ference, being of even thickness from the head to the tail. The tail ended abruptly as if cut square off. The form was not perfectly round, but the back and belly as well as the sides were somewhat flattened, the eyes were black, in striking contrast with the colour of the creature. It was not smooth, but was surrounded by raised rings of about a quarter of an inch in width. The colour, however, was uniform.

ART. VIII.—Notes on some Nova Scotian Plants. By George Lawson, Ph. D., Ll. D., Professor of Chemistry, Dalhousie College, Halifax.

#### CALLUNA VULGARIS.

Ir may be recollected by some members of the Institute, that a patch of Scotch Heather (Calluna vulgaris) was found about fourteen years ago in the State of Massachusetts, and that a good deal of discussion ensued as to whether the plant was really indigenous to the American soil, or had been intentionally planted, or accidentally introduced. One set of American botanists held to the belief that the plant was not native in Massachusetts, whilst Professor Gray and others believed that the evidence was so far, in its favour. This latter view was strengthened, and the favourable evidence increased by a circumstance that occurred in London. nean Society had in course of many years accumulated in their rooms a large quantity of bundles of dried plants. These were cumbrous to move into the Society's new quarters, and it was therefore determined to select from them what appeared to be necessary for the Society's Herbarium; and all that were regarded as duplicates or rubbish, were sold off at auction. Amongst these was a parcel of Newfoundland plants, collected by Mr. Cormack, the first scientific explorer of that Island, and that had long lain neglected. The parcel was purchased, with others apparently as valueless, by Mr. Hewett Cotterell Watson, a veteran botanist, residing at Thames Ditton, who in early days explored the Azores, and who has devoted a large portion of his life to collecting and digesting

materials for the development of a system of Geographical Botany. In this parcel Mr. Watson found amongst other plants, a specimen of Calluna vulgaris, and called attention to the fact in the Scientific Journals.

There was likewise a vague tradition in Nova Scotia, that the calluna had been found within our borders, but as we have two plants, Corema Conradi, and Empetrum nigrum, that might easily be mistaken for it, botanists did not pay much attention to the rumour. However, in August, 1864, whilst travelling through the island of Cape Breton, I heard at North Sydney that Mr. Robertson, a farmer at St. Ann's, had found the Heather on his farm, and that as he had come from Mexico to Cape Breton, it was very unlikely that he could have brought the plant with him. I visited St. Ann's, saw the Heather growing in small quantity in a wet spot among native spruce trees, and on my return showed specimens to the Institute. This seemed to settle the question, every one believed that the Heather was a native American plant, and the small quantity found seemed to favour the view of Professor Gray, that these patches were the mere remnants of what had at one time been a more abundant and more widely diffused plant on the American Continent, that in fact the calluna was becoming extinct on this side of the Atlantic. The St. Ann's specimens which I sent to England were regarded as slightly different from the European plant, and the late Dr. Seeman, editor of the Journal of Botany, gave the new name Culluna Atlantica, to distinguish the American form.

Several other stations became known. In the first place, Mr. Murray, the Provincial Geologist, found the plant growing in Newfoundland, thus silencing the doubts that had been expressed in regard to Cormack's specimen. Then a lady in Halifax produced a specimen which she had gathered some years before, somewhere on the Dartmouth hills; and another lady searched and found where it had been gathered, and brought a fresh specimen, with the information that there was only one plant. It subsequently became known that there were several patches of Heather at a particular spot in Point Pleasant Park, and, although too much of it has

already been taken away by inconsiderate persons, yet it still exists there. Numerous explanations have been offered as to how the Heather got there, most persons assuming apparently that it could not be indigenous. One suggestion was that the Highland soldiers encamped there some thirty or forty years ago, used heather brooms for sweeping out their camps, and that the seeds had dropped from the brooms, and given rise to the heather patches.

