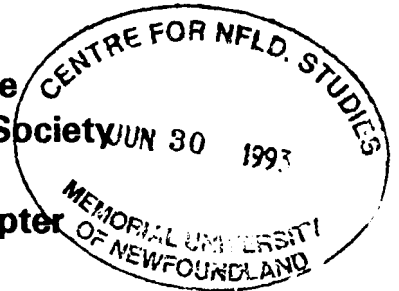


SARRACENIA

Newsletter of the
Canadian Wildflower Society

Newfoundland Chapter



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Summer 1993

Summer Field Schedule

June 20, 1993 - (Sunday) 2:00 p.m. The first walk of the season will be at **Memorial University Botanical Garden**. This will give everyone a chance to get reacquainted with the "spring" flora of the province and to say good-bye to Bernard Jackson, the retiring curator of the garden.

July 10 or 17, 1993 - (Saturday) 12:00 noon. The Forest Habitat at **Salmonier Nature Park**. The date of this field trip depends upon how early the forest orchids bloom. Mac Pitcher, the park Natural Historian, will keep us informed on blooming times and guide us on our walk. This trip is an excellent opportunity to see portions of the Nature Park not open to the general public and also, how the Avalon Forest Ecoregion differs from the typical Maritime Barrens Ecoregion, which covers much of the Avalon, Burin, and Bonavista Peninsulas. Meet at the SNP parking lot: 12 noon.

July 18, 1993 - (Sunday). **Cape St. Mary's and the Southern Shore.** This field trip will satisfy the interests of both birdwatchers and wildflower enthusiasts. Ken Knowles, our newest board member, will help us identify the birds we encounter. We will leave from the Arts & Culture parking lot at **9:00 a.m.**, bring a lunch, binoculars, guide books, and hiking boots.

August 8, 1993 - (Sunday). **The Isthmus of the Avalon.** A hike to examine the lichens (and other plants) of our maritime barrens, lead by Bill and Sue Meades. We will leave from the Arts & Culture parking lot at **10:00 a.m.** Bring a picnic lunch and good hiking boots.

Sept. 6, 1993 - (Monday). **The Beamer in Flatrock.** This will be our **2nd annual Labor Day hike & social**. After the hike, we will have a pot-luck dinner/barbeque at Sue and Bill Meades' place in Flatrock. Anyone who does not know how to get to the Beamer or Sue's may obtain a map from the Garden. We will meet at **10:00 a.m.** at the municipal park across the road from the Beamer. Read Bernard's article in this issue of *Sarracenia* for an introduction to the Beamer.

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NOTE!!! Change in Meeting Place !!!

Because our former meeting rooms in the Engineering Building were scheduled for other uses, we will be meeting at the **Memorial University Botanical Garden** for the remainder of this year. ~~Unless otherwise notified, our regular meetings will be at 8 P.M on the first wednesday~~ of each month (Oct. - Dec., Feb. - June). Previously, we hadn't met regularly at the garden because it is closed during the winter months. We will still have to find other accommodations for our February, March, and possibly April meetings, as there is no plowing of the parking lot during these months. Parking is free. We will keep you informed of any changes in meeting places or times.

Election of 1993/1994 Board of Directors and Officers, etc.

At the beginning of our June meeting, we held our annual election of officers. Although we do not have a formal constitution yet, I think it would be fair to restrict the officers' positions to no more than *two consecutive years*. This will hopefully get more people involved. Since this is the end of my second year, Ann Marie Madden agreed to run for President. I will continue as editor of the newsletter and, as past president, a board member. Other members who were elected to the board are: Todd Boland, Alice Close, Caroline Harley, Ken Knowles, and Tom Smith. Janet Craske stepped down as treasurer after three consecutive years. Her financial records are in excellent shape, so this should be an easy job for the new treasurer, Alice Close. Tom Smith has also volunteered to act as our new secretary. Todd will be the Garden representative. Sincere thanks to outgoing board members, Janet Craske, Mike Collins, Joanne MacDonald, and Mary Woodruff for all of their time and commitment.

Any member who would like to write an article for the newsletter or submit a black and white graphic (preferably pen and ink), please contact me at 335-2669 or through Ann Marie at the Garden. Articles should be submitted on computer disk (if possible) in Word Perfect; illustrations should be no larger than 4 X 6 inches.

Maps for field trip locations will be available at the Garden information desk. Questions about cancellations due to poor weather can be answered by calling the Garden that morning.

--Sue Meades

The Blow-Me-Down Brook Trail: Floral Gateway to the Blomidon Mountains

By Henry Mann

The Bay of Islands in western Newfoundland harbours a dozen small islands nestled at the entrance to three fjord-like arms. Its southern extension, the Humber Arm, reaches 40 km inland to the city of Corner Brook and the mouth of the Humber River - one of our major drainage systems and salmon spawning rivers. Steep limestone cliffs towering near the river mouth give way eastward to an ever broadening valley and the 30 km long Deer Lake. From the lake, the upper Humber winds west and north to its headwaters in the Long Range Mountains of Gros Morne National Park.

Although the area is vegetated mainly by rich spruce, fir and birch forests, a variety of rare gems can be encountered in diverse habitats including limestone talus, alpine barrens, serpentine barrens, bogs, rich fens, marl ponds, and alluvial thickets. The Arm and the Valley lie at the northern climatic limits of predominantly southern species such as spring beauty (*Claytonia caroliniana*) and trailing arbutus (*Epigaea repens*). Likewise, they form the approximate southern limits of some arctic species, such as the eye-catching mountain heath (*Phyllodoce caerulea*) and many-leaflet *Oxytropis* (*Oxytropis foliolosa*). Wildflower enthusiasts not only can view a wealth of species here, but also find this an ideal base for lengthier excursions to the arctic-alpine conditions of the Northern Peninsula or south to the unique Port au Port Peninsula and the beautiful Codroy Valley.

Near the entrance of the Humber Arm, Blow-Me-Down Mountain rises behind Woods Island, beginning the Blomidon Range to the south. The Blomidons can be accessed most easily by a roadside trail beginning a few hundred meters north of the Blow-Me-Down Brook bridge. From the road, the valley of the brook runs to the south-east for five kilometers, then bends sharply right and out of sight near steep scree slopes of rusty-brown serpentine rock. A flat-topped escarpment of towering grey gabbroic cliffs rims the valley to the right. The trail follows the top of the steeply-cut brook gorge, its first two well-worn kilometers terminating at a local swimming hole junction. As one descends the steep gorge wall to the brook's rocky ledges pocked with water-worn cauldrons, several deep pools and cascading falls appear. The site is nothing less than idyllic. Only the bubbling waters and song birds of the forested rim break the sheltered stillness of the ferny walls. Could there be a grander place to refresh body and mind on a hot day than here by the cool waters, with the fragrant scent of Virginian rose (*Rosa virginiana*) blossoms!

