entering the water with scarcely more than a ripple. He also won the plunge for distance with ease. In the 60-yard dash Addis beat Ryan in a preliminary in somewhat hollow fashion, but in the final Ryan took the lead right at the start and maintained a yard lead till near the finish, when Addis spurted and caught Ryan, but could not hold the pace, Ryan winning by three yards; Addis second, and Treherne a good third. Harries easily won the swimming-under-water event, he being the only man going the length of the tank more than twice. Very realistic was the rescuing contest. The competitors swam the length of the tank, rescued a live dummy, and carried him to the other end of the tank. All were experts at this work. Harries winning with the time 36 sec., although John Morewood won rounds of ap-

plause by his skilful manipulation of the drowning man. In general, Alexander was the outstanding diver of the day, while Ryan was far and away the best all-round swimmer.

The boxing and wrestling contests were held in the evening in the gymnasium before a crowd of a couple of hundred students. In the lightweight, Coke and Walker started the proceedings with a spirited bout, Coke winning. Afterwards Coke and Hodgins boxed off for the lightweight championship. The first round was quite interesting, but somewhat one-sided, and Hodgins won by default on the call of time. The middleweight produced a much better class of boxing. Ryan and LeClare were pitted against one another, and the former won the decision after a fine exhibition of the noble art. Hudson and McEwan were favorites with the crowd, and the irrepressible "Mac" was only put out after an extra round. The next bout was the best of the evening, Sharman and Ryan coming together. Ryan gave a clever exhibition of guarding, hitting and dodging, and in the opinion of many should have got the decision, while Sharman, with his long reach and heavy blows, was effective always. Sharman winning the decision, went into the finals with Hudson, and at the end of the first round staggered Hudson with a straight left. In the next round Sharman found his man as fresh as ever, but a heavy blow again weakened Hudson, and he was all in at the finish of the second round.

In the wrestling, White threw both Walker and Hodgins, after two very close contests, thereby winning the lightweight. The first bout of the middleweight class was easily won by Sharman, who disposed of LeClare in

two straight falls. J. M. Lewis met Sharman for the final. Both men were wary, and in a mix up Lewis shot Sharman skyward and he fell on his back. In the next attempt Lewis threw his man to the floor, but let his opponent get a neck hold while lying on him, and was slowly forced over. The final bout was quite even, but Lewis, by a half Nelson and crotch hold, turned his man after throwing him to the mat.

1. Twenty-yard dash—J. M. Lewis, Jones, Curtis; 3 sec.

2. Standing high jump — Baker, Shaw, Curtis; 4 ft. 4 in.

3. Three standing jumps—Baker, Curtis, Shaw; 27 ft.

4. Standing broad jump — Baker, Martin, Curtis; 9 ft.

5. Standing hop, step and jump — Baker, Curtis, Martin; 27 ft. 2½ in.

6. Running high jump—Baker, Lewis, Treherne; 5 ft. ¾ in.

7. Running high dive — Baker, Ryan, Dennis; 6 ft. 10½ in.

8. Running jump off spring board— (Curtis and Baker, tied), Dennis; 6 ft. 10½ in.

9. Running long dive—Baker, Ryan, Dennis; 12 ft. 9½ in.

10. Vaulting — Curtis, Iwanami, Baker; 6 ft. 2 in.

11. Rope climb—Haight, Treherne, Curtis; 10 1-5 sec.

12. Chinning contest — Dennis, (Wheeler and White tied); 20 times.

13. Standing high kick—Baker, Curtis, Shaw; 8 ft. 2 in.

14. Running high kick—Baker, Lewis, Curtis; 8 ft. 2 in.

15. Dip on parallel bar—Ryan, Lewis, F. G., Dennis; 26 times.

15. Swimming—Plunge for distance—Alexander, Ryan, Harries; 43 ft. 7½ in.

17. Sixty-yard dash—Ryan, Addis, Treherne; 37 sec.

18. Dive for form—Alexander, Treherne, Morewood.

19. Swimming under water—Harries, Ryan, Morewood; 134 ft. 6 in.

20. Rescuing — Harries, Morewood, Ryan; 36 sec.



THE GYMNASIUM TEAM.