However, a careful examination of the locality by Mr. Jack and myself, led to the conclusion that the Point Pleasant heather was not only not indigenous, but had apparently been intentionally planted, in fact that the place had been a garden or cultivated plot, the ground being quite level, free from cradle hills, with few native plants, and the marks of cultivation not yet entirely obliterated. All this suggested a more careful consideration of the other stations. A new one, near East Bay in Cape Breton, where the heather is said to exist in considerable quantity, was made known to me some years ago by the Hon. Mr. Ferguson, then a member for Cape Breton County. The traditional history of it there is that the early emigrants from the West Highlands brought heather beds with them, and when these beds were in due course exhausted, and the debris scattered around their dwellings, a profuse crop of heather came up. This account seemed plausible, and it seemed to show that the heather was certainly not indigenous at East Bay; and, taking the alleged facts in connection with the obviously artificial nature of the locality in Point Pleasant Park, I began to doubt seriously whether the heather was not after all a plant foreign to the American Continent.

Last fall, I met with the Rev. Mr. Harvey, of St. John's, Newfoundland, as a fellow-passenger across the Atlantic, on board the "Nova Scotian," and, in talking over the productions of the Island, we came upon the heather. I suggested to him my doubts of its nativity, and asked him on his return to Newfoundland, to make special enquiry with the view of ascertaining, if possible, whether it was really indigenous. He has most obligingly done so, and his report is rather unfavourable. He writes in the following terms: "I have made careful inquiries regarding the heather in

Newfoundland, and find that at a place called Caplin Bay, two miles from Ferryland, which is about thirty-five miles south of St. John's, there is a bed of heather, of no great extent, but healthy and flourishing. Ferryland is one of the oldest settlements in the island. There Lord Baltimore built a house two hundred years ago, and made it the seat of Government. The tradition is that some Scotch settlers, or possibly Irish, brought out beds filled with heather, and the seeds produced the present growth. At all events. it has been growing there for some generations. At Renews, about twenty or thirty miles from Ferryland, there is also a quantity of heather, supposed to have been derived from the Caplin Bay growth. but this is only conjecture. I am told that the heather is as fine as any on the hills of Scotland, and shows no signs of degeneracy. A few sprigs of it were brought here this summer. It is said that attempts have been made to transplant heather, but without success. Possibly the seeds alone will grow."

I visited, with Mr. Jack; another locality on the Peninsula, where the heather was reported to grow. After a slight search we found it growing on a piece of wild land within the cemetery fence, but that had never been cultivated in any way, and was still covered with the alders, kalmias, ledum, blueberry, cranberry, and other genuine native plants. I cannot see any reason to doubt the heather plants being native in that particular place. Another fact is specially worthy of note. Mr. Robert Boak, senr., recently informed me that he had seen the heather growing in a particular spot in the Tower Woods thirty-five years ago. The place is quite wild, distant from any dwelling or camp. The original cradle hills are intact, covered by their characteristic native plants, and the heather must have been native there.

In consideration of all the facts above detailed, and others to which it is not necessary to allude, I have arrived at the following conclusions:

That Calluna vulgaris has been originally a native indigenous plant, and still exists as such in very small quantity on the Peninsula of Halifax; that it is probably indigenous also to other parts of Nova Scotia and Newfoundland; that in Point Pleasant Park,

at Dartmouth, and possibly other places, the stations for the plant are artificial, but the plants are probably native, having been transferred from one spot to another, or grown from seed dropped by plants that were so transferred; and, lastly, that the various traditions as to the foreign origin of the heather, are not unlikely to have been suggested by the desire to account for the presence of what was regarded as necessarily a foreign plant, rather than by actual historical facts. I think it not at all improbable that the Newfoundland and Cape Breton heathers may in reality be perfectly wild (indigenous), although popular local traditions attribute to them a foreign origin.

#### SAROTHAMNUS SCOPARIUS.

Whilst making enquiries respecting the alleged occurrence of heather in various places, Professor Lawson obtained information regarding several other interesting plants. One of these is the English Broom, (Sarothamnus Scoparius), which Professor McDonald informed him grew in some abundance on Boularderie Island, Cape Breton, on the property of Mr. Gemmell, at Little Bras d'Or. He subsequently heard from Judge Smith and Mr. Stephens of Halifax, of its occurrence to the westward, either in Queen's County or Shelburne. Judge Smith had seen it growing, and Mr. Stephens had seen bunches of it brought to Halifax on board the "M. A. Starr." Prof. Lawson's latest informant was Mr. Peter Jack, who has visited the place, and has kindly furnished the following particulars:

"Having heard that Broom was growing rather plentifully in the neighbourhood of Shelburne, I took the opportunity of visiting the place last fall when waiting for the steamer for Halifax. The place is about two miles from Shelburne on the road to Halifax. The property is owned by a colored man who was from home, but his wife, Mrs. Jackman, took me to the spot. She takes a great pride in the broom, and is well pleased to show it to visitors, of whom there are several each year, for its fame has gone abroad. It grows principally in one place, at some distance from the road, and in a sheltered position, covering about a quarter of an acre.