Beyond the swimming hole the trail is little travelled, generally following an old mining road now barely visible at times. It winds in and out of open woods, wet fens and low shrubby heaths. Sheep laurel (*Kalmia angustifolia*) heaths feature carpets of reindeer lichens (*Cladina spp.*) and the beautiful pink lady's slipper orchid (*Cypripedium acaule*), along with checkered rattlesnake plantain (*Goodyera tessellata*) and round-leaved orchis (*Platanthera orbiculata*). Several root parasitic species occur here, including bastard-toadflax (*Comandra richardsiana*) with its clusters of tiny white flowers, and related northern comandra (*Geocaulon lividum*) with inconspicuous greenish flowers but bright orange berries in fall. Northern painted cup (*Castilleja septentrionalis*) also flourishes here. In places, thickets of bracken fern (*Pteridium aquilinum*) and royal fern (*Osmunda regalis*) break the texture of the heath carpets. The royal fern exhibits two colour varieties, a greenish form and a browner form, which becomes especially bronze in the autumn.

Many heaths bloom in succession from early spring, beginning with the large magenta "butterfly" flowers of rhodora (*Rhododendron canadense*) and continuing with fragrant trailing

arbutus (*Epigaea repens*), the white bells of leatherleaf (*Chamaedaphne calyculata*), and the pearly-pink blossoms of the bog rosemary maiden, *Andromeda glaucophylla*. All our 31 Ericaceae (Heath family) species have wonderfully intricate flowers when seen with the naked eye, but become even more so when viewed with the field botanist's constant companion, a ten power hand lens. Even the small bells of the common blueberry (*Vaccinium angustifolium*) exhibit exquisite added form and colour when viewed through a lens, as do Labrador tea (*Ledum groenlandicum*), bog laurel (*Kalmia polifolia*) and our partridgeberry (*Vaccinium vitis-idaea*), which also display their blossoms along the trail. Other knee-high shrubs of heath-like stature add to the colours, including northern honeysuckle (*Lonicera villosa*), shrubby cinquefoil (*Potentilla fruticosa*), northeastern rose (*Rosa nitida*) and squashberry (*Viburnum edule*).

Open fens dot the area, their flat peaty surfaces covered with deer grass (*Scirpus cespitosus*). This is the home of the provincial floral emblem, the pitcher plant (*Sarracenia purpurea*) and a number of common peatland orchids. A close look is needed to discover some of the miniatures growing here; such as the unusual pink blossoms of the marshberry (*Vaccinium oxycoccus*), the small white flowers of goldthread (*Coptis groenlandica*), the carnivorous round-leaved sundew (*Drosera rotundifolia*) and the "insect-eating" butterwort (*Pinguicula vulgaris*). Common here is the pretty bird's-eye primrose (*Primula mistassinica*) in both its white and pink-flowering forms. Less common is Rand's eyebright (*Euphrasia randii*), whose flowers are slightly smaller than the weedy American eyebright (*E. americana*), but every bit as lovely through a hand lens. Shallow fen pools feature several beauties, including the bearded bogbean (*Menyanthes trifoliata*) and the carnivorous golden horned bladderwort (*Utricularia cornuta*). Blue flags (*Iris versicolor*) add their display in July.

The largest trees along the trail are larch (*Larix laricina*), paper birch (*Betula papyrifera*), and white pine (*Pinus strobus*), but the tallest of these, the pine, only reach a maximum height of about eight meters. Both the larch and the pine are dwarfed, highly contorted, gnarled and twisted, often spreading more horizontally than vertically. On a warm summer day it is difficult to appreciate the harsh environment in which these trees must survive. For a good part of the year, high winds off the Gulf of St. Lawrence howl through this natural funnel created by the mountains and the bay. Heavy snow and ice loads bend and break branches and stems. Alternate thawing and freezing and the blasting icy winds also destroy much tender growth of the previous season. This natural, but erratic, pruning and twisting, produces the "fairy-forest" effect which is such a curiosity to the hiker in the benign days of summer. In addition, those potential giants, the white pine, show the insult and bear the scars of the parasitic white pine blister rust introduced early in the twentieth century. Black spruce (*Picea mariana*) are common along the trail but mostly achieve only a shrubby status. Some show bushy "witches broom" growths. Careful scrutiny of these brooms will bring to light our smallest flowering shrub, the parasitic dwarf mistletoe (*Arceuthobium pusillum*) rooted in the living tissues of the twigs. Heavily infected spruce tend to exhibit a sickly yellowish-green colour.

Wooded areas also feature numerous taller shrubs, including the early blooming chuckley-pears (*Amelanchier spp.*), pin cherry (*Prunus pensylvanica*), choke cherry (*Prunus virginiana*), red elderberry (*Sambucus pubens*), witherod (*Viburnum cassinoides*), and showy mountain ash (*Sorbus decora*). All of these and others produce showy floral displays. A variety of herbs prefer the shady woods where a camera flash is essential for good photographs. A few of the many include clintonia (*Clintonia borealis*), twinflower (*Linnaea borealis*), northern white violet (*Viola pallens*), marsh blue violet (*V. cucullata*), rose twisted stalk (*Streptopus roseus*), crackerberry (*Cornus canadensis*), and large-leaved goldenrod (*Solidago macrophylla*). Woodland clearings feature such prominent

flowers as cow parsnip (*Heracleum maximum*), water avens (*Geum rivale*), flat-topped white aster (*Aster umbellatus*), gall-of-the-earth (*Prenanthes trifoliolata*), swamp thistle (*Cirsium muticum*), and the ever present Canadian burnet or bottlebrush (*Sanguisorba canadensis*).

Eventually, the ever ascending trail leaves the shrubby woods behind and emerges at the base of long serpentine scree slopes deposited as an overburden by the advancing glacier which formed the valley during the last ice age. High above the scree loom the grey gabbroic cliffs. The vegetation now grows closer to the ground indicating more pronounced alpine conditions. Mats of creeping bearberry (*Arctostaphylos uva-ursi*) occur here, exhibiting scattered pink bell-shaped flowers characteristic of a heath. Their dark green leaves soak up sunlight, keeping them warm and active while icy winds whistle several decimeters above. Partially protected by larger boulders, tiny moss campion (*Silene acaulis*) huddle together into thick cushion mounds for mutual warmth. Even their delicate pink flowers hug the cushion surface. Here the larch and black spruce give up their tree status to become creeping, sprawling shrubs, along side the junipers (*Juniperus horizontalis* and *J. communis*) and the dwarf swamp birch (*Betula pumila*).

The peridotite rock of these serpentine barrens contains high concentrations of magnesium, nickel, chromium, and iron, which cannot be tolerated by most plants. In addition, very little calcium and nitrogen, elements important for normal growth, are available. Besides being chemically inhospitable, peridotite also frost shatters readily, producing long unstable scree slopes. With the seasons, the fine rubble moves down the steep inclines, uprooting vegetation hardy enough to establish itself in such an uncertain place. Lesser slopes have become stabilized with shrubby vegetation, but on the greater slopes plants are sparse.