Boxing — Lightweight — Hodgins, Coke; medium weight, Sharman, Ryan, Hudson.

Wrestling — Lightweight — White, Hodgins; medium weight, J. M. Lewis, Sharman.

BASEBALL.

Fourth vs. Second.

On March 23 these two teams played the closest, hardest, most interesting and most nerve-racking game played in the gymnasium so far this season.



Savage Christie Johnson Hodson
 Middleton Foster Mills (Pres.) Barton Curran
 O. A. C. HOCKEY TEAM.

There was an air of uncertainty all through the game, as at no time could one pick a winner. The Seniors went on the field with an almost new line-up, and the change seemed to do them good. The Sophomores had on their regular team, and anticipated little trouble in disposing of their learned superiors. When play started both teams played magnificent ball, the Fourth year fielding and hitting the ball in a manner that showed marvelous improvement over some of their earlier games. Crowe made a beautiful one-handed catch off first base, while Jacobs proved himself the equal of any fielder in the college. The Sophomores started off well, but were soon headed and held down by the Seniors until the

last innings, when a few lucky hits won the game for the Second year with the score of 17 to 14.

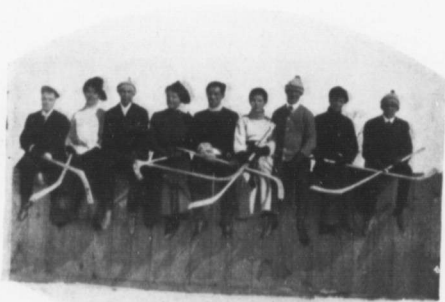
Third vs. Second.

The Second year, after the narrow squeeze they had to get into the finals with the Juniors, were not regarded as especially dangerous opponents. But the fright the Fourth year had given them did them worlds of good, and when play started on March 23, they fielded the ball in sensational style, and by speedy batting brought in run after run. Curran opened the batting for the Juniors with a nice single, and three men crossed the plate in the first innings, while the Sophomores went out one, two, three. In the second Third year fanned, while the Sopho-

mores tied the score, and from then on took the lead till the sixth innings, when the Juniors, by grand-stand batting, took a lead of 11 to 8, allowing their opponents only one more run, and winning the game and the championship of the college by the close score of 11 to 9 and an innings.

For the third successive year, '08 has won the inter-year baseball championship. Their success is due to all-round team play; Johnson and Hare are the

best battery in the college; the infield from Foster to Weaver is remarkably alert and cool, and the outfield are rapid fielders and sure catchers. Although the Third year have won the baseball medals given by the Athletic Association this year, they will have to hustle to repeat the trick next year, as the pitching of Coke for the Sophomores was of a very high order, and will have to be reckoned with next year.



Our Alumni.

AFTER a complete High School course, W. J. Elliott, B.S.A., '98, entered the O. A. C. On graduating, he settled in Minnesota, and for five years was engaged in creamery and cheese factory work. In 1903, Elliott was appointed assistant in dairying at the Montana Agricultural College, and the year following he was given a full professorship in his department. Under his direction the development of the dairy industry in Montana is very encouraging. Last fall a State Dairymen's Association was formed. Of this organization Elliott is secretary.

Allan Emmett, who took the first year with the class of '08, is farming at Stamford, Ont.

For the past few years the potato crop has been a failure in Ontario. The Department of Agriculture has undertaken an investigation for the purpose of ascertaining the cause of this, and of discovering, if possible, a remedy. H. B. Smith, B.S.A., '06, has charge of the inquiry, and with a man of his ability at work, some valuable information should be forthcoming.

Walter Wilson, of the class of '02, is farming at Oxbow, Alberta.

The dairymen of Ontario have been troubled for years with the difficulty of securing cheese boxes that would stand the knocks received in shipment to the old land. D. J. McPherson, '93-'95, Lancaster, Ont., is reinforcing

cheese boxes, using in the operation a machine of his own invention.

H. R. McDermott, '98-'00, is farming very successfully at Martintown, Ont. Dairying is his specialty, Ayrshires being the breed of cows in which he places his trust. "Mac" also gives considerable attention to the production of the bacon hog.