The cellar of the house of the original settler, by whom the broom is said to have been planted, and who had been dead about seventy years, still remains, and in it the broom was growing. It evidently has fallen on congenial soil, for some of the clumps measured about four feet across and were fully that in height. It had also taken full possession of this spot, from which it passed to a considerable distance, now in large patches, now in small ones. There are numbers of last year's seedlings growing, showing that it is not likely to die out. The colored lady says that it has spread fully four miles off in the direction of Jordan River Mills. ningham-evidently a Scotchman-is supposed to have planted the broom some 80 years ago. Whether he was one of the original settlers I could not learn. The old colored lady said that when in flower the broom was a beautiful sight, that she frequently went to where it was growing to look at it, and that she would stand for a long time admiring it. Her son, a young lad, also took a great interest in it, as well as in the trees growing around. very good idea of how the broom grew, and spoke of the plants as tame or wild according as they were transplanted or not.

"Shelburne also is noted for two large fine Willow trees. They are growing in the streets—each of them measures about 15 feet in circumference and the spread of the branches is about 80 feet. They were planted by the late Mr. Cockaigne, Collector of Customs there, and are about 80 years old."

#### RHODODENDRON MAXIMUM.

Professor Lawson then gave an account of the discovery, near Sheet Harbour, of *Rhododendron maximum*, of which Robert Morrow, Esq., had obtained a living plant. An extensive correspondence on the subject was laid on the table, which is here printed, as it appears desirable to place on record in a permanent form, all the facts connected with the history and discovery of a plant of so much interest:—

To the Editor of the Herald:

"Honor to Whom honor is due."

In reference to the botanical discovery in this morning's Herald, allow me to say that the Rhododendron at Sheet Harbor was discovered many years ago by the early Gold Hunters of Nova Scotia, who were strongly impressed with the idea that gold was indicated by a certain evergreen plant. The Indians at Sheet Harbor had known of these trees; thither they led the explorers. Though disappointed and disheartened then, gold has since been discovered in near proximity to the locality of "the evergreen trees."

Ten years since, the late Captain Chearnley went to see these trees, of which he had heard so much, and pronounced them the Irish Holly, and had with great care a fine specimen transferred to his garden in Halifax; but I understand, at the time, he was unsuccessful in its cultivation. I am much pleased to hear of Mr. Morrow's success, and hope others may be as fortunate, though, from frequent removals, I noticed when last there, that the specimens were becoming very scarce.

Yours, &c.,

J. D. VANBUSKIRK.

Dartmouth, Jan. 5th, 1876.

King's College, Windson, Jan. 8th, 1876.

To the Editor of the Herald:

DEAR SIR,-I was particularly interested in the notice of Mr. R. Morrow's discovery of Rhododendron maximum in the wild country in Sheet Harbour, contained in the "Agricultural Journal," and copied into the Halifax papers, as the identification of the plant confirms a notion I have had for many years, that it grows in parts of the Province near that mentioned, and possibly others not very much visited by Botanists. As long ago as 1860, when returning from the Gold Expedition to Old Tangier (Mooseland) with the Hon. Joseph Howe, then Provincial Secretary, I heard of a plant known to my informant as "Green Bushes." We came out of the woods striking the Sheet Harbor Road, near the Beaver Dam, or midway between the Upper Musquodoboit and the sea; we travelled through by roads to Welsford, and the Shubenacadie Railway Station I think was where we took the cars for Halifax. The description of the plant interested me much. I afterwards spoke of it, I am pretty sure, to Mr. Herbert Harris, of Halifax, and it seems to me that Captain Hardy mentioned having seen or heard of the plant, which I put down as that now announced. At any rate, I have had, for years, a note in my copy of Gray's Manual of the Botany of the Northern United States, in the margin opposite Rhododendron maximum indicating "Stewiacke" and "Wine Harbor" as possible stations for the plant. The discovery of it not very far off is an agreeable circumstance, and I hope the Public Gardens of the city will soon contain numerous specimens of this magnificent wild plant of Nova Scotia, which is an "evergreen from six to twenty feet high, with leaves from four to ten inches long, with carolla one inch broad, pale rose colour or nearly white, greenish in the throat on the upper side, and spotted with yellow or reddish "

Perhaps you can find space for this in your journal, and oblige.

