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TORONTO FIELD NATURALISTS' CLUB NEWSLETTER

MARCH MEETING

Monday, March 4, 1963, at 8:15 PM
at the
ROYAL ONTARIO MUSEUM

SPEAKER: MR JAMES WOODFORD, Managing Sirector of the Federation of Ontario Naturalists, an executive member of the T.F.N.C., and, both now and for many years past, a very active member of the Ontario Bird Banders' Association,

SUBJECT: BIRD BANDING, with special emphasis on the work being carried on at the Long Point Bird Observatory. With film and slides.

In the Rotunda: A display of bird banding equipment by members of the OBBA.

OUTINGS FOR MARCH

Sat., March 9, 9:30 a.m. - Humber River, Old Mill to Dundas St. - Birds

Meet at public parking lot on the east side of the Old Mill bridge. From the end of the Bloor St. car line, take Kingsway or Anglesey bus, direct to Old Mill. Morning outing only - lunch optional.

LEADER: Mr. Robert MacLellan

Sun., March 24, 9:30 a.m. - Glen Haffy Conservation Area - Birds

Take Highway No. 50 north through Bolton and Palgrave to Highway No. 9 to Mono Mills. Glen Haffy is about 1 mile south of Mono Mills on road leading to Caledon East. There will be the usual charge for cars. Bring lunch.

LEADER: Mr. Gerry Bennett

Sat. and Sun., March 30 - 31 - We suggest a trip to Long Point to see the whistling swans on their northward migration. Flocks may be at their peak a week before or after this date, depending on weather conditions and the amount of open water.

BOTANY GROUP — Meet on Thursday, March 21, at 8 p.m. in the library of Hodgson Public School, just east of Mt. Pleasant Rd. on Davisville Avenue. Mr. Russell Tilt of the Richmond Hills Naturalists will give an illustrated talk on "Wild Flowers in a Changing Environment". Everybody welcome.

Secretary - Miss Erna Lewis, HO 5-3422

JUNIOR CLUB — Meet in the Museum Theatre on Saturday, March 2, at 10:00 a.m. The Mammal Group will be in charge. Visitors welcome.

Director - Mr. Robert MacLellan, HU 8-9346

AUDUBON WILDLIFE FILMS — A few good seats are still available for the next lecture in this series, "Land of the Sky Blue Waters", photographed and narrated by Fran William Hall. Wildlife and Indian Legends of the lake country of the upper mid-west. The Date - Monday, March 25. The time - 8:15 p.m. Tickets $1.25, available from Eaton Auditorium box office for ten days before the lecture.

THANKS to Mr. Joseph Millman who kindly loaned some of his remarkably fine flower paintings for display at the February meeting.

President - Dr. David Hoeniger

Secretary - Mrs. H. Robson,
49 Craighurst Ave.
Toronto 12.
HU 1-0260.

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A sphere of smoky blue stopped us in our tracks as we rounded the little rise. A bush it was, ten to twelve feet in diameter, yet so totally covered with cerulean bloom as to seem a bit of sky dropped to earth. For a long moment we were held in silent admiration for a beauty we had never laid eyes on before. Then we moved ahead to find out what we were looking at. This we could do with ease for it was a path in the Edinburgh Botanical Garden that we were following. The label told us that this was a blue Ceanothus from the west coast of North America.

Slightly less than a year later as we were driving up the spectacular coast road on the ocean slope of the mountains of Northern California we rounded a bend and there before us was half a mountain clothed in blue, the same smoky blue we had first seen in Edinburgh. In the garden of man we had learned its name; in the garden of nature we now saw it at home. This was the native land of the Ceanothus, or mountain lilac as it is commonly called, and very much like a lilac it truly is. For miles and miles we drove through the wooded mountain slopes where sometimes the great green manzanita trees looked down on pools of blue, sometimes on seeming acres of snow, for not all Ceanothus is blue; often it is as white as winter's drifts and its windrows fill the spring woods all through these coastal mountains with startling remainders of the winter gone before. Edinburgh Garden had alerted us to a beauty that was now brought home to us in all the full reality of its native haunts where it is the ground cover of a thousand woods.

