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THE FLY AGARIC *(AMANITA MUSCARIA)* AND HOW IT AFFECTS CATTLE.

By NORMAN CRIDDLE, Aweme, Manitoba.

It is a well known fact that the effects of eating *Amanita muscaria*—commonly called the Fly Agaric—in mistake for common mushrooms or other edible fungi, is a very serious one; so much so that death usually takes place within a very few days afterwards. I have, however, searched in vain among my small stock of books for any information that relates to this fungus—or any other—in connection with its being eaten by cattle. It is possible, therefore, that a note on the subject may prove of interest.

The Fly Agaric *(Amanita muscaria)* is found rather plentifully during July and part of August, growing in wooded country where the land is inclined to be sandy, clumps of Ground Cedar *(Juniperus Sabina*, var. *procumbens)*, when growing in such localities, being favorite spots. This fungus is a large-sized species and should be easily recognized by its color, which, on the upper part (the pileus), is of a bright yellow, getting darker or more reddish towards the centre. The surface is shiny, with numerous scaly warts of a whitish color. The gills and stem are pure white.

This fungus—as well as nearly all the other stalked kinds—is much sought after by cattle, which undoubtedly, I think, scent it from some distance away, so that in some instances a dozen or more may be eaten by a single animal in the course of a day, besides numerous other species of a less poisonous nature.

The effect of eating the Fly Agaric, though sometimes fatal

to calves, has never, in my experience, been known to be so to animals that were a year or more old, though it is quite serious enough. Extremely violent purgation sets in some hours after the fungus has been eaten (the exact length of time has not, unfortunately, been ascertained), and sometimes with very little abatement for two or more days. The animals meanwhile appear to suffer considerable pain, and in the case of milk cows the milk greatly decreases in quantity. This, however, is probably due more to the violent purging than to the direct action of the poison, especially as no ill effects have been noted to human beings from drinking the milk.

With regard to calves, two or three cases of death, probably caused through their eating this fungus, have come to my notice, though unfortunately no thoroughly scientific investigation was made in any case, barring the fact that *A. muscaria* had undoubtedly been eaten some hours previous to one of the animals being taken ill; and, as several other calves were partly affected at the same time, there appears to be no reason to doubt that the Fly Agaric was the cause of death.

The ill effects related above as having taken place through the consumption of *A. muscaria*, have been known to occur, though in a much smaller degree, through eating other fungi, notably a species of *Boletus* which occurs in great abundance in open woods and on Ground Cedar patches where the ground is moist. *Amanita phalloides* is also occasionally eaten, but it is usually rare here and, apart from this, does not seem so attractive to cattle.

No remedies have been found effectual against the deadly effects of *A. muscaria;* but, as cattle generally eat all manner of unusual food when not properly salted, it might be worth while to try whether giving them all the salt they want—which they should of course have at all times—would prevent them, at least to some extent, from searching so eagerly for fungi.

In conclusion I wish to state that, though this note is written from personal experience, it makes no pretence of being more than of a very fragmentary nature, and that it relates only to Manitoba.

BIRDS NEW TO ONTARIO.

By W. E. Saunders.

The following list of birds comprises those new to Ontario which have been taken in the Western Peninsula since the issuance of McIlwraith's revised work. Some of the notes here given have been already published in THE OTTAWA NATURALIST and Macoun's Catalogue of Canadian Birds, but some of this material is new and it has not previously been brought together.

CAROLINA WREN *(Tryothorus ludovicianus)*. The first one was shot by Montague Smith in Forest in February, 1891, after having been observed in the village for nearly a month. No more were reported for Ontario until this year when Mr. O. J. Stevenson, St. Thomas, found one in the Elgin ravine in that city, where it lived from some time in the winter, until September at least, and may be there yet. It was not ascertained whether the bird had a mate or spent the summer alone, but the observers there suspect that a brood was raised. I went to see this bird on April 25th, 1905, and spent half an hour watching him. He had a fine, clear whistle in thirds, which he repeated rapidly four times as a rule. After singing for two or three minutes he would betake himself to trees, shrubs or brush on the ground and feed for a while before again mounting to one of the high locations from which he sang.