Yours truly,

HENRY How.

### To the Editor of the Morning Herald :-

SIR,—Having laid aside the watering pots, and taken my eye off the thermometer, will you allow me to add my little contribution to your horticultural column concerning Rhododendron maximum.

I beg to state that the late Dr. Forrester had in his Herbarium a specimen of the plant in question. It was marked as found in Halifax County, but the date of finding I fail to remember. Mr. Hutton, Senior, also informs me that the small withered branch shown him by the late Captain Chearnley was a Rhododendron, but it was impossible to be positive concerning the species, and from the nature of his duties, he had no time to look the matter up.

That it is scarce in Nova Scotia there can be no doubt, and the question opens, can it be cultivated? With Hollies (Hex opaca) in various parts of the Province, Heather in the Park. Broom at Shelburne, Rhododendron at Sheet Harbor, and many other plants comeatable, some ardent blue apron, enterprising nurseryman, or zealous botanist, has here an opportunity afforded to change the aspect of our gardens, parks and promenades.

Yours, &c.,

A SPADE

## To the Editor of the Morning Herald:

Sir,-In your correspondence by Spade, he asks the question, "Can it (R. m.) be cultivated?" I have no doubt but it can. Rhododendron maximum, also Catawbiense, Ilex opaca, Kalmia latifolia (American Laurel,) will all stand our climate.

To grow these plants in our gardens and shrubberies, there should be a dry location and proper composts. As some people may think they can grow them because they are hardy, they may procure plants and plant them in their gardens, enriched by ordinary stable and cow manure. When these plants are planted under such conditions they make a miserable existence for a short time, and finally die.

The Rhododendron naturally delights in peat, having delicate wiry It feeds on decomposed leaves and fibre accumulated for years, the under soil being generally a red, sandy loam. To cultivate them the beds, or (for single specimens) holes, should be dug from 15 to 18 inches, and removed, to be replaced by the following compost: Take peat, which can be procured beyond the N. W. Arm, somewhere near the Pipe-house, or in Dartmouth; also some nice sandy loam; mix an equal part of each with a part of sand, fill up the beds or holes some six or twelve inches above the garden soil, according to size, so as to throw off the spring and fall rains, and put in the plants,—slightly protect them the first winter.

As the above plants are North American, and some are found in our own Province, they are quite hardy. But as they are scarce here they cannot easily be obtained from the woods. For the information of our amateurs I may be allowed to mention that good plants can be procured from Hovey & Co., of Cambridge, near Boston, or from W. C. Strong, of Nonatum Hill Nurseries, Boston.

R. Power, Public Gardens,

To the Editor of the Morning Herald:

SIR,—In associating Mr. Morrow's name with this plant, it was not meant to claim for him any exclusive right of discovery. The notice in the "Agricultural Journal," copied into the papers, was merely preliminary. In the full history of the plant, I shall try to give the credit that is due to every one connected with it. Colonel Chearnley appears to have been the original discoverer. The following correspondence will I shall feel obliged to any one who show what Mr. Morrow has done. may communicate any additional information, either through the Press or privately, I doubt whether this is the "Gold Plant" of the Miners, as it is so rare, and does not grow on the rocky barrens where gold is found. I fancy also that the plant referred to by Mr. Buskirk, as called "Holly" by Colonel Chearnley, must have been the Ilex opaca, which I believe was discovered by him, and is almost as interesting as the Rhododendron, but no one now knows where it was found. It is the American Holly, and closely resembles the Irish one.

I am, Sir,
Your most obd't serv't.,
GEORGE LAWSON.

Dalhousie College, Jan. 10, 1876.

HALIFAX, Jan. 7th, 1876.