Only when we got back to Ontario did I rediscover that we too have a Ceanothus, not very common to be sure and not nearly as spectacular a plant, yet still a member of this same colorful genus. It is C. americanus, and we call it New Jersey Tea, in memory of past pioneering days when its leaves served the poverty-stricken settlers in lieu of expensive, hard-to-get tea.

If Edinburgh Botanical Garden had given us a hope that blossomed into wonderful living experience on the Pacific Coast, the little dell in the botanical garden at Ness, that of the University of Liverpool, reminded us of home. For there in the same sort of shaded dampness where we have so often sought and found it in Ontario gleamed the brilliant red flames of the cardinal flower. Momentarily we were swept with nostalgia, and then we remembered that we would be going back to a country where the blood-red blooms of the cardinal flower dot the darkened woods in countless jewelled clusters. How fortunate it was that here in a happily-simulated corner of a botanical garden numbers of people who could never tread its native woods could look with awed appreciation upon its incomparable beauty. For them life would be a little fuller, a little richer than otherwise it could be.

In London, as it happened, our very first trip as members of the London Naturalists' Society was to a botanical garden, the Chelsea Physic Garden. Intrigued by the name in the first place we went, and found behind high brick walls, that made its existence unsuspected from the roads, so beautiful and informative a stimulus that we have been living on its inspiration ever since. On that day amongst this group of naturalists, so like naturalists here and everywhere, we made a friend through whose eyes and spirit the loveliness of the flowering English countryside was to be laid open to us as it could have been in no other way. This in itself must make this day of prime importance in our memories.

At the same place we were shown for the first time a truly systematic garden, systematic, that is, in the botanical sense. Row after row stood the plants and flowers, nicely tended, carefully labelled. As one proceeded through the rows you found that you were making an expedition through the botanical families. One of the hardest things for the amateur botanist to do is to learn to find his way through these families. How to be able to allot a plant to its proper family when first you come upon it, that is the perennial question. And it must be answered if the amateur is to get very far. Field botany is really a closed book without a basic knowledge of the families. Yet it is by no means easy to get, and most people who arrive at it do so by a slow struggling crawl through books and field studies over a long period. It is worth the struggle for what a world the victory opens up, but how much easier would it be everywhere if, instead of the somewhat haphazard field work that has to be done in most places, the eager amateur could go to a botanical garden where characteristic members of all the families he is likely to encounter grow before his eyes, where he can go from one family group to another, and back and forth, comparing, contrasting, studying as much as he wants. Books are useful and necessary, an herbarium of dried specimens is a powerful help, but a systematic garden of living plants, vital, beautiful, stimulating under proper guidance drives home the lessons, instils the needed knowledge with greater effect than any written word or dried specimen can ever do. Thus was it being done here at the Chelsea Physic Garden.

The name, an historic one, recalls the time generations ago when botanical study was first of all an adjunct of medicine. That is why this garden lies on the grounds of a famous hospital and has done so for more than two hundred years. Now that the association of botany and medicine has been so greatly reduced, though of course not wiped out, this oldtime "physic" garden has become a place of education in botany. Classes of children are brought here and the systematic garden is used as a living demonstration of taxonomy (the study of botanical classification). Any groups, such as the one we were with, that have a real interest in this subject are welcome and helped by the trained personnel. We were most grateful that day for the imagination and foresight which had taken a garden that was losing its former use and significance and turned it to a new, creative influence whose beneficent effects can go on generation after generation. No wonder we had our eyes opened that day at Chelsea.

Valuable and lovely as they may be, all the other botanical gardens in Great Britain must take second place in importance to the greatest botanical garden in the world, that of Kew Gardens, * one of the gems of London. Whatever we had found elsewhere: the alerting to novelty, the opening of new doors, the nostalgic reminders of familiar beauties, the invitation into new paths of knowledge, all these we found tenfold at Kew and all together. There is not a month in the year when there is not some new beauty, some new botanical revelation and inspiration to be found at Kew. You can go from the white snowdrops that dot the wooded mounds in February through the multitudinous blooms of spring, summer and fall to the yellow masses of Chinese witch-hazel that will be blooming in January, and you will never have seen it all. You can go from house to house, from the tropics through the alpines to the aquatics and the temperate zones, and every trip there is something new, something unseen before. This is Kew's greatest charm, its biggest challenge. You can never see or know all that is there, so you can never fail to find something new, beautiful and stirring.