J. E. Runions, a Manual Training graduate of '05, has been teaching manual training in the public schools of Calgary and in the Alberta Normal School. He has recently resigned to enter the real estate business in Calgary.

T. A. F. Wiancko, '98, formerly an instructor in the Dairy School here, is doing well in British Columbia, being manager of a large creamery at Sardis.

At Ida, Ont., Roy W. Lough, '04-'05, is getting next to the soil.

Since graduating, F. J. Sleightholm, B. S. A., '89, has been very closely connected with the dairy industry. For some time he was on the board of directors of the Dairymen's Association. He was also formerly superintendent of the Western Dairy School. Sleightholm is the proprietor of a money-making creamery at Strathroy, Ont.

Live stock raising is being made profitable by C. A. Westover, '01-'03, of Frelighsburg, Quebec.

Tobacco is the staple crop around Colchester, Ont., the home of Maurice M. Baldwin, '03-'05. Baldwin also handles a number of hogs for the purpose of turning his corn crop into money. With excellent health and good success in his work, it is little wonder that he is happy.

At Wicklow, in Northumberland County, M. H. Winter, '02-'04, is putting into practice the ideas acquired at college. Fruit growing and live stock raising are the branches of agriculture in which he is most interested.

After spending two years at the O. A. C., Daniel Buchanan, '00-'03, went back to the old farm at Florence, in Kent County, and started to work at mixed farming. Buchanan takes an active interest in church and municipal affairs.

Bert W. Fansher, '00-'03, is making the old farm in Euphemia Township, Lambton County, yield a profit. Letters addressed to Florence, Ont., will reach him.

Graduates and ex-students of the O. A. C. are doing valuable work in the interests of agriculture as Farmers' Institute lecturers. Among the speakers at the late winter series of meetings was Wm. J. Elliott, '92-'94. Galt. Elliott has followed in his father's footsteps as a breeder of dairy cattle and bacon hogs, and has been a conspicuous prize-winner at our large Provincial fairs. He is thoroughly practical and up-to-date in his methods of farming.

Professor John A. Craig, B.S.A., '80, until recently Director of the Texas Agricultural College and Experiment Station, has resigned that position. He is now farming at San Antonio, Texas.

The Botanical Department of the Experiment Station at Tuscon, Arizona, is in charge of Wm. McCullum, B.S.A., '94.

Douglas Weir, B.S.A., '06, has been appointed Demonstrator in Biology at Macdonald College, St. Anne de Bellevue. "Doug" as a student was as full of fun as an egg is of meat. He was an excellent musician and as a



DOUGLAS WEIR.

photographer was hard to beat. On the college hockey team he was a tower of strength in goal. Professor Lohead is to be congratulated on securing as his assistant a biologist of Weir's ability.

For one year Jack Middleton was a member of the class of '05. Pressure of work at home required his return to

his father's farm at the end of his first year course. Since that he has started on a farm of his own near Clinton. He is making a fine success of raising beef cattle and Leicester sheep. It is thought that before long Middleton will desert the ranks of the bachelors.

J. Moore Reed, B.S.A., '99, is taking Ph.D. work in botany, at Cornell University. C. D. Jarvis, B.S.A., '99, a brother of T. D. Jarvis, B.S.A., lecturer in Entomology and Zoology here, has also been taking doctor's work at Cornell. He is now Professor of Horticulture and allied subjects at Storrs, Conn.

Ranching in the West is an occupation followed by many of our ex-students. Jack Weir, '99-'01, and Jim Sangster, are ranching near Calgary, Alberta.

On his father's farm at Dunlop, near Goderich, J. R. Linklater, '02-'03, is making a specialty of beef cattle and heavy horses. "Link" still has a love for sport, and takes part in any that comes his way.

A bright future as a stock-man is expected for Ed. Lawson, '05-'06. Shire horses and Shorthorn cattle are engaging his attention on a farm near Goderich, Ont.

Although somewhat alienated from agriculture, Harry C. Gardiner, '98, values his course at the O. A. C. very highly. He is connected with the Anaconda Copper Mining Company, Butte, Montana.

For some time after graduating, G. H. Carpenter, B.S.A., '04, engaged in dairy and fruit farming. Last fall he accepted a position as editor of "The Canadian Dairyman," Toronto. Under his management the Dairyman is going ahead by leaps and bounds.