Even so, we do find tough-rooted plants surviving on this shifting substrate. Some, which are usually found only on these serpentine soils, are termed "indicator species". One of these, Lapland rosebay (*Rhododendron lapponicum*) has even prettier deep magenta flowers than its moisture-loving close relative, rhodora. Being a low evergreen shrub of the alpine zone and a very early bloomer, its floral beauty is not known to many. Another indicator, the tiny white-flowered dryleaf sandwort (*Arenaria marcescens*) grows in small clusters on the bare scree. Dry old leaves from many previous years, attached to prostrate stems beneath shoots of the current season, are the source of its name. This species can be found in bloom throughout the short growing season, first near the base of the slopes and then at higher elevations as summer progresses. Two similar species are also scattered on these slopes, reddish sandwort (*Arenaria rubella*) and spreading sandwort (*A. humifusa*).

The well known Harvard botanist, M.L. Fernald, visited these slopes in 1911 and recorded a number of flowers characteristic of the serpentine, including two further indicator species, the northern maidenhair fern (*Adiantum pedatum* var. *aleuticum*), growing along streams and seepages, and the pretty alpine campion (*Lychnis alpina*). He also noted sea thrift (*Armeria maritima*) and many-rayed goldenrod (*Solidago multiradiata*), which are reasonably common on the slopes. Hikers are often surprised at how many small showy flowers actually bloom on these seemingly sterile slopes as seen from a distance. Some of these include balsam ragwort (*Senecio pauperculus*), shrubby cinquefoil (*Potentilla fruticosa*), harebell (*Campanula rotundifolia*), hemlock parsley (*Conioselinum chinense*), three-toothed cinquefoil (*Potentilla tridentata*), several chickweeds (*Cerastium spp.*), and the miniature knotty pearlwort (*Sagina nodosa*).

A climb up the soft fine slopes will eventually lead to the coarse gabbro boulder fields at the foot of the upper cliffs. Snow patches occur here in sheltered locations late into summer, some

years not completely disappearing by the time winter conditions again reappear. Climbing becomes slower, steeper, and more difficult, but the rewards for picking one's way carefully among the huge boulders, crevices and rock ledges are many. On these cliffs bloom the yellow lady's-slipper (*Cypripedium calceolus*), the small-flowered anemone (*Anemone parviflora*), the alpine and red bearberry (*Arctostaphylos alpina* and *A. rubra*), various violets, alpine azalea (*Loiseleuria procumbens*), and many more. As the summit comes nearer, the mountain heath (*Phyllodoce caerulea*) appears on the ledges, a magnificent visual treat when in full bloom.

The summit reveals a relatively flat tableland of boulder fields, leading inland to knee-high heath barrens and then to wet sedge fens dotted with pools and ponds. In sheltered spots scrub black spruce produce patches of dark green. On the boulder fields on the rim can be found the flowers already mentioned on the upper gabbroic cliffs, as well as some tiny cespitose alpines like the white-flowering diapensia (*Diapensia lapponica*) and the magenta purple mountain saxifrage (*Saxifraga oppositifolia*). Arctic willows trail close to the rocky soil intermingled with other creeping shrubs, such as alpine azalea and several prostrate blueberries (*Vaccinium uliginosum* and *V. boreale*). Wet fens of deer grass harbour the miniature curly grass fern (*Schizaea pusilla*) and sundews (*Drosera anglica*, *D. rotundifolia* and *D. intermedia*). The rare slender-leaved sundew (*Drosera linearis*) was also reported by Fernald from this general area. Water lobelia (*Lobelia dortmanna*), white buttons (*Eriocaulon septangulare*), and horned bladderwort (*Utricularia cornuta*) add colour to the pools. Throughout the seasons a variety of orchids blossom amongst other wildflowers, such as bog aster (*Aster nemoralis*) and bog goldenrod (*Solidago uliginosa*). The little Newfoundland dwarf birch (*Betula michauxii*) is the most prominent shrub on these wide open peatlands.

From the highest point on the escarpment rim a spectacular panoramic view unfolds. To the northwest lies the bay and its scattered islands, Woods I., Wee Bald I., Tweed I., Pearl I., and the rest. To the east and south across the brook's deep gorge lie the massive rusty hills of serpentine rock that most fascinated Fernald in his exploits of 1911. And in the distant south and west rise the Lewis Hills, the highest elevation on the Island at 815 meters. Caribou are not infrequent visitors to this plateau and many other delights await the traveller. From here inland extends a true trailless wilderness offering days and weeks of endless exploring for those adventurous enough to continue. Or, after several hours of exploration on the summit, one can still return to the vehicle from this location after a full and rewarding day.

A brief description such as this cannot do justice to the beauty of the area or even begin to mention all of the interesting flowers, let alone the varied background vegetation of ferns, grasses, sedges, mosses and lichens. Many more plants, some common, some rare, some not yet reported, await the botanical enthusiast. Several hikes spaced in early June, mid July and late August will catch most species in bloom as the succession of flowering proceeds. I have travelled this trail a dozen times with backpack, and camera. If I have the chance to travel it a dozen more, I will always find a plant not seen before or a new view worthy of a photograph and come back refreshed in body and spirit to carry on till the next time. Best of all, this is but one part of the botanical smorgasbord available in the Bay of Islands-Humber Valley region of our province.

Henry Mann is an Associate Professor of Biology at the Sir Wilfred Grenfell College of Memorial University in Corner Brook. He is chiefly interested in the taxonomy and distribution of Charophytes and Newfoundland vascular plants.

The Ericaceae (The Heath or Blueberry Family)

by Sue Meades

The blueberry family is an important and fairly large family in our province. The plants in this family are most commonly referred to as *ericaceous shrubs* or *dwarf shrubs*. A common name in some local areas, *goowiddy*, refers collectively to all dwarf shrubs (about knee to waist height), that grow in barrens or bogs. Members of this family are found in many habitats, but most occur in bogs or barrens.

Some authors have a broad vision of the Ericaceae; others divide it into several separate families: the **Ericaceae** or heath family (= Rhododendron subfamily), the **Vacciniaceae** or blueberry family (= Vaccinium subfamily), the **Pyrolaceae** or wintergreen family (including one-sided wintergreen, *Pyrola*, and one-flowered wintergreen, *Moneses*), and the **Monotropaceae**, which includes *Monotropa* (Indian pipe). In this article we will deal only with the Rhododendron and Vaccinium subfamilies of the Ericaceae. In the next newsletter I will discuss *Pyrola* and *Monotropa*.

There are 30 native species of Ericaceae in the province. Of these, 23 are found in both Newfoundland and Labrador, 4 are found only in Newfoundland, and 3 are only in Labrador. There is also one introduced species, *Calluna vulgaris* - the Scottish heather, which occurs in small localized patches as an escape.

The flower usually has 5 petals (4 in some) fused into an urn-shaped (urceolate) or bell-shaped (campanulate) corolla, but a few species have corollas that are deeply divided and appear as separate petals (like Labrador tea and rhodora). The flowers are either white, pink, or purple. Sepals are united into a calyx that is usually small with tiny triangular lobes. The number of stamens is either equal to, or twice, the number of petals (4, 5, 8, or 10); most of our Ericaceae have 10 stamens. The characteristic anthers open by terminal pores.