My DEAR DR. LAWSON,—
The following is all I can tell you about "Green Bushes":

When I was hunting in the Musquodoboit district with Mr. E. G. Stayner, in September, 1864, we were one day talking with the Indians who were with us about some plants. One of them mentioned a plant. "green bushes" he called it, which grew in the woods over towards Sheet Harbor; but he said only in one spot, and that it was not then so abundant as it had formerly been. From the Indian's description I thought it must be a Rhododendron, and agreed with him that he should go, and, if possible, get me a plant. He did not go until the summer of 1866, and

when he returned he told me that they had all perished, and he did not know where to find any more. Being firmly persuaded that the plant, if existing at all, must be a Rhododendron (as I remarked to you some years ago), I continued making enquiries of both Indians and white set-

tlers without success, until the last day of May, 1875.

In September, 1874, I was in the woods with two Indians (father and son), and one day, lamenting the disappearance of the "green bushes" (the father had been previously looking for the plant at my request), the son told the father, who interpreted to me, that he knew where a few of the plants still grew. I bargained with them to go and get me some, and. if they found them to give them to Mr. D. W. Archibald, Sheet Harbor, who would forward them to me. It being possible that they might forget, I wrote to Mr Archibald, who saw that they went; and, shortly after, he informed me that fire had been through the small peaty place where the boy had seen the plants, and there were none left. Hoping against hope, that there might be some shoots from the burnt wood, I wrote to Mr. Archibald in the latter part of May, 1875. He being absent, my letter was handed to Mr. J. H. Balcom, who sent the Indians seeking again; and on the last day of May they handed him one small plant, which was all they could find, "and they searched carefully;" it reached me in June, on the day upon which you left for England, and, before taking it home, I asked Mr. Jack, as well as Mr. Barron, to come and see it. The latter gentleman told me he had been looking for it a long time, without success,-more than seventeen years.

In the autumn—I think about the last of October—Mr. Falconer, with whom I was talking of the plant, told me that the late Colonel Chearnley had given the Horticultural Society's Garden one about ten years ago; but Mr. Falconer's impression was that it had not sufficient roots, and was never planted; and, also, that Colonel Chearnley did not then know the name of the plant, but he (Mr. F.) knew it to be Rhododendron maximum, from specimens of the same plant which he had in his garden,

imported from the United States.

The plant has been known to the Indians and to many of the settlers for a long period, as "Green Bushes," and is not therefore newly discovered, or discovered by me; and Mr. Archibald, who identified the plant at my house, tried to cultivate it some years ago as "Green Bushes," but without success; he had also expressed the opinion to me some time previously that it had died out. All that I have to do with it may be summed up in few words. I sought for it from September 1864, to May 1875, without knowing that it had been seen by the late Colonel Chearnley or recognized by Mr. Falconer, or by any one else, but knowing from you that it has not been scientifically recognized and recorded, and that you, as well as others, doubted its existence, I fortunately have been able to set the matter at rest by showing you the living plant.

I am, my dear Dr. Lawson, Yours truly,

ROBT. MORROW.

HALIFAX, Jan. 8th, 1876.

MY DEAR SIR,-

According to promise, I to-day called upon Mr. Barron and Mr. Hutton about the "Green Bushes." Mr. Barron says that mine is the only specimen of native Rhododendron maximum that he has ever seen, but that, about ten years ago, the late Colonel Chearnley described a plant which the Indians had made known to him, and which, from an imported specimen in his garden, he (Mr. B.) knew must be Rhododendron maximum.

Mr. Hutton said that the late Colonel Chearnley brought him, ten or twelve years ago, not a plant but a branch, and asked him its name. He told him it was a Rhododendron, but did not know the variety, as he

had then not seen the "Rhododendron maximum."

I am, my dear Sir, yours truly, ROBT. MORROW.

Dr. Lawson, &c., &c.