The Royal Botanic Gardens at Kew extend over an area of about three hundred acres along the east bank of the Thames. They are some distance from the center of London but are easily available by both bus and underground. They originated in the eighteenth century, in 1759, when the Princess Augusta, the mother of George III, established a botanical garden of some nine acres in her private domain of Kew House. From a botanist's point of view the site chosen was not the best, nor even a very good one; a great effort has had to be made over the year to convert the local soil into the splendid base it now is. Nonetheless it should be pointed out that had such a private effort not been made in this way the great botanical gardens that now exist here might have been much longer in coming into existence. They might even not have come at all. Kew House has now gone, as has Richmond Lodge, the residence of George III. It was the grounds and gardens of these two royal houses that were joined together to make the present botanical gardens. Few of the old plantings remain but there is one huge old gingko tree that is a survival of Princess Augusta's botanic garden. The first director, in practice, was the Earl of Bute, who was a botanist of some note though his political repute was of lesser quality. Sir Joseph Banks, one of the greatest patrons of science, a kind of scientific entrepreneur in the eighteenth century, was his successor, who did much to increase the collections and to introduce exotic plants from all over the world. The gardens were officially taken over by the State in 1841, receiving a further extension in size by Queen Victoria's gift of the Queen's Cottage grounds in 1897, a piece of land she asked to be kept in a semi-wild state, thereby reaching their present extent of three hundred acres. The able and imaginative leadership which botanical study has received at Kew Gardens from the days of Sir W. J., and J. D. Hooker (1841-1885) to the present time account for Kew's worldwide recognition as the greatest of all botanical gardens.

However important are the beauty and inspiration of these great gardens to the general public and the amateur botanist it should be remembered that Kew is first of all a center of scientific research. Its chief objectives are "the accurate identification of plants and the provision of information in the field of botany, both pure and applied." Much of the effort here is concerned with the economic aspects of botany so that Kew has played a prominent part in the development of the rubber industry, of the cocoa industry and of many other similar endeavors throughout the world. From these gardens go seeds and plants to all parts of the Commonwealth and to other countries everywhere. The study of plant diseases is another important function. For the support

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*The factual information about Kew is based on The Royal Botanic Gardens, Kew, An illustrated guide (London, 1959).

of such research projects there exists an extensive Herbarium containing millions of dried specimens and a Library of some 55,000 volumes, several Economic Museums, a Laboratory and the Gardens, these last for this purpose being "the living collections which serve to supplement in an important and material way the information which is provided by the Herbarium and the Museums." In the living collections are some 45,000 species and varieties. Exchanges are made with all the botanical gardens in the world, thereby enabling the collections here to be maintained and research materials to be made available to students in universities all over the world.

If the Royal Botanic Gardens are basically for the purpose of fostering scientific botanical research it is noteworthy that they serve the general public, as a beauty spot and a place of recreation, and the amateur botanist, with help and inspiration in a most admirable and efficient manner. Indeed, one of the most gratifying facts that the visitor notes here is the willingness with which the experts are ever ready to aid the amateur, and the fruitful cooperation which exists between these two groups in Britain. This is a spirit and a relationship that benefits both and does more than anything, perhaps, to arouse the evident widespread interest in botany that one finds throughout the country.