In a study of the fauna of Pelee Point and vicinity in September, 1905, by a group of ornithologists, Mr. A. B. Klugh, Guelph, found a brood of this species and took at least one of the fledglings, and Lynds Jones, Oberlin, Ohio, found others at the same time on Pelee Island. Details of this work have appeared in *The Auk*.

CLAY-SPARROW *(Spizella pusilla)*. A specimen was found by myself on May 9, 1894, fifteen miles west of London and taken. The record was published in volume 1. Biological Review of Ontario.

KENTUCKY WARBLER *(Geothlypsis formosa)*. The record previously published of a specimen taken by Robt. Elliott near Bryanston, on May 16, 1898, is the only Canadian one to date. The bird is a male in high plumage.

HENSLOW'S SPARROW *(Ammodramus Henslowii)*. On May

24, 1898, I made the acquaintance of this species at the mouth of the Thames River and took a specimen. In July of the same year I took two at Sarnia and having become better acquainted with it, I found on an expedition taken in June, 1905, that it was quite common in the territory we examined at the mouth of the Thames, and we saw and heard about twenty in the day, although we failed to find a nest. It seems hardly likely that there is another species left to be discovered in Ontario of which such numbers can be found.

BICKNELL'S THRUSH *(Hylocicha aliciae Bicknelli)*. On Sept. 16, 1898, Robt. Elliott took a specimen of this bird at Bryanston. The identification was confirmed by R. H. Howe, Jr., of Cambridge, Mass. No further occurrence has yet been recorded.

WILLOW THRUSH *(Hylocichla fuscescens salicicola)*. The first of this variety to be recognized was due to a careful study made of my specimens by the late Robt. Elliott, whose suspicions were subsequently confirmed by R. R. Howe, who identified the bird as a Willow thrush. Since then a specimen in the McIlwraith collection, now in the possession of J. H. Fleming, and previously supposed to be a Wilson's, was found to be a Willow thrush.

BEWICK'S WREN *(Thromanes Bewickii)*. A single specimen of this bird was taken by the writer near Appin, Ont., on Dec. 13, 1898. There was nearly a foot of light snow on the ground and the day was clear though not very cold. The bird was feeding and working along through upturned roots and piles of brush and after some trouble I shot him on a root. Up to the present no further record of this species as been made for Ontario.

KIRTLAND'S WARBLER *(Dendroica Kirtlandi)*. The only Canadian specimen of this species was taken on the Island at Toronto, May 16, 1900, by J. Hughes Samuel and has already been recorded in THE NATURALIST. It stands today the only Canadian record.

PRAIRIE WARBLER *(Dendroica discolor)*. Mr. Samuel took a specimen on the Island at Toronto May 10, 1900, and I believe Mr Ames took another in the same spring; nothing further was learned of this species in Ontario until this year (1905) when

on May 28th, while paddling down a stream running out of Cameron Lake, near the top of Bruce peninsula, I saw in a nearby tree a warbler unknown, yellow beneath, with a few black streaks and I exclaimed to my companion that it was a Kirtland's Warbler. I immediately shot it and on picking it up found it to be a female Prairie Warbler. A search among the trees nearby revealed no others, the specimen apparently being alone. My erroneous identification was due to the fact that Kirtland's Warbler was regarded as a possibility on this trip, the latitude and general character of the country being similar to that of the district in Northern Michigan where it breeds. The Prairie Warbler on the contrary is not known to breed nearer than Ohio and this bird was regarded when taken as a straggler very much out of its course indeed. But on May 30, on the return journey, and about nine miles south of where the other specimen was taken, I heard an unknown warbler-song which ran up a chromatic scale clear above the range of the ordinary piano, on the syllable "S' wee," repeated every note. Dismounting from my wheel I hunted for this bird for some time, hearing, meanwhile, a few Pine warblers, and when finally I saw the unknown songster it took me a few moments to decide that it was not a brilliant colored Pine warbler, and before I got to the point of shooting it, it vanished and I saw no more although I spent an hour hunting over a very small territory and heard at least two, if not four, of these strange songsters; so that I am quite confident that there was in 1905 a little breeding colony of Prairie warblers in this northern peninsula when the next nearest to the south was probably 300 miles away in Ohio. During the investigation of Point Pelee in September of this year another of this species was taken there, the details of which have probably already appeared in *The Auk*.