The ovary is superior in the Rhododendron subfamily [Rhododendroideae], but may appear inferior due to the enlarged calyx that surrounds the fruit in species such as creeping snowberry (*Gaultheria*). In the Vaccinium subfamily [Vaccinioideae], the ovary is inferior. Fruits are either dry capsules (as in sheep laurel and Labrador tea) or fleshy and berry-like (as in our blueberries, partridgeberries, and cranberries).

Leaves are either evergreen and leathery (coriaceous), or thin and deciduous. Their arrangement on the stem may be alternate or opposite. Leaf shape varies



Sheep laurel
Kalmia angustifolia

from narrow, scale-like leaves, as in moss heather (*Cassiope*), to broad ovals (ovate) with heart-shaped bases (cordate), as in trailing arbutus (*Epigaea*). Many of the ericaceous shrubs have leaves with revolute margins (margins that are curled under). The lists below provide brief descriptions of our native Ericaceae.

I. Species of the Ericaceae (**Rhododendron subfamily**) found in insular Newfoundland:

GROUP 1A: Fruits are dry capsules; flowers have deeply lobed petals that may appear separate:

Labrador tea (*Ledum groenlandicum*)

Evergreen shrub (< 1 m tall) of peaty soils and bogs. Flowers white, in terminal clusters; petals 5; stamens 5-7. Fruits (capsules) on the end of long pedicels. Leaves alternate, to 5 cm long, linear-oblong; margins revolute, leaf underside covered with dense, white to rusty hairs.

Rhodora (*Rhododendron canadense*) - (insular Newfoundland only)

Deciduous shrubs (to 1 m tall) of bogs, thickets, and acidic barrens. Flowers lavender to rose-colored (rarely white), to 2 cm across; in terminal clusters appearing before the leaves; corolla bilabiate (of 2 petals), the lower petal deeply divided into 2 lobes, the upper petal with 3 shallow lobes; stamens 10. Leaves alternate, oval to oblanceolate, to 6 cm long, margins entire; leaf hairy.

Lapland rosebay (*Rhododendron lapponicum*)

Dwarf, evergreen shrub, forming low mats in limestone and serpentine barrens. Flowers purple, 1-2 cm across, in terminal clusters; corolla deeply 5-lobed; stamens 5-10. Leaves alternate, oval to obovate, to 2 cm long, scurfy (with minute, rusty scales).

GROUP 1B: Fruits are dry capsules, flowers have petals united into an urn-shaped (urceolate), bell-shaped (campanulate) or bowl-shaped (crateriform) corolla:

Bog rosemary (*Andromeda glaucophylla*) - or crystal berry

Low evergreen shrubs (to 7 dm tall) of bogs and wet peaty soils. Flowers white to pink, nodding, in arching, terminal clusters; corolla broadly urn-shaped; stamens 10. Leaves ascending, narrow, revolute; the upper surface marked with pale lines, the lower surface white.

Moss heather (*Cassiope hypnoides*)

Small, evergreen shrubs (1 to 12 cm tall) of arctic-alpine habitats. Plants moss-like in appearance. Flowers white, solitary and nodding; corolla bell-shaped with rounded lobes; stamens 8-10. Leaves small and needle-like, 2-4 mm long, very crowded on the stem.

Leatherleaf (*Chamaedaphne calyculata*) - or cassandra

Low evergreen shrub (to 1 m tall) of bogs, marshes, and wet, peaty soils. Flowers white, attached in the axils of the upper smaller leaves and bent to one side, forming leafy, 1-sided racemes; corolla urn-shaped. Stamens 10. Leaves oval, dotted with resin, 2-5 cm long.

Trailing arbutus (*Epigaea repens*) - or mayflower

Prostrate or trailing, evergreen, woody plant found on the forest floor in western Newfoundland.

Flowers pink to white, fragrant, in terminal and lateral clusters; corolla funnel-shaped (salverform), with hairs in the corolla tube. Stamens 10. Leaves alternate, oval, with heart-shaped bases; smooth or hairy along the veins and leaf margin.

Sheep laurel (*Kalmia angustifolia*) - also called lambkill or goowiddy

Evergreen shrub (1 to 1.7 m tall) of bogs and dry to wet, acidic barrens; an indicator of poor, acid soil. Flowers magenta (rarely white), in cluster below the terminal new growth (shoots and leaves), corolla bowl-shaped, to 1.3 cm across, with 5 shallow lobes. Stamens 10, with the anthers tucked in small "pockets" along the side of the corolla. When a visiting insect walks along the floor of the corolla, it trips over the arched filament of the stamen, which releases the anther from its pocket and dusts the insect and the style with pollen. Leaves opposite or whorled (in 3's), smooth, elliptical, margins entire, slightly revolute.

Bog laurel (*Kalmia polifolia*) - or pale laurel

Low evergreen shrub of bogs and peaty soils. Flowers similar to sheep laurel, but in terminal clusters with fewer flowers. Leaves opposite, narrow; smooth and shiny above, white beneath, strongly revolute.

Alpine azalea (*Loiseleuria procumbens*)

Low, evergreen shrub of rocky or peaty, exposed alpine habitats. Flowers small, white to pink, in clusters of 2-5; stamens 10. Leaves opposite, elliptic, smooth and shiny above, margins revolute.

Purple heath (*Phyllodoce caerulea*) - or mountain heath

Low evergreen shrub (to 15 cm tall) of rocky or peaty, arctic-alpine areas. Flowers purple, few, nodding, terminal; corollas urn-shaped, to 8 mm long; stamens 10. Leaves alternate, linear, to 1 cm long, crowded on the stem.

GROUP 2: Fruits berry-like or drupes:

Bearberries: Fruit a fleshy drupe; flowers white to slightly pinkish; corollas urn-shaped; stamens 10; leaves alternate.

Alpine bearberry (*Arctostaphylos alpina*)

Trailing deciduous shrub of rocky, alpine habitats.

Flowers 2 to 3, terminal. Leaves obovate to oblanceolate, to 3 cm long; deeply veined, margins with rounded teeth (crenate). Fruit purple or blackish-purple.

Red bearberry (*Arctostaphylos rubra*)

Trailing deciduous shrub similar to the alpine bilberry, but with red fruits; leaves smooth to slightly veined, to 4.5 cm long.

Common bearberry (*Arctostaphylos uva-ursi*) - or evergreen bearberry

Trailing evergreen shrub of exposed and arctic-alpine habitats. Flowers in terminal clusters; corolla about 5 mm long. Leaves obovate, to 3 cm long, shiny above, margins smooth (entire). Fruit dull red, mealy.

Wintergreens: fruit a false "berry". The actual fruit (a capsule) is surrounded by the enlarged, fleshy calyx base, giving the appearance of an ovoid berry, leaves alternate.