After securing as much information as he could from the two years' course, Ross H. Paul, '01-'02, returned to a farm at Bath, Ont. He is demonstrating by every-day practice the value of a college course to the farmer. Last summer he built himself a magnificent new residence. Having done so, it was only natural that he should secure someone to share it. He was not long in making up his mind to discard the emptiness of bachelorhood for the more permanent joys and comforts of wedded bliss. On March 8th, Miss Pearl Amey, of Odessa, and Paul were joined in Hymen's holy bonds. May they live long and prosper!

After a few days' illness, R. H. P. Somerset, '02-'03, passed away in the General Hospital, Toronto, on Tuesday, March 26th. For some weeks he had not felt well, but his condition was not thought serious. Harry, who was the son of an Anglican clergyman of South Wales, came to Canada seven years ago. In 1903, after completing his associate course, he went ranching in the West. He then entered newspaper work, being agricultural editor of the Mail and Empire at the time of his decease. As he was well liked by all who knew him, a large circle of friends will regret to hear of his death.

Macdonald.

The Influence of Art in the Home Through Decoration and Works of Art.

"For the motive gives the value to the meanest thing we do."

IN declaring principles for so purely material a purpose as the decoration of the home, it is the underlying reason for their existence which give to such principles their interest and value.

Ideas in art are, according to circumstances and individual capacity, plastic, chromatic, musical, literary, etc., and while two individuals may receive widely different impressions, from the same occurrence, or may form distinct ideas under similar circumstances, artistically speaking the circumstances or the occurrence are not of much importance, while the individual impression is the foundation of art. The first demand of the child's spiritual nature is the beautiful. Carlyle seems to have well understood this fact when he said, "The first spiritual want of a barbarous man is decoration." The aesthetic sense is the center and dominating spiritual sense in childhood, and many mature persons never rise above it. While the relations of utility and morality are yet in embryo, the aesthetic relations make their appeal to the child and find a warm and sympathetic reception.

Love is the basis of voluntary action. Love is an emotion, having its basis in the sensibilities. Thus decoration is

an expression of love. The child loves first and learns because of that love. Emotion is antecedent to will, and instruction must reach the intellect and the will over the bridge of interest. Nearly all children and many older persons do what they like rather than what they ought, and we all find the path of distaste the most difficult to travel. Interest then must open and lead the way; it must be considered an evolutionary germ which may be made to develop later into a truly ethical product, a choice of right conduct from the highest motives. In other words, the delight in the beautiful is the beginning of many-sided interest which shall lead on through desire to the royal act of the will in choosing the right and the good for its own sake. Hence if we would affect the life of the child in all its phases, we must find some practical method of reaching the vibrations of life, the rythm of the soul. No human methods are more direct or powerful than the use of the fine arts, such as pictures, music, beautiful and elevating furnishings. These reach the soul in the most direct way and they tend to produce harmonious, self-centered, well-poised human life.

In furnishing, practice simplicity. Overcrowding home with furniture and

ornamentations is bad taste and worse art. In this respect some people have absolutely false ideas of economy. This is nowhere more apparent than when buying household furniture. Everything in the house that does not add something to the convenience, happiness or education of the family, or some member of the family is an extravagance. Some ladies will spend on trumpery articles, an amount of money which, in time, would buy some thing worth having. To save money on little things, to spend on larger and more useful things, is real economy when a house is to be furnished. Again, take wall paper, it is frequently of such a pattern and color as to make one scream.

But the arrangement of color and of furnishings has both a psychological and an historic interest. In entering a parlor where all the furniture is disposed as to contribute to the convenience of small, isolated groups of persons you know at once something of the temperament of the person who arranged the room. That is what is meant by the psychological interest roused by household decoration; but the historical is quite a different matter, and shows rather the real culture of the householder.