THE WHITE-EYED VIREO *(Vireo noveboracensis)*. The capture of a specimen of this bird at Woodstock on Apri 25, 1902, by Mr. W. D. Hobson was published in THE OTTAWA NATURALIST for November, 1902. Since then it appears that Mr. Kells reported to the Canadian Institute in 1891 the capture of one of these birds in the middle of October, 1890. The bird was badly damaged by shot and was not preserved and the identitification was made entirely by the color of the eyes and while it is quite likely that Mr. Kells is correct about the identification it can hardly be accepted as proven by this one point only.

SOME NEW CANADIAN RECORDS FOR GYRFALCONS.

By J. F. WHITEAVES.

THE GRAY GYRFALCON *(Falco rusticolus)*.

Through the kindness of Mr. G. F. Dippie, of the firm of Messrs. Mackay & Dippie, taxidermists, etc., of Calgary, the Museum of the Geological Survey of Canada has recently been enabled to acquire two fine specimens of this species, from Alberta.

One of these is a female, shot in the Knee Hills district, about sixty miles north-east of Calgary, by Mr. Alexander Wyndham, on November 10th, 1905. Mr. Dippie writes that he "would not be positive, but thinks that this specimen is an adult bird, probably three or four years old." Its measurements, when in the flesh, are stated to have been : length twenty-three inches, wing fifteen and three-quarters, tail ten.

The other is a male, supposed to be not more than two years old, shot twenty-three miles west of Calgary, by Mr. R. G. Robinson, on December 9th, 1904. Its measurements before it was skinned, were; length twenty-two inches and a half, wing fifteen inches and three quarters, tail ten.

THE BLACK GYRFALCON *(Falco rusticolus*, var. *obsoletus)*.

Mr. Harold F. Tufts, of Wolfville, Nova Scotia, writes that he has a specimen of this dark, eastern variety of the Gyrfalcon that was shot at Long Island, King's Co., N. S., by Mr O. Fullerton, on the eighth of June, 1898. It is an immature female, and its stomach was empty when the bird was killed. A living Black Gyrfalcon was observed near Wolfville by Mr. Tufts on December 23rd, 1905.

In this connection it may be stated that a clutch of three eggs that are thought to be those of the Black Gyrfalcon, in the Museum of the Geological Survey, was collected at Fort Chimo, Ungava, by Mr. G. Boucher in 1897.

THE WHITE GYRFALCON *(Falco islandus)*.

A female of this species, shot on the sand bar south of Ash-

bridge's Bay, Toronto, by Mr. Frank Otto, on November 20, 1905, is now in the possession of Mr. S. T. Wood, of Toronto, who says that it was in good condition and weighed three pounds eleven ounces when shot. Its stomach was empty, and its bill and feet were pale blue, like the bill of the "blue bill" or Lesser Scaup duck, but both are "fading out."

The three fine specimens of the White Gyrfalcon in the Museum of the Survey, are from the neighborhood of York Factory, Keewatin.

Ottawa, Jan. 9th, 1906.

REPORT OF THE GEOLOGICAL BRANCH OF THE OTTAWA FIELD-NATURALISTS' CLUB FOR 1905-1906.

(Read : January 7th, 1906.)

The work done by the geological branch of the O. F. N. Club during the past summer has been for the most part of the usual routine character. One or more of the leaders have attended the various excursions and explained as far as possible the geological phenomena of the localities visited.

Interesting studies were made of the gravel and stratified sand deposits in the vicinity of McKay Lake. Numerous examples of false bedding are seen in the sand quarries and also strata lying uncomformably on the lower beds. These beds have yielded several well preserved specimens of a *Leda* sp., of small size. The overlying marl beds afford a good collecting ground for fresh-water shells.

One of the leaders made a careful examination of Strathcona Park and will present the information gathered in his address to-night. The excavations which have been carried on in the Utica of that locality have afforded an excellent opportunity for studying that interesting geological horizon, and it is fortunate that so much work has been done as it is not at all likely a similar chance will again offer itself.

