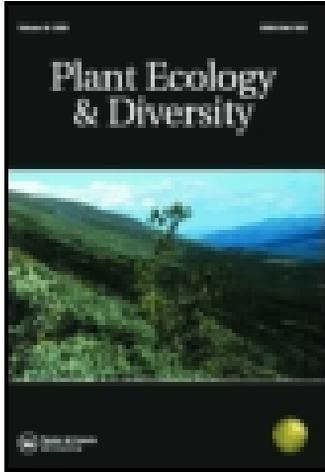


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II. Remarks on some Fibrous Plants of Canada

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No. 2. Collected on one of the Browne Islands, Women's Islands, Baffin's Bay, off North Greenland, lat. 74° 7', long. —; primary rocks and boggy wet soil almost wholly composing the islands. June 5, 1861.

Several species of <i>Stereocaulon</i> and <i>Cladonia</i> .	<i>Pogonatum alpinum</i> .
<i>Dicranum Richardsoni</i> ?	<i>Hypnum uncinatum</i> , var.
<i>Aulacomnium turgidum</i> .	<i>Hypnum</i> , sp.
	<i>Urceolaria scruposa</i> .

No. 3. From Hare Island, west coast of Greenland; lat. 70° 43' N.; long. 55° 42' W.; greenstone, gneiss, and other rocks, jutting out above the snow. 27th May 1861.

<i>Bryum nutans</i> .	<i>Gyrophora proboscidea</i> .
<i>Cornicularia bicolor</i> .	<i>proboscidea</i> , var.
<i>pubescens</i> .	<i>Cetraria nivalis</i> .
<i>Lecidea rupestris</i> .	<i>Lecidea geographica</i> .
<i>petræa</i> .	var. <i>apicula</i> .
<i>Gyrophora arctica</i> .	<i>Parmelia caperata</i> .
<i>hyperborea</i> .	<i>olivacea</i> .

No. 4. The following were the only flowering plants seen, and brought home intermixed with the mosses.

<i>Salix lapponum</i> . In all the islands.	<i>Silene acaulis</i> . Duck Islands.
<i>Stellaria humifusa</i> . Duck Island.	<i>Empetrum nigrum</i> . Duck Islands.
<i>Saxifraga rivularis</i> . Duck Islands.	<i>Poa alpina</i> . Browne Island.
<i>Papaver nudicaule</i> . In all the Islands.	<i>danica</i> . Browne Island.

II. *Remarks on some Fibrous Plants of Canada.* By GEORGE LAWSON, Ph. D., Professor of Chemistry and Natural History in the University of Queen's College, Kingston, Canada.

All the excitement of late years, in regard to Fibre Plants, has had but little practical effect in Canada. It is certainly remarkable that a country whose soil and climate are so suitable for the growth of Fibre Plants should be still so little known in European commerce as an exporter of fibres. However, we are not entirely without progress in this department. Within the last year or two the exertions of our agricultural societies have resulted in the somewhat general cultivation of flax, although still in restricted quantities, throughout various parts of Upper Canada. The flax produced is of very good quality, and has met with approval in England and Scotland, especially in the Dundee market, where flax is the staple manufacture. It appears to me that the chief obstacle to the universal cultivation of flax, and the introduction of some other improvements in this country, is to be found not so much in the high rate of wages as in the collateral expenses of hired field-labour; for unfortunately our farmers have none of the advantages of the bothy system, but have to make provision in their own houses for the farm-labourers of so extravagant a kind as virtually to throw the majority of farmers back upon the labour of their own families.

Under such circumstances, it is not to be wondered if our progress in the cultivation of a crop like flax, requiring so much field-labour, should be slow. On the other hand, Fibre Plants of easy cultivation, with little labour, would hold out a strong inducement. I suspect that the key to our successful production of fibre in large quantities is to be found in the culture of perennial plants, which require less labour and care. We have many such among our indigenous plants capable of producing fibres,—

Urticacæ, Apocynacæ, and Aselepiadacæ, all easy of cultivation in our soil and climate, and capable of holding their own against the inroad of weeds.

In the Botanic Garden, now in course of formation here, we are collecting the various fibre plants suited to the climate, with a view to experiment, and hope ere long to publish the results. In the meantime I enclose a few samples of Canadian fibres, and copy of correspondence on *Asclepias cotton* and *Asclepias flax*, in which some members of the Botanical Society of Edinburgh may possibly feel an interest, after the suggestive papers of Dr Alexander Hunter and Dr Cleghorn on the Fibre Plants of India. I ought to mention farther, that common hemp is obviously suited for successful cultivation in this country.