To Peter Jack, Esq.,

Dear Sir,-

My knowledge of these bushes goes back as far as thirty-five years. When a boy at my grandfather's in Upper Musquodoboit, old Peter Cope and his Squaw Molly, came to our house one night for lodgings, having just come through the woods from Sheet Harbor. They brought with them some very fine branches of these green bushes, and, it being winter, the green leaves were new to us; they said that they had found them on their way, that quite a number of the bushes were growing in one place only, but appeared averse to describing the locality. They remained at my grandfather's over night, received two pork hams, and left before daylight, leaving us the green branches. Shortly after that I moved to Halifax, and by degrees forgot the ham and bush story. Coming to Sheet Harbor about eighteen years ago, and finding the descendants of the old Copes here, the pork and green bush vision of my youth was revived. I found that most of the Indians knew the whereabouts of the bushes, but no white man that I could find had ever seen them, and but few had ever heard of their existence, though I think that some old white hunters from Musquodoboit had been to them. I determined to see them, and induced Joe Paul and Peter Francis, (Indians who still live here) to guide me to them in the winter of 1858. At that time there were some twelve or fifteen bushes visible above about a foot of snow, the largest being about four feet high; they pointed out dead stalks of what they said had been green bushes, some of these were about seven or eight feet high, and of four inches diameter at the ground; these they said, had, when green, borne white flowers in summer, but did not speak of the small ones bearing flowers. At that time I brought several specimens to the Harbor, and showed the locality of them to many of our loggers. The Indians took Captain Chearnley to the ground about ten years ago, and told me that the Captain had taken some to Halifax to plant in his garden. More recently, some gold hunters, supposing that the bushes indicated gold, dug a few small holes upon the ground, but without success. Fire passed over one corner of the ground a few years ago, previous to which, they had about disappeared, and I have thought that the Indians destroyed them; or might it be that the seed comes from the white flower, and that whites and moose destroyed them before getting large enough to bear flowers. I will get my friend Balcom (deputy surveyor) to draw me a rough sketch of the locality, and take it to you when I go to Halifax this week.

Yours very truly,

D. W. ARCHIBALD.

Sheet Harbor, 17th Jan., 1876.

[Since this paper was read to the Institute, the following communication from Dr. Asa Gray, has appeared in "The Garden," an English periodical, for which I am indebted to Mr. Jack's kindness:]

The Ling or Heather (Calluna vulgaris) re-discovered in Massachu-The now well-known patch of Calluna in Tewkesbury, which was discovered by Mr. Jackson Dawson, nine or ten years ago, was then the only one known in the United States, or indeed on the continent. this time the only contradiction to the current aphorism, "there are no Heather in America," came from Newfoundland, where Calluna was known to occur, although few botanists had ever seen specimens of it. It required some hardihood, as well as a clear conception of the causes which have ruled over the actual distribution of our species in former times, to pronounce that this Tewkesbury patch of Heather was indigen-The discoveries soon afterwards in Nova Scotia and Cape Breton still left a wide hiatus. This was partially bridged over by the detection by Mr. Pickard, a Scotch gardener, of a similarly very restricted station in Maine, or Cape Elizabeth, near Portland. We have now the satisfaction of recording a second station in Massachusetts, not far from the former one. Mr. James Mitchell, of Andover, is the present discoverer, and the station is in the western part of Andover, half mile north-east of Haggett's Pond, and five miles north of Tewkesbury station. chell accidentally met with this patch last summer when berrying, and being a Scotchman, recognized it, took home a sprig of it, and at a subsequent visit, grubbed up one or two small plants, which a neighbor still has in cultivation. A fresh branch taken by him from the wild plants this summer is now before me. It proves to be of the green and smoothish variety of Calluna, precisely like the Tewkesbury plant. Small as the new patch is said to be, it will serve to confirm the opinion long ago expressed, for a second station greatly diminishes the very small chance of its having been casually or in any way introduced through

human agency. It should also be noted, that this station, as I am informed by Rev. Mr. Wright, is near an extensive glacial moraine which traverses that district, and which he has traced for a great distance northward.

ASA GRAY.

It will be observed that we have now knowledge of six stations in Nova Scotia, two in Newfoundland, two in Massachusetts, and one in Maine, making in all eleven stations on the Atlantic seaboard of North America.

G. L.

# ART. IX.—A NOTE ON THE CARIBOU. BY R. MORROW. (Read March 13th, 1876.)

In Captain Hardy's "Forest Life in Acadia," page 125 is the following:

Referring to the above, I would like to record in our Transactions the following note:

Our Caribou (woodland var.) has a peculiar liver, rather small, ovate, long diameter nine inches, short diameter six inches, (from an animal supposed to be about eighteen months old,) situated on the right side, long diameter nearly parallel with the back bone, divided almost in the centre by a shallow sulcus, and having a protuberance, or small somewhat conical lobe, which the butcher calls a button, upon the upper part of the concave side with a broad