On the visit to Fairy Lake the outcrop of Birdseye and Black River limestone containing the coral reefs or Columnaria beds at the northeastern end of the lake were noted and the Trenton for-

mation to the southeast. While attending an excursion at Blueberry Point a few obscure fossils were found in the Chazy shales which are exposed on the shore of the lake ; and at Hull near the Cement Works the Trenton limestone was studied and some fossils collected. The erratics and clay deposits of this place present an interesting field for study.

Several of the members attending the general excursion to Chelsea joined the geological party and had a good opportunity of studying the garnetiferous gneiss and other Archæan rocks exposed in the railway cuttings, also the boulder clay, Leda clay and Saxicava sand and the marine shells found in the two uppermost formations. About two miles west of King's Mountain Mr. Joseph Keele discovered a pot-hole in the gneiss near the edge of the cliff which faces the south. This cliff is at about the same height as King's Mountain and is therefore 1100 feet or more above sea level. The pot-hole is perfect in form and is eighteen inches in diameter and about the same depth. How this was formed at that height is a very interesting problem. A kettle hole near the east end of Meach's Lake has also been noted. It can be easily found as a hotel has been erected on its southern rim. This is no doubt an old valley of erosion.

BESSERERS, ONT.

On the 26th of October, a party of ten, in conjunction with the Geological Branch of the Club visited Besserers Grove, down the Ottawa river some eight miles, and searched the shore for concretions containing fossil organic remains. A fire was built and the concretions collected were heated and opened, some of which revealed the well-known and much-prized fish, *Mallotus villosus*, Cuvier, the modern capelin of the Lower St. Lawrence. Fragments of stems of plants, of leaves of deciduous trees, of algae or sea-weeds, of water-plants, were also obtained, besides a number of shells, *Saxicava rugosa*, Linnæus, and *Macoma Balthica*, Linnæus, being the most prevalent. There was an unusually large number of concretions visible on the clay shores of the Ottawa river along that portion of the south bank between the Grove and the mouth of Green's Creek. These concretions occur at different horizons in the clay formation skirting the south shore of the Ottawa at this point and four distinct layers containing

nodules were seen. They vary in size from two feet in length to the size of a pea. Not one in fifty that may be picked up indiscriminutely appears to hold remains of organic origin worth collecting. These calcareous or lime concretions appear to be the result of the gathering of materials around some nucleus or centre which forms an initial point.

CARP, ONTARIO.

On the 10th of June the O. F. N. C. visited Carp, Ont., and the Geological Section paid a flying visit to various openings for minerals in the vicinity of the village. On pages 91 to 94 of THE OTTAWA NATURALIST, Vol. XIX, No. 4, for 1905, an account is given of the principal finds made. Amongst these must be mentioned the curved crystals of the mineral hornblende. Similar crystals have been noticed by Dr. Victor Goldschmidt, of the University of Heidelberg, in the Bulletin of the University of Wisconsin, No. 108, Science Series, Vol. 3, No. 2, p.p. 21-38, March 1904, in which he describes the measurement of crystals by means of the two-circle goniometer. To the members of the Geological Branch such curved crystals were new and hitherto unrecorded. The distinct curves formed by the sides of the crystals appear to be continuous at times, and at others somewhat shattered. Whilst the inside curves are continuous the shattered and cracked or V-shaped openings on the outer curves appear to indicate that distinct breaks have taken place subsequent to and attending the curving process whatever that was. The nature of the force which caused the curvature has not been determined. Goldschmidt points out in the same paper that there are two sorts of curved surfaces of crystals, namely, that due to the growth of the crystal; and the second due to dissolution. The curved crystals indicated appear to be those of hornblende and are associated in the vein of mica and magnetite with crystalline Calcite, much of which has suffered dissolution or in other words has been dissolved leaving the hornblende crystals standing in relief in colonies.

The deformation of the crystals from their normal erect form in the Carp specimens may be due either to force developed during crystallization or since they were formed. In the light of the experiments in the flow of rocks by Dr. Frank D. Adams, of McGill University, Montreal, it is not improbable that these crystals

were subjected to pressures subsequent to their crystallization. The cracks and V-shaped breaks evident along the outer and convex curves of the crystals favor this view. Microscopical investigation would no doubt reveal the true nature of the origin of such features, whether they are constructive forms or forms of destruction. The Leaders of the Club merely wish to point out the occurrence of these curved crystals and urge upon the mineralogist or the student of geo-physics to study the phenomena observed at this locality. Biotite crystals also occur in the vein at Carp.