As at Chelsea Physic Garden so at Kew one of the ways in which amateur and expert meet is in the use of the systematic garden, called here "the herbaceous garden." This garden is laid out in a series of parallel beds, and the amount of space given to each family corresponds largely to the number of species it contains. The Compositae with more than 13,000 species occupies twenty-nine beds whilst smaller families often share a bed. Normally about 6000 species are grown in this garden in one season. As you may make your way through the Ranunculaceae, the Papavaraceae, the Cruciferae, the Umbelliferae, the Labiatae, the Solanaceae, the Compositae and all the rest, finding withal familiar friends and exotic strangers, finding that often familiar friends have strange relatives and learning at the same time what it is that brings them all together. You may go on to the Rock Garden, constructed and reconstructed with such care since 1882 to provide the necessary conditions for growing beauties from mountainous regions all over the world, there to admire: Alpine Saxifrages and Soldanellas, Himalayan Blue Poppies and Primulas, North American Slipper Orchids and dozens of others. Then there is the Chalk Garden, constructed in 1944 in the midst of the war,--a real spiritual defiance of destruction that,--a total creation for none of the chalky soil necessary for this group of plants existed at Kew. It had to be brought in or created. Still, some of the loveliest British and European plants, and some of the most beloved, are chalk plants. Now they may be seen and studied and appreciated at Kew, thanks to the ingenuity and creativity and persistence of the botanists there.

In the covered houses, the greenhouses, you may enter into the most exotic world of all. On a dark February day you can, as we did, gaze in astonished admiration at more than seventy species of orchids in luxuriant bloom, the secret beauties of South America, Africa, and Australasia discovered by generations of plant hunters and brought here and successfully raised. You may cross to another house and see Alpines coming into bloom that later you may see as you stand on rocky slopes in Switzerland, six to nine thousand feet in the air. At another time you might visit the house that holds the Giant Lily Tank where the great Amazon Water Lily grows which, when full grown, has giant leaves that can reach a diameter of six feet. What you may see in these many houses is endless in variety and beauty. One simply has to go again and again.

In the Museums the public displays stress the economic importance of plants and a vast amount of information is made available in an effective and attractive way. One display, for instance, concerns the peanut, or groundnut, as it is called there. This

is part of a demonstration of the significance of fats in human prosperity. "Before the war," we are told, "countries which consumed the largest proportion of fats were those which were most prosperous and which had the highest output of work per man." And peanuts are now amongst the major world sources of edible oil, used particularly in the manufacture of margarine. Having shown how the peanut, a member of the Leguminosae, grows, the account goes on to discuss the history of the use of this plant. It is one of those plants, it seems, that has been cultivated so long by man that it has never been found in a truly wild state. There has been controversy in the past as to whether it had its origin in Africa or in South America but recent discoveries of undoubted peanut remains in old tombs in South America "leaves little doubt that the plant is of South American origin." Probably early Portuguese explorers took the peanut from Brazil to West Africa, and possibly also on to India. It was quickly adopted by native peoples of these regions who recognized the high food value for man and beast and who found it easy to cultivate. It seems likely that Mohammedan pilgrims and traders may have helped in its dissemination in many parts of Africa and Asia. The United States, now one of the main peanut-producing countries, probably got the first plants from West Africa in slave ships even though the plant is of South American origin. Slaves grew the peanut in the Carolinas and elsewhere in the eighteenth century, and it is said to have gained favor in the North as a result of Northern soldiers becoming acquainted with it during the Civil War. Following this historical account is a reminder that a large part of the American peanut crop goes to the making of peanut butter--this is really news in England where peanuts are still to the ordinary Englishman simply "monkey nuts", fit for denizens in the zoo but not for human consumption. I suspect that the Kew botanists may be trying to educate their tradition-bound compatriots in the virtues and values of our honored peanut.

Recreation, inspiration, education, and scientific advancement may all be found at Kew Gardens. There is so much and such varied attraction that it is amongst the most fascinating spots in all London. We visited Kew more often than any other place in the metropolis, and every time we came away refreshed and stirred. Each time we said to ourselves, "Wouldn't it be wonderful if there were a botanical garden in Toronto."

Toronto prides itself on being the second largest city in Canada, upon being a metropolis. In the first city of Canada, in Montreal, there is a Jardin des Plantes. Why isn't there a botanical garden in Toronto?

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The following extraordinary observation is a once-in-a-lifetime experience. There will be many of us who will envy Earl his great sight.

Battle To A Draw

By Earl Stark

While participating in the Annual Duck Census on January 12, 1963, I was covering my usual territory in the Don Valley, and as I walked over the railroad trestle bridge just north of the forks of the Don, on the east branch, I saw at a distance what appeared to be an enormous brown bird frozen in the river. Imagine my surprise when, training my glasses upon it, I saw four large yellow eyes staring back at me as from one face.