Creeping snowberry (*Gaultheria hispidula*)

Trailing evergreen plant (with slightly woody stems) of mossy coniferous forests and bog hummocks. Flowers white, solitary in leaf axils; corolla bell-shaped, with 4 lobes; stamens 8. Leaves oval, pointed at the tip. Fruit white, fleshy, berry-like, with a wintergreen taste.

Teaberry (*Gaultheria procumbens*) - insular Newfoundland only; also called checkerberry or wintergreen. Low shrub (to 15 cm) of nutrient-poor forests and clearings. Flowers white, nodding, solitary or few in leaf axils; corolla urn-shaped, with 5 lobes; stamens 10. Leaves alternate, oval to obovate, narrowed at the base. Fruit a red, fleshy, berry-like fruit.

II. Species of the Vacciniaceae or blueberry family (= **Vaccinium subfamily**) found in insular Newfoundland:

Blueberries and bilberries: Deciduous shrubs; fruit a berry - light blue, dark blue, or black; corollas urn-shaped, bell-shaped, or rounded; stamens 10 (or 8 in plants with 4 corolla lobes); leaves alternate, margins entire or toothed.

Lowbush blueberry (*Vaccinium angustifolium*)

Low, deciduous shrub (to 2 dm tall) of barrens, moist woods, or bog hummocks. Flowers white to pinkish, in clusters at branch tips; corolla bell-shaped. Flower buds conspicuously larger than leaf buds. Leaves narrow-elliptic, to 3 cm long, margins minutely toothed, leaf tip acute.

Northern dwarf blueberry (*Vaccinium boreale*)

Low shrub (to 6 cm tall) of exposed barrens, headlands, and alpine areas; similar to lowbush blueberry. Flowers white, in clusters of 2-5. Leaves narrowly elliptic, to 2 cm long, margins sharply toothed.

Dwarf bilberry (*Vaccinium cespitosum*)

Low deciduous shrub (1-2 dm tall) of rocky shores and coniferous woods. Flowers white to pink, solitary in leaf axils; corolla urn shaped. Leaves oblanceolate, to 3 cm long, prominently veined.

Oval-leaved bilberry (*Vaccinium ovalifolium*)

Deciduous shrub (to 1.5 m tall) of moist, rich woods. Flowers pinkish, solitary in axils of lower new leaves; corolla urn-shaped. Leaves oval, 2-5 cm long, rounded at both ends, margins entire.

Newfoundland bilberry (*Vaccinium X nubigenum*) [*V. cespitosum* X *V. ovalifolium*]

Deciduous, hybrid shrub (to 7 dm) of rocky and peaty soils; only on the Great Northern Peninsula. Flowers pink, solitary in leaf axils; corolla urn-shaped. Leaves elliptic, finely toothed.

Alpine bilberry (*Vaccinium uliginosum*) - also called bog bilberry or tundra bilberry.

Low deciduous shrubs (to 6 dm tall) of rocky or dry peaty barrens and arctic-alpine areas. Flowers pink, ovoid, in clusters of 1-4 at the base of the new growth; corolla with 4 lobes. Leaves obovate, 1 to 2 cm long, margins entire.

Cranberries and partridgeberries: Corollas of cranberries have 4 pink, reflexed petals; stamens 8; corollas of partridgeberry are white to pink, bell-shaped with 4 lobes; stamens 8; fruits of both are tart, red berries.

Large cranberry (*Vaccinium macrocarpon*) -

Trailing evergreen plant (with woody stems) of bogs, fens, and seepage areas. Flowers (2-6) in clusters along the stem. Leaves oblong, rounded at the tip, 6-17 mm long, flat or slightly revolute.

Marshberry (*Vaccinium oxycoccus*) - or small cranberry

Trailing evergreen plant (with woody stems) of bogs, fens, and seepage areas. Flowers (1-4) are terminal. Leaves smaller than the above species (3-8 mm long); oval, but strongly revolute and appearing triangular; white beneath.

Partridgeberry (*Vaccinium vitis-idaea*) also called lingonberry, mountain cranberry, or foxberry. Low, spreading, evergreen shrub of barrens or dry peaty soil. Flowers several in terminal clusters. Leaves obovate, 0.5 to 1.8 cm long, smooth and dark green above, pale and dotted with black bristles below.

Huckleberries: Corollas are bell-shaped; stamens 10; fruit a black, berry-like drupe with 10 small seed-like nutlets.

Black huckleberry (*Gaylussacia baccata*) - (insular Newfoundland only)

Deciduous shrub, to 1 m tall, of dry to moist woods or barrens. Flowers are white, in short, one-sided clusters (racemes) in the leaf axils. Leaves are oval or oblong, to 5 cm long, with resinous dots, the tip is acute, but not mucronate.

Dwarf huckleberry (*Gaylussacia dumosa*) - insular Newfoundland only.

Deciduous shrub, < 5 dm tall, of bogs, fens, and wet peaty soils. Flowers are white to pinkish, in short, axillary clusters (racemes) with leafy bracts. Leaves are alternate, oblanceolate to obovate, to 4 cm long, with glandular hairs, the leaf base is narrowed and the tip is rounded with a mucronate tip (a short extension of the midrib).

The following three ericaceous species are found only in Labrador:

Northern Bog Rosemary (*Andromeda polifolia*)

The northern and Eurasian form of *Andromeda glaucophylla*, similar in form and habitat.

Arctic white heather (*Cassiope tetragona*)

Small, evergreen, arctic-alpine shrub, with a single, terminal nodding, white flower; leaves are needle-like and pointed.

Northern Labrador tea (*Ledum decumbens*)

Similar to Labrador tea, but smaller; leaves are narrower and smaller (to 1.5 cm long); with a smooth, pebbly upper surface; capsules are smaller and at the end of hooked or recurved pedicels.

Some Commoner Butterflies: Their Habitats and Plants

by Bernard Jackson

Butterflies are similar to plants in that they are associated with a particular type of habitat. Also, like plants, some butterflies are far more specific in their overall requirements than are others. Though there are some obvious reasons, such as the presence of a required host plant, for this, there is still a great deal that is more obscure and that we do not yet understand. Since butterflies and plants are inseparable, this creates a fine opportunity for wildflower enthusiasts to make some very worthwhile observations, particularly on the subject of plant and butterfly inter-relationships.