THE CHAZY AT ROCKCLIFF.

Close to the water's edge and along the base of the cliff fronting the Ottawa river at the Rockcliff terminus of the Ottawa Electric Railway, as well as below the Manor House or residence of Mr. T. C. Keefer, F.R.S.C., the Chazy formation is well developed. Its strata, as exhibited in the lower portion of the bluff, consist of comparatively coarse materials, more or less rounded grains of quartz cemented by a ferruginous paste or matrix of impurities in which clay, lime and magnesia appear to be the chief ingredients. Numerous fragments of *Lingulæ* occur in the coarser sandstone beds, and those best preserved appear to represent the species described by Mr. E. Billings as *Liugula Lyelli*, from the upper Ottawa extension of the Chazy near Pembroke, Ontario, about 100 miles from the City of Ottawa. These Lingulæ are associated with numerous minute irregularly rounded black grains resembling those "phosphatic nodules" described by T. Sterry Hunt from the Chazy of different portions of Canada. At Hog's Back, near the Central Experimental Farm, where the Chazy formation is also developed and may be studied to advantage, the Lingulæ found there, namely: *Lingula Belli*, Billings, and *Lingula Huronensis*, Billings, are likewise associated with phosphatic nodules, or concretions which are held to be of organic origin.

Besides these remains of *Lingula* and the phosphatic nodules, the Rockcliff strata have yielded during the past year an excellent series of slabs exhibiting interesting tracks and trails of marine organisms made upon the layers of the sea-mud of the ancient shore deposit or shallow water as they journeyed from place to place in search of food, etc. These trails are for the most part

preserved as casts in relief, giving the reverse of the trail as originally formed upon the surface of the soft mud of the sea.

It appears that the softer and finer materials of the stratum on which the trail was originally made has disappeared and been for the most part washed away and denuded whilst the harder stratum of which the overlying bed consists (made up of coarser materials than the track or trail bed proper) remains to tell the story. There are several distinct forms found upon the underside of the overlying stratum from that on which the track was made. Some are narrow, others are wide, some simple, others are ornamented and some are very tortuous, while others are less tortuous and evidently made by larger and less mobile creatures. These tracks and trails, so far as they afford palæontological evidence of the life which existed during the period when the Chazy rocks were being laid down, may be referred to several genera, such as palæontologists have described and include under such impressions on the rock-formations. The Rockcliff trails and tracks appear to have been made for the most part by worms such as are known to have existed during Odovician times. A more detailed study and report on these will form an interesting paper for THE OTTAWA NATURALIST, when it is hoped that photographs or reproductions illustrating these forms will be forthcoming, without which no written description should be published. On several occasions members of the Club have visited Rockcliff during the past summer season and numerous slabs exhibiting these trails and tracks have been collected.

TEACHERS' ASSOCIATION—SUMMER SCHOOL.

During the Summer School of Science under the auspices of the Teachers' Association, Principal White called upon one of the Leaders of the Club to address the teachers assembled during their outings, and it was with pleasure that he acceded to his request. Four talks were given and a number of specimens examined and described on the spot. The shores of the Ottawa and some of the railroad cuttings along the C. P. R. west of Hull and above the Chaudière Falls gave abundance of fine material for examination and study. Not only did the more ancient rock-formations come in for a share of examination, but also the later deposits forming the ancient river channels and part of the old

Ottawa Valley in prehistoric times. The peculiar outline of the north shore of the Ottawa was described and the geological causes which led to the same. The various faults and dislocations which were observed along the route of the outings were interpreted in the light of their results upon the physiography and general topography. The diversified features of the landscape in this vicinity are very attractive, and many a chapter is still unwritten in the history of the formation of that portion of the Ottawa river. A number of interesting photographs were taken which serve to illustrate the geological phenomena observed.

H. M. AMI,
W. J. WILSON,
Leaders.

Geological Survey Offices,
Ottawa, Jan. 7th, 1906.

REVIEW.