COMMUNICATION FROM HIS EXCELLENCY LORD MONCK, ON A FIBRE PLANT
SUITED TO THE CLIMATE OF CANADA.

- (1.) *Letter from DENIS GODLEY, Esq., His Excellency's Secretary, to Professor LAWSON, Secretary of the Botanical Society of Canada.*

QUEBEC, May 16, 1862.

SIR,—I am directed by the Governor-General to transmit to you herewith a copy of a letter which was addressed to Lord Lyons by Doctor Hart, and which Lord Lyons forwarded to His Excellency.

Some of the seeds of the plant to which Doctor Hart alludes are also enclosed.

His Excellency thinks it likely that the Botanical Society of Canada, of which you are Secretary, may be interested in this matter, and will cause the seeds to be sown with a view to testing the value of the plant bearing them.—I have the honour to be, &c.

DENIS GODLEY, *Governor's Secy.*

George Lawson, Esq., &c. &c. &c.

- (2.) *Letter from FREDERIC W. HART, M.D., St Louis, to the LORD LYONS.*

ST LOUIS, May 1, 1862.

MY LORD,—Feeling that Her Majesty's Government is deeply interested in the cultivation of cotton in the British Provinces, and having, during a sojourn in the Rocky Mountains these last three years, discovered a plant that excels cotton in length of fibre or staple, firmer in texture, and fine as silk, I determined to plant a few seeds taken from the wild plant, and last year found, to my satisfaction, that the seed-vessels, which in the wild plant are about the size of hen eggs, under culture grew to the size of a turkey or goose egg, and bore twice the quantity of silk that the Mississippi plant bears of cotton.

I gathered four pounds of the silk from the plant, and saved a quantity of the seed, some of which I herewith forward you.

On my return in January last to the United States, I was robbed by the Indian Kiowas on the plains. They stole my silk but left my seed.

The silk weed of the Rocky Mountains grows on the creek bottoms, pushes out in June, and ripens in September, October, and November.

It is about five feet high. It does not branch in the wild state, but it branches under cultivation, and bears full of large bolls or pods.

The seed is all on the *outside* of the silk, and slips off at a touch, leaving the most beautiful silk I ever saw.

It can be cultivated on the St Lawrence bottoms, Canada; and in Upper Canada the whole country is suitable for its cultivation, the climate being similar and even warmer than that of the localities where I discovered the plant.

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As an old cotton planter of Mississippi, having raised ten crops in Yazoo, my brands invariably commanding the highest market price, I feel the fullest confidence in recommending this seed to the attention of Her Majesty's Government for cultivation in the Canadas.

Should your Lordship require further information on this subject, I shall be happy to continue this correspondence.—I remain, &c.

(Signed) FREDERIC W. HART, M.D.

The Lord Lyons, &c. &c.

- (3.) *Letter from Professor LAWSON, Secretary of the Botanical Society of Canada, to DENIS GODLEY, Esq., Secretary to His Excellency LORD MONCK, Governor-General of Canada, &c. &c.*

KINGSTON, May 22, 1862.

SIR,—I had the honour to receive your letter of 16th May, with accompanying copy of letter addressed to Lord Lyons by Dr Hart, of St Louis. And I have to request that you will convey to His Excellency Lord Monck, the best thanks of the Members of the Botanical Society for the information which he has done them the honour to communicate, and for the accompanying seeds.

I have also to state that, in accordance with His Excellency's wishes, the seeds have been sown in the Botanic Garden here, with a view to testing the value of the plant as a source of fibre. The crop will be watched with care, and duly reported upon to His Excellency, so soon as the results can be obtained.

In the meantime, it may be desirable to indicate briefly the probable character of the plant, and what likelihood there is of its becoming useful.

An examination of the seeds shows Dr Hart's Fibre Plant to be an *Asclepias*, of which genus there are many species, inhabiting different parts of the American continent, all producing a greater or less amount of fibrous material, usually of great beauty and lustre; and fibre-yielding plants of allied genera occur in India and elsewhere.