Some general butterfly habitats in Newfoundland are the mature deciduous forests, barrens, bogland, alpine, rough meadow, regenerating burn sites and the coastal strip above high tide line. One of the most dominant features of Newfoundland is the sea. Though we do not, of course, find butterflies here it should be understood that the coastal strip; the shoreline from high tide mark inland, is an important butterfly environment. Because of the diversity of our coastline (sand splits, shingle bars, sheer cliffs, etc.) the width of this coastal strip will vary. Also, the value of this strip will depend not only on the type of plants present but also on the type of habitat backing onto it. Two butterflies associated with this area are the Short-tailed Swallowtail (*Papilio brevicauda* Saund) and the Silvery Blue (*Glaucopsyche lygdamus couperi* Grt). The reason for the former is the abundance of its favourite host plant, the Scotch Lovage (*Ligusticum scoticum*), and for the latter, the presence at favoured sites of its specific host plant, the Beach Pea (*Lathyrus japonicus*). The Short-tailed Swallowtail may sometimes be viewed at seaside farms, or more inland, but their greatest abundance is along our coastline and offshore islands. Some alternate indigenous hosts for their larvae are Cow Parsnip (*Heracleum maximum*), Angelica (*Angelica spp.*) and Hemlock-Parsley (*Conioselinum chinense*). This butterfly is a strong flyer and may travel some distance. The Silvery Blue, on the other hand, will never stray far from its home patch of Beach Pea here in Newfoundland. Nor have I ever seen them nectaring from any other type of flower. The Short-tailed Swallowtail is not so fussy, nectaring from Labrador Tea (*Ledum groenlandicum*), Northern Honeysuckle (*Lonicera villosa*), Harebell (*Campanula rotundifolia*), Blueberry (*Vaccinium angustifolium*, and *V. uliginosum*) and the Blue Flag Iris (*Iris versicolor*), among others.

Certain sections of coastline provide the landfall of migrating butterflies. Though this is not of the importance here in Newfoundland as it may be elsewhere (eg., the south coast of the British Isles) one can, nonetheless, sometimes find large groups of Painted Ladies (*Cynthia cardui* L.) and the occasional Monarch (*Danaus plexippus* L.) resting after their arrival.

There are some areas, for instance the coastal strip at Cape St. Mary's, that offer vegetation very similar to our alpine tops. Here you find our alpine butterfly, the Arctic Blue (*Agriades glandon* Prun.) alongside *Diapensia lapponica*, which is said to be its main host plant. Though it has, indeed, been recorded ovipositing on this plant here in Newfoundland, I have also recorded it laying on the common Crowberry (*Empetrum nigrum*) My personal observations strongly suggest that the areas inhabited by this butterfly here are more often than not devoid of *Diapensia*, yet littered with crowberry. One need only check-out the "Beamer" at Flatrock or the cliff tops at Cape St. Francis in early July to see this. The Arctic Blue nectars from such plants as Labrador Tea (*Ledum groenlandicum*), Swedish Crackerberry (*Cornus suecica*), Three-toothed cinquefoil (*Potentilla tridentata*), Twinflower (*Linnaea borealis*), Mountain Cranberry (*Vaccinium vitis-idaea*), and in the damper sites, the tiny flowers of Large Cranberry (*V. macrocarpon*) and Marshberry (*V. oxycoccus*).

Much of our land mass has a diversity of habitats intermixed with each other. A sort of irregular patchwork quilt effect. For instance, a large area of heathland ("Barrens" to Newfoundlanders) can be intermixed with bogs, clumps of trees, ponds, bare ground and patches of wild grasses. This will often cause an intermixing of butterfly species that are more normally associated with one or another of these habitats. On the heathlands we will possibly find the Brown Elfin (*Callophrys augustinus* West) and the Northern Blue (*Plebejus argyrognomon aster* Edw), both tiny butterflies that associate with plants of the family Ericaceae. The former, as far as we know, oviposits on blueberry and *Kalmia* spp., but I, personally, have not been able to authenticate this. It is a tiny, brown, nondescript butterfly that nectars from the small urn-shaped drooping flowers of Leatherleaf (*Chamaedaphne calyculata*) and the Low Sweet Blueberry (*Vaccinium angustifolium*). Because of the structure of such flowers, the internal temperature is reputed greater than the ambient, and so nectar flow is influenced for the better. This is an important factor in our erratic climate. Since both these plants are widely distributed throughout our countryside, they are possibly far more important to the well-being of our insect fauna than we are presently aware. Certainly, I have also recorded the Spring Azure (*Celastrina argiolus pseudargiolus* B & LeC), Hop Merchant (*Polygonia comma* Harris), Tiger Swallowtail (*Papilio glaucus canadensis* R & J), Green Comma (*Polygonia faunus* Edw), Painted Lady (*Cynthia cardui* L.), Jutta Arctic (*Oeneis chryxus* Dblly), Short-tailed Swallowtail (*Papilio brevicauda* Saund), and Arctic Skipper (*Carterocephalus palaemon* Pall), nectaring from one or both of these plants. We do not know what the Northern Blue oviposits on, but suspect it is either Common Crowberry or Bog Laurel (*Kalmia polifolia*). If you happen to be tramping the "barrens" during July watch out for this little butterfly on the off chance that you may see where it lays its eggs.

Some of the boglands that litter our vast expanses of heathland may play host to an interesting butterfly or two. Though there is no indigenous butterfly in Newfoundland which I would call "common", numbers are relative, and so we must evaluate them in accordance with the local situation. With this in mind, I would consider the most common bogland butterfly to be the Bog Copper (*Lycaena epixanthe phaedrus* Hall). Most of the butterfly literature identifies its host plant as Wild Cranberry (*Vaccinium macrocarpon*), and though I would have no argument with this, as a host plant, I rather think that here in Newfoundland this little butterfly more usually lays on Marshberry (*V. oxycoccus*). I suspect that in this case the butterflies are not as fussy as the botanists and simply lump the two species together as one!

On some of our bogs you may find another small butterfly, the Dorcas Copper (*Lycaena dorcas* Kby). It seems to me that they are usually on the richer sites where one finds such plants as, Shrubby Cinquefoil (*Potentilla fruticosa*), Iris (*Iris versicolor*), Royal Fern (*Osmunda regalis*), Sweet Gale (*Myrica gale*) and some of the smaller *Solidago* species. At some sites there is even the Scent-bottle Orchis (*Habenaria dilatata*) and the Purple Fringed Orchis (*H. fimbriata*). These so-called "bogs" may, in actual fact, be fens, but unfortunately I have never really settled in my mind the difference between bog, fen, swamp and marsh. And, of course, even saying "bog" to a plant ecologist is about as descriptive as saying "butterfly" to a lepidopterist! Dorcas Coppers oviposit on Sweet Gale and possibly Shrubby Cinquefoil.

There is a largish, (wing span approximately 2 1/2 inches), dark chocolate-coloured butterfly on some of our bogs called the Jutta Arctic (*Oeneis jutta terrae-novae* dos P). It oviposits on native grasses and is, as far as I know, our only reasonably common butterfly that has a two-year life cycle. It is a wary, strong flying species and not at all easy to observe for any length of time. I have seen it nectaring only from the flowers of Labrador Tea and Leatherleaf, but this

shortage of field information may simply reflect the lack of opportunity one has to observe this creature. One characteristic of the Jutta Arctic is its penchant for resting, wings closed, on the trunk of bogside trees. They are well concealed at such times and one needs be very observant to spot them.