Abbé V. A. Huard. Traité élémentaire de Zoologie et d'Hygienè, Québèc, 1906. In 8 vo. pp. 260; 202 figures in the text. Cloth, $1.co; paper 7oc.

This most useful and concise work on zoology and hygiene, expected for some time, has just been published and will no doubt be hailed with special pleasure by all who have any taste for natural history studies, even outside of the French population of Canada; for it is, as far as we know, the only book containing a general conspectus of the Canadian fauna, which has as yet appeared; all the most important or most interesting genera of the fauna of all lands are, however, mentioned and in many cases also figured, so as to give a more complete survey of the animal kingdom.

The author is a born naturalist, having the love of what he speaks about; his treatment of the various subjects is characterized by its clearness of expression. The author has taken great pains to be precise and true in all of his statements, so as to produce a scientific book, that is a book of exact knowledge. Both amateurs, teachers and students will find in it a reliable guide to the study of the Canadian fauna; at the same time animal anatomy and physiology are treated with considerable detail; and it is to be hoped that this book will be generally introduced in the French hools of the country.

J. A. GUIGNARD.

NATURE STUDY—No. XXXI.

MOTHER NATURE AND HER BOYS.—AN INSTITUTE THAT BRINGS THEM TOGETHER.

BY C. J. ATKINSON, Toronto, Ont.

Nature Study at the Broadview Boys' Institute, Toronto, begins with the study of boy nature. It finds that the unnatural surroundings and conventionalities of city life dwarf the boy physically and narrow him mentally, and that to have the boy at his best they must counteract the influences of man-made environment by getting him back to Nature. The annual summer camp assists in this. For a few weeks the boy lives under canvass in the wildwood ; he is next door neighbor to the squirrel and the chipmunk; he breathes the aroma of the pine and the hemlock; he eats the fish he has caught in the lake and the berries he has gathered in the thicket, writes letters home on birch-bark, becomes tanned and seasoned, but best of all he is unconsciously listening to the wonderful whisperings of Nature and becoming broader in mind and sympathies.

Camp experiences are excellent, but all too short. An experience that calls out more labor, effort and thought, is required. This the Institute has found in its Miniature Township. This is a boys' world, with its disappointments and losses, as well as its successes and achievements. Boys soon learn that they can tickle the earth with hoe or spade and it will laugh with bright flowers and delicious fruits ; that Mother Nature rewards diligence and punishes neglect; that what a boy sows, that shall he also reap—multiplied manifold—if he cultivates faithfully in the meantime. The Miniature Township consists of a portion of land divided by section lines and cross-roads into 86 little farms and 10 flower gardens. The farms are 10 x 40 feet, and flower gardens 10 x 8 feet. These are cultivated by individual boys or partners, who style themselves "farmers" and delight to don overalls, top-boots, and broad-rimmed hats. To be called "hayseed" is an honor, because it implies that they are landed proprietors and yeomen of the commonwealth.

The farms are leased to the boys, a regular printed form being

used, which is duly signed and sealed. The stipulations of the lease are: One hour's work per month is to be performed upon the common plots as rental; farms are to be carefully cultivated and kept free from weeds; roadways adjoining farms are to be kept clean; rules, regulations and by-laws of Municipal Council are to to be obeyed. The farmers provide their own tools and seed. The produce of the farms is the property of the producer to take to his home, sell, or dispose of as he pleases. Names are chosen for the farms by the proprietors and are neatly painted on uniform sign boards and placed in the center of the plot. Some of the names of last season were: Lakeview Farm, Old Homestead, Geneva Farm, Great Western, Glencoe Farm, Enniskillen Farm, Enterprise Farm, Shamrock Farm, Jumbo Farm, etc.

A course of Monday evening lectures on "Agriculture and Nature Study" are given by experts during May, June, August and September. Among the lecturers are such men as Prof. Zavitz, of the Agricultural College at Guelph; Principal Scott, of the Toronto Normal School; Wm. Rennie, Sr.; C. W. Nash; practical gardeners and florists and teachers in Nature Study. Such themes as these are discussed: "Preparation and Care of the Soil," "Weeds and How to Treat Them," "Our Friends, the Birds," "Insects Injurious to Vegetation," "Nature Study in Parks and Gardens," etc.