If the windows are draped with immovable festoons of heavy brocade and the room crowded with unnecessary fillers, you are at once made conscious that in that house there is no conception of the fitness of things, no knowledge of the historic purpose of either windows, draperies or ornaments. Why the windows at all if their sole purpose is rendered useless by heavy fixed hangings. Why vases at all if they are too fancy for use. Of course every home needs a vase or two for flowers, but let them be such as can be used

for that purpose and not to stand on the mantelpiece to be dusted. How often a really beautiful picture is "crowded out" by numerous cheap, unattractive prints, and a rare piece of glass unobserved owing to the fillers grouped around it. Frequently the beauty of a good piece of furniture is marred in a room crowded with common-place rockers. If there is anything good in the room, give it a chance. Do not spoil it with fillers.

So much depends on proportion that half the miseries of life would be dispelled were it better understood. In art it is one of the most valuable attributes in estimating correct spacings and lines. In the conduct of life how the want of this sense either makes or mars the man or his home. The just enough, the not too much, does it not make the success or failure of a life. The whole question of temperance is settled here. One might almost say religion and morals. Our homes, therefore, should be furnished with a view to educate the little ones through art products to a deeper and a broader culture, and help to reveal their own true spiritual nature—their highest qualities, the existence of which they are not now even conscious, for whether a child is destined to be a prince or a peasant only this kind of knowledge can inspire duties to be done, can help to resist temptations and make life worth the living. Before children can aspire they must have ideals. They must know the beautiful works they cannot easily produce, and they must know of the admirable persons of high character and heroic conduct. Every child must admire something or die spiritually, and it should be the duty of every parent to lead his children to admire what they ought to admire, to love all that is lovable in

noble human character, because love and respect for good and beautiful conduct in other people is the strongest motive a child can have for right-thinking and right-acting. Much of this can be done by providing good books, through nature, music and art. Art and outdoor nature have a reciprocal influence on each other, but in an artificial state of society beauties of nature are oftener seen through art than the reverse.

"We're made so that we love
 First when we see them painted, things
 we have passed
 Perhaps a hundred times, nor cared to
 see:
 And so they are better painted—bet-
 ter to us,
 Which is the same thing. Art was given
 for that,
 God uses us to help each other, so
 Lending our minds out."

John Evans.

TO A BUTTERFLY.

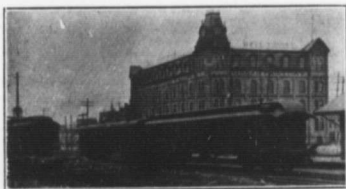
I've watched you now a full half hour,
 Self poised upon that yellow flower;
 And, little Butterfly! indeed,
 I know not if you sleep or feed.
 How motionless!—not frozen seas
 More motionless! and, then,
 What joy awaits you out among the trees,
 And calls you forth again!
 This plat of orchard ground is ours;
 My trees they are, my sister's flowers;
 Here rest your wings when they are weary;
 Here lodge as in a sanctuary;
 Come often to us, fear no wrong;
 Sit near us on the bough!
 We'll talk of sunshine and of song,
 And summer days, when we were young;
 Sweet childish days, that were as long
 As twenty days are now.

—Wordsworth.

Locals.

What Is a Car Without a Locomotive?

A rather sad tale has recently come to hand. It would seem that three O. A. C. students boarded a train at Guelph with the idea of going to London or somewhere else. They had entered into the discussion of some very interesting subject, and after sitting for half an hour or more, they began to wonder when the engine was going to "ring her whistle," so to speak. They investigated the matter and



found that their coach had been uncoupled from the engine, and now the question was, where has the locomotive located? What was its motive in vanishing into thin air? If any one finds a stray locomotive, please return to Ikey, Tommy or Mac, and receive a reward.



A Few Extracts From the Most Brilliant Attempts of Sophomores.

"Yet the cattle and the horses in the stables each have a stall he can call his own."

This is very comforting and encouraging news, and we are sure that it

will relieve the minds of our budding agriculturists.

"It is now that Ontario is commencing to forge ahead, so, in the near future we hope to have telephone systems, electric lines, rural delivery and many other such luxuries as this."

At last the days of darkness are past and Ontario may hope to emerge from her sleep and step into the inheritance of partial civilization. Blood and rapine shall be known no more and cannibalism shall pass from her henceforth and forever—.

"Each city, etc., elects its own council and this council fixes the municipal tax. This is the only tax the people are called on to pay, and it is quite moderate as a rule." That is, unless it is for smoking or playing hockey in the halls.