The beautiful silky material contained in the seed-pods of *Asclepias* has necessarily attracted attention in this as in other countries, but, as attempts to spin it failed, its use in the arts has hitherto been confined to the stuffing of pillows and beds, and such like purposes, among the settlers. There is every reason to believe, however, that the silk-cotton of our *Asclepias* may now be economised for spinning purposes, and therefore a greater interest is to be attached to Dr Hart's plant at the present time than would have been necessary a few years ago.

The results of experiments that have been made in India, and by manufacturers in England, with the silk-cotton obtained from an allied plant, the *Calotropis gigantea*, or Mudar Plant of Bengal (which is essentially an *Asclepias*), offer inducements to attempt the raising of *Asclepias* fibres in Canada. The silk-cotton of the Mudar Plant is now becoming an article of export from India for the manufacture of a light substitute for flannel, and has been employed by Messrs Thresher & Glennie, of London, for this and other manufactures, as appears from the remarks of Dr Alexander Hunter, made at a meeting of the Madras Agri-Horticultural Society on 15th January last. The Mudar material works well with either silk or cotton, and is now known in commerce as Mudar Silk-Cotton. There is no reason whatever why the silk-cotton of Dr Hart's plant, and the silk-cotton of our indigenous Canadian *Asclepiads*, should not prove as applicable to the purposes of the manufacturer as the silk-cotton of India.

It is desirable to observe that the silk-cotton found in the pod of *Asclepias* represents only half its riches as a fibre plant. A beautiful and apparently very valuable fibre is also obtained from the stem, which I am inclined to regard as of even greater importance than the silk-cotton itself. It is of quite a different character from that found in the pods, being not cottony, nor so glossy, but of much greater strength, resembling, in fact, not cotton, but flax. One of our Canadian species, *Asclepias incarnata*, has been experimentally cultivated with a view to the production of fibre, and the results of the experiments have been given by Judge Logie in the second part of the Botanical Society's Annals, page 87. Specimens of the fibre were exhibited by Mr Freed to the Hamilton Association in 1860, and the Report of Mr M'Kicking, a paper manufacturer, is given in Judge Logie's paper, showing the fibre to be strong, flexible, silky, of a beautiful high colour, brilliant lustre, and easily bleached—in fact, too good for paper-making, but of undoubted utility and value as a fibre. This species is still under experiment in the Botanic Garden here.

The success that has attended the use of the Mudar flax in India (as well as the Mudar cotton) seems also to hold out a strong inducement to the use of *Asclepias* flax in this country. The Mudar flax, from its tenacity, is called "Bowstring Hemp" in India, and is one of the strongest fibres known. Dr Hunter, who has carefully studied the vegetable fibres of India for many years, states that it possesses most of the qualities of flax, and can be worked with the same machinery, as the fibre splits to almost any degree of fineness with the hackle, and bears dressing and beating well. For many years it was employed by the wealthy natives in India for making strong cloths, cambrics and lawns, worn by the rajahs; and it is still employed for making fishing lines, nets, gins, bow-strings, and tiger-traps, on account of its strength. It does not rot readily in water, as the resinous milky juice of the plant seems to preserve it.

Other Indian *Asclepiads* likewise yield fibre of great strength, which seems to be partly due to the presence in the plant's juice of an organic product similar in physical properties to caoutchouc or gutta percha.

Judging from the observations and experiments of Dr Hart on the silk-cotton plant found by him on the Rocky Mountains, and from the results of experiments that have been made by others on allied species—on *Asclepias* flax in Canada, and on *Asclepias* cotton and flax in India,—it is not unlikely that both *Asclepias* flax and *Asclepias* cotton may ultimately become important materials of export from Canada. The *Asclepiads* grow luxuriantly in a wild state throughout Canada, especially in the western parts; and, being strong-growing perennial plants, they are capable of easy cultivation, and would require not a tithe of the field labour necessary for the growth of common flax.

Permit me farther to mention that, in addition to the seeds sown in the Botanic Garden, some have also been sent to members of the Botanical Society, in other parts of Canada, for trial, and copies of your communication, with Dr Hart's letter, have been furnished to the members, with a view to inquiry, and to observation and experiment on Dr Hart's *Asclepias*, as well as on the indigenous species of our country.—I have the honour to be, Sir, your most obedient humble servant,

GEORGE LAWSON, PH.D., LL.D.,
Secretary to the Botanical Society of Canada.

Denis Godley, Esq., Secretary to
His Excellency Lord Monck,
Governor-General of Canada.