The Broadview Miniature Township is a self-governing Municipality. On the last Saturday in April the citizens nominate, and on the first Saturday in May elect, by ballot, a Reeve and five Councillors, who compose the Municipal Council and hold office for one year. The ballots are printed, the poll manned by deputy returning officer, poll clerk and constable, and the voting takes place in the regulation way. The Municipal Council appoint a Weed Inspector, Pathmaster, and other officers, make and enforce regulations and by-laws, impose statute labor, collect fines and cancel leases. The Reeve is the Justice of the Peace for the Township by virtue of his office, and tries all offences, whether against the laws of the Municipality or otherwise.

Prizes are given for the best kept farms, and inspections take place at regular intervals during the season. No better vegetables are grown anywhere than can be found on these little

farms. A third prize was won this year at the National Exhibition, Toronto, for the best collection of vegetables, in competition with regular market gardeners. A Fall Fair is held by the Institute in September of each year. At the fair for 1905 there were over 1,000 entries in agricultural products, flowers, collections of seeds, pressed flowers and weeds, insects, shells, birds' nests, polished woods, manufactured articles, fine arts, and boys' pets of all kinds, such as dogs, poultry, pigeons, rabbits, Guinea pigs, etc. The prizes this year totalled $240, and the attendance on two afternoons and evenings reached 2,400. The "Farmers' Harvest Home Dinner," held each autumn, is another interesting feature of the township idea. Upon its extensive menu nothing is allowed to appear, from soup to dessert, that has not been grown, in part at least, upon the boys' farms. Even the menu itself is printed on corn-husks. Ministers of the Crown and some of the most prominent agriculturists in the province have been guests at this function.

The objects gained through the Miniature Township are manifold and may be summerized as follows :—

1. A comprehensive course in Nature Study. An insight into the principles of agriculture, which has led a score or more of the boys in the past four years to take up farming as a life pursuit.

2. A practical experience in citizenship. Respect for law and order has been cultivated, and the sacredness of the ballot emphasized.

3. The development of judgment and business instinct. Judgment has to be exercised in the choice of seeds, treatment of the soil and rotation of crops. The enterprise and business ability of the boys has been brought out in a most striking manner in the disposal of their own produce, the speculation in the purchase and marketing of the produce of other boys, and the formation of combines to enable the carrying on of a vegetable supply business on a large scale.

4. Healthful exercise for city boys, and the acquiring of habits of industry, perseverance and thrift.

A few particulars in regard to the work of the Broadview Boys' Institute as a whole may be of interest. It is incorporated as an educational institution and is run along lines much the same

as a Y.M.C.A. The ages of the boys range chiefly from 12 to 17 years of age, and the citizens of the Miniature Township are all 15 years of age and under. The membership of the Institute during the year is about 600, and the boys are chiefly the sons of artizans. Premises, consisting of a large club house and five and a quarter acres of land, have been purchased. They are situated on the east side of Broadview Avenue, a central location for the east end of the city of Toronto. A portion of the grounds are used as an athletic field in the summer and as a skating rink in the winter. During the fall, winter and spring months, evening classes are conducted by a staff of competent teachers in manual training, technical printing, clay modelling, wood carving, cooking, free-hand drawing, designing and lettering, typewriting and correspondence, music, Bible study and gymnasium work. The equipment for this work includes a twenty-bench manual training plant, full sets of wood carving and clay modelling tools, natural history and art models and designs, domestic science tables with fourteen individual gas circles, a complete printing plant, etc. Reading and recreation rooms are provided, also accommodation for literary and other subordinate clubs. A circulating library of books suitable for boys is maintained. Well equipped shower baths, with hot and cold water, are open to members. A savings bank finds many depositors, and an employment bureau has more applications for boys than can be filled. A brass band of 26 pieces, under a proficient leader, is open for engagements. Religious meetings are held, and entertainments, club suppers, banquets and various social gatherings are attractive features of the work. The superintendent, the staff of teachers, and all who assist in the work, do so voluntarily and without remuneration. The Institute is supported by contributions, membership fees and its own enterprises. Visitors are cordially invited.

THE OTTAWA FIELD-NATURALISTS' CLUB, 1905-1906.

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