I hurried down the path along the river to this apparition, which gradually became two Great Horned Owls facing each other, sitting in about four inches of slush and ice. I approached the birds and only then did I see that they were locked in a battle to the death. Their talons were seized firmly together and they were covered in ice, and the face of one was torn and bloody. They had fought until they were too exhausted to go on, but apparently were so distrustful that each was afraid to loosen his talons. I believe they would have frozen to the ice in an hour or so.

I walked in close to them, but only as I put my hand out did the owls release their locked talons. Judging from the marks in the snow they had apparently struggled from the bank and worked down into the river. So exhausted were they that neither bird could fly. I picked up the most badly beaten of the two combatants and carried him by the wings to a stump, back from the river. The other bird swam across the open part of the river propelling himself with his wings like a duck and struggled up a six foot bank, where he sat.

I left them there, and after an hour or so, on my route, returning, they remained as I had left them.

The next afternoon, one owl was perched in the tree directly over the stump where I had placed him, and was able to fly to a nearby tree. He looked very bedraggled, with one eye now closed and one ear tuft missing. The other owl could not be found.

Since this is the nesting time of the year for the Great Horned Owl, I had probably witnessed a bitter strife for territorial rights.

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Two aspects of nature that many naturalists will never have thought about are the shapes of animals and life on the bottom of a stream. Thanks to the Nature Bulletin of the Forest Preserve District of Cook County, Illinois, we are able to bring our members instructive and interesting accounts of these.

The Shapes of Animals

Nature Bulletin No. 698

The shape of an animal tells a great deal about the kind of life it leads. Unlike common plants which stay rooted to one spot, they are active creatures that move about under their own power. They crawl, walk, run, jump, climb, dig, swim or fly. They hunt food, make homes, produce young, flee from their enemies or fight them. Certain body proportions and types of legs, wings or other features go along with each habit of life. Animals, even when they are at rest, give the impression of being ready to do something or go somewhere.

For example, animals that specialize in jumping, such as the rabbit, frog, flea, grasshopper and kangaroo, have long powerful hind legs. The climbers may have the grasping feet of the opossum and raccoon; the hooked claws of tree squirrels, cats, woodpeckers and many insects; or the suction cups of the tree frog's toes, or the housefly's feet, by which they can walk up a window pane or upside down across a ceiling. The best diggers--the mole, woodchuck, badger and the underground young of a 17-year cicada--have short stout forelegs equipped with heavy claws for scooping earth.

However, most animals are not so highly specialized. Usually, each can travel in various ways and perform many different tasks. None is a jack-of-all-trades, able to do a little of everything.

Animals have a functional beauty all their own, and we describe it with such words as grace, poise, rhythm, smoothness of contour, and symmetry--no matter whether they are as large as a 100-ton whale or as small as a microscopic water flea. What flower can thrill us so much as a glimpse of a bounding deer, a hunting fox, a soaring hawk or merely small fish swirling in an aquarium?

Their charm comes from a simple basic design widespread among free-living animal life. They have a head end and a tail end; an upper side and a lower side; a right side and a left side. In the higher animals the organs of sight, hearing, smell and taste are located in the head end. Animals as low as the earthworm also have a head end which leads the way and is sensitive to outside stimuli even though it has no eyes, ears or special sense organs. Animals are usually bilaterally symmetrical, the right side tends to be a mirror image of the left side. This balance makes it easier for them to steer a course and not so apt to go around in circles like a bird with a crippled wing.

Streamlining and speed go together. The ideal torpedo-like shape is seen in the whizzing flight of the chimney swift, the racing greyhound, the migrating salmon that fights its way upstream for hundreds of miles, and the porpoise which can outdistance fast ships. On the other hand, just as the man who runs the 4-minute mile is differently built from the shotput champion or the wrestler, the slow-moving animals are imperfectly streamlined. They may even be lop-sided like the creeping snails or, like some of the anchored sponges, be entirely lacking in definite form or symmetry.