"There is not a place in Ontario where dairy farming cannot be carried on at an immense profit, so large is the water supply."

Intending dairymen may profit by the following extract:

"Good spring water can be got by digging in nearly every locality."

Summer visitors to Muskoka had better take stock of the following:

"In Muskoka especially the air is so enervating that a large sanitarium for consumptives has been erected within its boundaries."

The two following go very well together:

"Canada is second to no other country on the globe."

"Sometimes being very warm and at other times cold."

If Canada is second to no other country on the globe in this respect, she certainly can rival other countries which are not on the globe.

Duff (in Horticulture)—"What would you do for an orchard where there is no soil beneath the trees?"

Coke—"Why, 'soil' it, of course."

Webster (in electricity lecture)—"How does the current know which wire offers least resistance?"

Law (in Animal Husbandry exam.)—"Where will we take seats?"

Professor Day—"You can take a seat opposite the swine."

Can anyone inform us why the Professors exert themselves to make some of the students feel so much at home.

Walker—"Does this book begin at the beginning?"

James—"No! in the middle."

Mr. Hunt—"Where would you plant the Oriental Poppy, Mr. Campbell?"

Campbell—"In the ground."

Stafford (judging cattle)—"No. 2 is perfectly square, and therefore is better than No. 1.

This reminds us of the story of the little boy who asked his father what the papers meant by saying that Mr. Jones was an 8x10 man. His father

Macgill (in Practical English)—If brevity is the soul of wit, then Leslie's speech was humorous.

D. H. Jones—The same applies to your criticism.

said, "Well, I suppose they mean that he is not quite square."

The photographer tells us that a certain Freshman who went down to have his photograph taken was trembling with fear as he said he had never been



Two Well-Known Athletes.

"shot" at before. On inquiry we find that it was a young man from the Wild West who received a "cheque for friskiness" shortly after Christmas.

Mr. Gamble—"The moisture would be—."

Boddy—"Is that water?"

Three men in a boat, by the light of the moon, Gilmore, Warren and Weaver.

Hamer (at fodder analysis)—O Tempore! O Mons! Now it's everybody works but fodder.

A MODERN IMPLEMENT PLANT.

We received from the Frost & Wood Company, the other day, a special supplement to the Rideau Record of Smith's Falls, consisting of four pages, and giving an interesting description of the new plant recently erected by that company. This supplement is profusely illustrated with good half-tone cuts and is printed on excellent paper.

The plant of the Frost & Wood Company is one of the finest and most modern in Canada to-day; which fact enables them to turn out machinery of the very highest grade. Their many friends and customers throughout the Dominion will be glad to know that they have fully recovered from the set-back given them by the fire, which destroyed their premises a year ago, and that in future they will be in a better position than ever to fill all orders promptly.

Reports have been circulated freely throughout the country that the Frost & Wood Company would not have any binders to put on the market for the coming harvest. These reports the company emphatically deny, and wish to assure purchasers of binders that they can depend on getting their binders in plenty of time.

If any of our readers would like to see an interesting description of a plant where up-to-date farm machines are built, they can do so by dropping a card, asking the Frost & Wood Company to send them a copy of the Record supplement. Kindly mention this paper when doing so.

...The...
**Metropolitan
Bank**

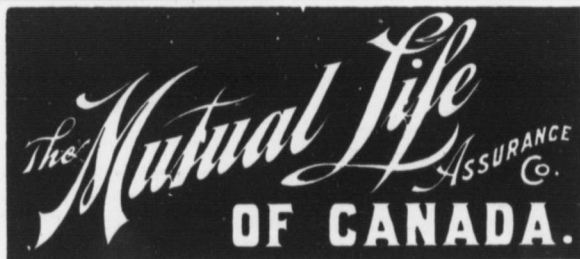
Capital Authorized - \$2,000,000
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STUDENTS' ACCOUNTS
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confining its business to the Dominion of Canada and Newfoundland, noted for *the most healthy climate in the world.*

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"One of the very best companies that we have examined, The Mutual Company and the one that showed fewer shortcomings than any of the others."—*Mr. Kent, of the Insurance Commission, verbatim report, page 2904.*

Please mention the O. A. C. REVIEW when answering advertisements.

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