A small butterfly sometimes encountered in the damp grassy areas of bog and fen is the Arctic Skipper (*Carterocephalus palaemon* Pall). It oviposits on grass, but possibly only of certain species. In a purely natural area they appear quite fussy regarding the flowers they visit. I have observed them nectaring only from the flowers of Bog Laurel and Low Sweet Blueberry at such sites. Yet, where suitable habitats are adjacent to roadsides or other disturbed areas, they may not be so particular. At such sites, I have recorded them nectaring from the blooms of Red Clover (*Trifolium pratense*), Ox-eye Daisy (*Chrysanthemum leucanthemum*) and Common Buttercup (*Ranunculus acris*); all alien imports. However, my observations are somewhat bias due to the fact that most of my observations of this butterfly have been made at less-than-natural sites.

Away from the bogs, but around the damp meadows, ditches and river flood plains, we find the Atlantic Fritillary (*Speyeria atlantis* Edw), Silver Bordered Fritillary (*Boloria selene terrae-novae* Hall) and, possibly, the Pearl-Crescent (*Phyciodes tharos arctic* dos P). Though these are, I believe, the more common of the group, it should be remembered that there are a number of other similar species inhabiting the province. Though some may be restricted to the Labrador portion of our province, it would not harm to pay particular attention to any such butterflies. Yet, be warned that they are a very difficult group to identify; somewhat akin to juvenile fall warblers! The young of these two Fritillaries, like so many of their kind, feed on the leaves of various species of wild violet (*Viola spp.*). Nonetheless, the eggs are laid singly and are, not necessarily, oviposited directly onto the plant but, in some species, are hidden away on a nearby twig or some such object. The caterpillars are often secretive and feed only at night. The Pearl Crescent, on the other hand, oviposits a mass of eggs on asters, particularly the New England Aster (*Aster novae-angliae*) elsewhere, but probably the New York Aster (*Aster novi-belgii*) here in Newfoundland. Two indigenous nectar sources are the Spotted Joe-pye-weed (*Eupatorium maculatum*) and the Pearly Everlasting (*Anaphalis margaritacea*). Both, incidentally, two excellent nectar producers for a wide variety of our local butterflies. It will, of course, be easily understood that the potential of a plant as a nectar source lies not only in its ability to produce readily accessible nectar but also in whether or not its blooming period is synchronized with the flight period of the various butterflies.

In the drier grasslands and meadows we find the Inornate Ringlet (*Coenonympha inornata* Edw), its subspecies the McIsaac's Ringlet (*C. i. mcisaaci* dos P), the Common or Clouded Sulphur (*Colias philodice* Godt) and, more recently, the European Skipper (*Thymelicus lineola* Ochseneheimer) which appeared in Newfoundland in 1976, possibly from Quebec. Apart from the sulphur, which oviposits on clover (*Trifolium spp.*) and certain other legumes, these others lay their eggs on grass. They may have a preference, or need, for a particular species of grass, but this is something that requires investigation.

Meadows or rough areas filled with grasses and wild flowers are ideal places to look for butterflies. If they are adjacent to deciduous forests or scrubby cut-over areas so much the better, for it is here that many of the forest butterflies come to feed. Here, too, we can find a mixing of our forest butterflies, such as the Compton Tortoise Shell (*Nymphalis vau-album* Des), Green Comma (*Polygonia faunus* Edw), Mourning Cloak (*Nymphalis antiopa* L), White Admiral (*Limenitis arthemis* Dru), Tiger Swallowtail (*Papilio glaucus canadensis* R & J) and the Spring Azure (*Celastrina argiolus pseudargiolus* B & LeC), with butterflies that seem to prefer open

meadows, yet with some affinity to the deciduous woodland. Butterflies, such as the Red Admiral (*Cynthia atalanta* L), Milbert's Tortoise Shell (*Nymphalis milberti* viola dos P.) and the two types of Painted Ladies (*Cynthia cardui* L and *C. virginensis* Dru), may be seen here, but will also be found along roadsides, and in city parks and gardens.

Farms and rural settlements are good places to see the Red Admiral, and Milbert's Tortoise Shell because it is here that their host plant, the European Stinging nettle (*Urtica dioica*) is likely to be encountered. Here, too, you may find the Common Painted Lady checking out one of its favourite host plants, the Canada Thistle (*Cirsium arvense*).

The forest butterflies lay their eggs on the leaves or buds of deciduous tree or shrubs. Birch and willow are two good species to keep an eye on. The Tiger Swallowtail is not as host specific as some butterflies and will oviposit on a variety of deciduous herbage. Nonetheless, in our area, it appears to favour Pin Cherry (*Prunus pensylvanica*) and American Mountain-Ash (*Sorbus americana*). Interestingly enough, it does not use our other *Prunus* and *Sorbus* to the same extent. Our White Admiral in the Botanical Garden oviposits on Chuckley-Pears (*Amelanchier spp.*), but according to the literature they more often utilize birch, poplar or willow. These butterflies, along with the Tiger Swallowtail, are reputed to oviposit high up, well out of human reach, but my personal observations do not verify this here in Newfoundland.

I have not yet seen the Compton Tortoise Shell oviposit, but its host plants are said to be birch, willow and poplar. The only records of large numbers of this very uncommon butterfly I ever heard of were made along the Gander to Gander Bay road in the period before the beautiful stands of birch were decimated.

One of the few butterflies that people seem to notice is the Spring Azure. It is found where its major host plant, the Northern Wild Raisin (*Viburnum cassinoides*) flourishes. Unlike most other forest butterflies, whose caterpillars feed on the leaves of their host plant, the Spring Azure caterpillar feeds on the flowers and forming berries. Only when the preferred food is depleted will it tackle the leaves, and then only the epidermis. Incidentally, this plant is also the major host of the Hummingbird or Common Clear-Wing Moth (*Hemaris thysbe* Fabricius), an interesting diurnal moth which is often seen nectaring from garden, as well as, wildflowers.

Like canaries down a mine, or Brook trout in a stream, butterflies are environmental indicators. Problems for butterflies can, of course, be climatic. Nonetheless, as with other forms of wildlife, the big danger is habitat loss or degradation. I wonder, for instance, what the longterm effects of experimental herbicide spraying to favour soft woods will do to our woodland butterflies, moose and hare that depend, largely, on deciduous material.

Actually, we have very little reliable information on the ecology of our indigenous butterflies. Maybe members of the Canadian Wildflower Society should develop the additional interest of butterfly watching. In this way we could, maybe, fill in some of the gaps in our knowledge.

As you all know, Bernard is retiring from his position as curator of the Botanical Garden. He and his wife Olive will be relocating to Truro, Nova Scotia at the end of June. The executive and members of the Wildflower Society would like to thank Bernard for his continuing support to the Society and his endless contributions to the appreciation of wildflowers, gardening, butterflies, and all wildlife in Newfoundland. We can only hope that the new curator is as dedicated as Bernard to improving and promoting our Botanical Garden. Good luck and thank-you sincerely, Bernard.