Perhaps the strangest of all transformations in shape is found among the marine flatfishes which include the flounders, halibuts, turbots, soles and others. These start life like any other young fish, swimming along in the conventional upright position with one eye on each side of the head. At an early age they begin to lean over more and more to one side or the other. At the same time the eye on the lower side begins to migrate across the top of the head, or even through the head, to the upper side. Some species lie on their left side, others on the right, and a few don't seem to care which side is up.

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Life on the Bottom of a Stream

Nature Bulletin No. 690

A stream conceals a teeming world of bottom-dwelling animals that are the food supply for all stream fish and a source of live bait for catching them. Raccoons, mink, muskrats, ducks, shore birds, turtles and frogs hunt here for mussels, snails, crayfish and aquatic insects. These insects, after passing their young stages on the stream bottom, emerge as swarms of flying adults devoured by dozens of kinds of song birds. These, too, are the insects that fly fishermen imitate in making their artificial lures.

Streams of all sizes have about the same kinds of bottom animals, whether a brook small enough to be stepped across or the mile-wide Mississippi. The greatest

differences are found when the populations from different types of bottom are compared--rock, gravel, sand and mud. These main types result from the sorting action of the water, especially during floods. Rock bottom is found in the fastest water because all smaller materials are swept downstream. As the current becomes slower the gravel, then the sand, and finally the mud, settle out.

A flat rock with water swirling around it on the riffle of a clean stream hides dozens of small aquatic animals. If the rock is lifted, crayfish and perhaps a small fish are glimpsed as they scurry into other hiding places. On its underside, flat-bodied mayfly nymphs with tufts of gills on the sides skitter over the wet surface. Also, here are slender stonefly nymphs with two caudal filaments. Caddisfly larvae, which weave tiny nets to catch their food, are seen and sometimes a strange species that lives in a coiled tube made of sand grains glued together. Both air-breathing and gill-breathing snails may be present, as well as creeping adult beetles. A broad, rubbery leech, clinging with suckers fore and aft, may be hovering over a blob of bright yellow eggs. A long slender leech glues brown seed-like egg cases to the rock. With luck, you may find a hellgrammite, the big ferocious-looking young of the Dobson fly and a favorite bait for catching game fish.

Gravel bottom usually supports more pounds of animal life per acre than any other part of a stream. When a square foot of it is dredged up, picked over carefully, rinsed and strained, it commonly yields a wriggling mass weighing an ounce and made up of 20 or 30 species. Also common here are the little fingernail clams, or "duck shells", whose pinhead-sized young are born fully formed. The most striking creatures on the gravel bottom of creeks and rivers are the large, thick-shelled mussels from which pearl buttons are made.

The sand bottom of a stream, like a sand area on land, often is an almost lifeless desert. Perhaps sand shifts about too frequently, or perhaps it provides little food and shelter for freshwater animals.

The slow addition of sediment makes mud bottom a rich underwater soil. Blood worms, tiny relatives of earthworms, have mud tubes into which they retreat. The midges that swarm at our windows at night come from mud-dwelling younger stages. The heaps of "cisco flies" that pile up under street lights in river-front towns come from the large mayfly nymphs that burrow in mud. Mollusks are represented by duck shells and kinds of mussels and snails not found in swifter water. Leeches squirm and dragonfly nymphs lumber over the oozy bottom.

When a clean stream becomes polluted with sewage, most of the bottom animals die. Mayflies, stoneflies and caddisflies are most sensitive and disappear first. With more and more pollution, others drop out one by one. At last the bottom is covered with nothing but a waving mat of sludge worms like the thick pile on a rug. If the pollution is stopped, the animal life slowly comes back.

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Note: The end of March and the first days of April are the time when the Whistling Swan migration usually reaches its height along the north shore of Lake Erie. Long Point, with Port Rowan as a centre, is the place where the best sights of swans are usually obtained. Thousands of ducks and other waterfowl are likely to be seen in Long Point Bay at the same time. The congregations of waterfowl commences there as soon as the first breakup in the ice begins. Other good spots for viewing migrating waterfowl in the early spring are: the Niagara River from Fort Erie to Niagara-on-the-Lake; Rondeau; Point Pelee; Lake St. Clair.

R. M. Saunders,

Editor.