Book Reviews: Library Books

Review by Mary Woodruff

The Golden Age of Plant Hunters, by Kenneth Lemmon
library call number: QK 61 L44

When Sue suggested I write up a list of books about botanists, I confess I approached the project without too much enthusiasm. Frankly, I had never heard of the names she gave me, Fernald, Rafinesque, or Michaux, in fact Linnaeus and Rouleau were the ones that sprang to mind, and Sue hadn't mentioned those two.

Dutifully, I located the botany class of the Q.E. Library and found, in the QK section the most exciting reading I have had for years.

The Golden Age of Plant Hunters, was so enthralling that I sat spellbound on the step-stool, until parts of my anatomy protested enough to make me seek out a librarian to enquire about non-university folk borrowing books. To my surprise, the mere production of my drivers license released the book for two weeks.

Plant hunting started when men changed from nomadic hunters to a more settled existence. The early Egyptians sent hunting parties to find means of providing spices for embalming their dead, and later, through Greek and Roman conquests, these plants and others of beauty or utility, reached the British Isles. With the spread of Christianity and the flourishing of the monasteries, plants for use as food or medicine were brought to Britain from Europe. Returning crusaders often attempted to bring plants home; and from their journeys the knowledge of the wonderful variety of plants in other parts of the world became widely known. Fortunately, there was no shortage of wealthy men with large estates who wished to acquire rare, exotic, or useful plants.

The Golden Age of Plant Hunters details the adventures of the earliest men who took up plant-hunting as a profession. It starts with the Tradescants, father and son, who travelled throughout Europe and Virginia in the early 1600's. Visitors to London (England) can visit their museum on the Embankment to see the account of the treasures they introduced - rose, cherries, currants, "sypris trees" amongst them.

The problems for these early hunters were formidable. The natives, climate, and terrain were far from friendly; and when they had located seeds or cuttings their problems were just beginning. Transporting live material on the open deck of a ship with sailors as nursemaids was bad enough; but the plants were often covered with salt-spray, or malevolent fungus from the tropical steamy heat, and if they survived this, they had to arrive at the right time for planting when they reached Britain.

While some plants, more often trees and shrubs rather than "flowers" which were considered women's nonsense, were brought in before the eighteenth century, the more prosperous, settled years of the Georgian era caused an upsurge in the search for plants from throughout the world. The Royal Botanic Gardens at Kew were then well established to tend the plants on their arrival.

The most prominent man of influence in the plant world at that time was Joseph Banks. Banks, who combined wealth, love of nature, and great enthusiasm and energy for foreign travel, made an expedition to Newfoundland in 1766 collecting seeds and drying and preserving the new plants he found. In 1767, with Captain Cook and a team of experts, he mounted a round-the-world scientific expedition in the ship *Endeavour*. Although the voyage cost Banks ten thousand pounds, this was no luxury cruise. Banks collected all manner of birds, fish, seaweed, etc. as they travelled, and found 299 new plants in Madeira, their first port of call. The ship reached Tierra del Fuego by December, and the hunters decided to look for alpine plants in the highlands. Thirteen men set out and found the climb up the hills almost impossible.

“No travelling could be worse than this...” wrote Banks, “low bushes of birches reaching to about a man’s middle were so stubborn that they could not be bent out of the way, but at every step the leg must be lifted over them; on being placed again on the ground it was almost sure to sink above the ankle in bog.”

The party found the cold unbearable. One of the party was unable to continue, and a sailor was detailed to stay and look after him. These men were settled on a bed of boughs, the snow too heavy to light a fire; they were never seen again. Banks continues:

“Now might our situation be called terrible; of our original twelve, two were past all hopes; and one more was so ill, that although he was with us, I had little hope of his being able to walk in the morning.... We were distant from the ship, we did not know how far; we only knew that we had spent the greater part of the day in walking through pathless woods, provisions we had none but one vulture we shot on the way, and at the shortest allowance could not furnish half a meal: and to complete our misfortunes, we were caught in a snowstorm in a climate we were utterly unacquainted with, but which we had reason to believe was as inhospitable as any in the world...”

The men finally found their way back to the *Endeavour* carrying 125 plants describes by Banks as “truly the most extraordinary I can imagine.” There is no record to say if he found the cost excessive.

All this in the first chapter of the book! And the adventures increase each time like the stories in the Arabian Nights. Joseph Banks, on his return home, hired Francis Masson to collect further species in Africa where “wild elephants and buffalo make plant hunting difficult”. William Kerr collected plants in China, and David Douglas came to North America to botanize. The adventures recounted in “Raiders of the Lost Ark” are trivial in comparison with these hunters who worked for the love of botany and for a salary of one hundred pounds a month.

The plain, sober account of the ill-fated voyage of the ship *The Bounty*, carrying botanist Lieutenant Bligh on a mission to collect bread-fruit plants from the South Seas, is a more disturbing and harrowing narrative than any epic movie I have seen.

Do read this book; I can guarantee enjoyment. And what about Michaux, Fernald, and Rafinesque? Well I never did research them. But the shelves were filled with a wonderment of botany books, and there is always a next time.

MEMORIAL UNIVERSITY BOTANICAL GARDEN**1993 CALENDAR OF EVENTS**

Garden hours: Wednesday - Sunday, 10 - 5:30

INTRODUCTORY GUIDED TOURS

An introduction to the Botanical Garden - Every Sunday, 3 p.m., starting May 2.

NATURE WALKS

Birdwatching: Every second Sunday
8 a.m., starting May 2.
Led by Howard Clase

Wildflower walks: Every second Sunday
10:30 a.m., starting June 13.
Led by Todd Boland

SPRING WARBLER WORKSHOP

Sunday, June 6, 8 a.m. to 12 noon.
Sponsored by the Newfoundland Natural
History Society. Fee: \$2.00 (donation).

HOME AQUARIUM WORKSHOP

Saturday, June 26, 10 a.m. to 4:30 p.m.
Instructor: Jack Lanphear
Fee: To be announced.

FLORAL ART SHOW

July 24 & 25

Sponsored by the Floral Art Group
of the Horticultural Society.

GARDEN LECTURE SERIES

Saturdays, 1:30 to 3 p.m.; Instructor: Todd Boland
Fee: \$5/session; No registration required

June 5	Gardening with Rhododendrons	August 14	Foliage for Effect: The Hostas
June 19	Choice annuals for Newfoundland	August 28	Common Garden Perennials
July 3	Common Rock Garden Plants	Sept. 25	Heaths and Heathers
July 17	Gardening with Primroses	Oct. 9	Decorative Fall Shrubs
	Oct. 23	Winter Preparation Tips	

FALL EVENTS

- Orchid Show and Sale - Sept. 18 & 19.
- 16th Annual Exhibition of Garden & Nature Photographs and Illustrations
Date of exhibition: Weds.-Sun., 10 a.m. - 5:30 p.m., November 13-28
- Wreath Making Workshop - date to be announced
- Dried Flower Workshop - date to be announced

For more information on upcoming events please contact:
Anne Marie Madden, Interpretation Coordinator, at 737-8590,
or drop by the Garden during open hours (Wednesday - Sunday, 10 - 5:30).