

Philadelphia Dec. 14th 1861 ~.

Prof. Asa Gray, Boston Cambridge,

Dear Doctor,

I received, day before yesterday, your invoice of Piller's Pic plants. They are really beautiful and I shall not regret the money they cost me, however great my miseries in these eventful times! You may draw on me whenever you choose, although the Jury-money, so laboriously earned, shall not be paid in before next March. I have recognized many old acquaintances which I have from Nuttall in a sloven condition; These are dandies in comparison. I hope you will send me a list of names.

Upon the receipt of your favor of Nov. 30th, I wrote to Dr. Darlington on the subject of *Gymnogramme leptophylla*. I sent him a specimen with Mr. Minns' own label, requesting him to write to that gentleman to ascertain whether he really found that fern, its precise locality and any other information. I have received the Doctor's answer only this morning. He had been absent from home, and as soon as he has ascertained the address of Mr. M. he will write to him and transmit us his answer.

No! My dear Doctor, You have not gratified me with a specimen of your Yankee *Caluna*; but I have one in my herbarium from Labrador, which, I think was given to me, some 30 years ago, by Mr. Steinhout, probably from the Collection of Labrador Plants of the Rev. Kohlmeister. My specimen is rather diminutive and I have no objection to marry it with a fine fellow from Massachusetts. I am anxious to see what your theory is about emigration of plants; but I would not be surprised if this *Caluna* had come to you from my own native province, Maine, which was formerly a healthy country and has scarcely any at present, through the great progress of Agriculture. Several families from my own town had emigrated to New foundland where I think ^(they have introduced) that foreigner is common, ~~through them~~. Do not publish the 3^d edition of your manual, without getting some new information about the vegetable growth of our neighbourhood. A botanical Club has been formed in the bosom of our Academy, which, for these three Summers, has been operating very actively in a circuit of ten miles round the City and has made very important observations. The principal Members are Prof. Leidy, Bridges, Dr. Barnack, Charles & Aubrey Smith, &c. I have found myself, in our common, *Lepidium campestris* & *ruderalis* abundantly mixed up with the famous *Cypripis Virginica* of Nutt., which, you know, is the very *C. Schoenoides* of Europe.

I have heard that *Cordamine protensis* had been found lately in N. Jersey, & that it also from Northern New-York and a Var. *linearifolia* from Greenland (Kalm's arctic plants) Dr. Willd. has found two localities in our vicinity of *Dachosma indicæ*. &c. &c.

Now to another matter: I have discussed! If the word *parasite* means, one that lives at the expense of another, I say that our *Gerardia* are not parasites. I spent one week, last August, at a friend's country seat, in the neighbourhood of Bethelhem. There I found in abundance and in bloom, *G. pedicularia*, *flava*, *guericifolia* & *linearifolia*. That was the occasion to verify the parasitism of this genus. I pulled the roots with all possible care, breaking (the long blade of a beautiful Knife) and to my astonishment I found the roots extremely small for such vigorous plants, scarcely 2 inches long, ^{forming} with a tuft of fibres almost capillary, upon some of which I perceived very small tubers or glands, not larger than 0.001 in a few instances these glands were attached to fibres of grass roots or to rotten sticks of wood - but in no case, were they attached to such roots from whence they could draw any substance. After many repeated inquiries, I gave up the examination with the persuasion that our *Gerardia* were no more parasite than the Ivy, which draws no substance from the brick wall to which it is fixed by something similar to these glands (which ought to be examined microscopically). I looked upon these little tubers as instruments provided by nature to fix these small roots more firmly to the ground, perhaps by certain attachment, and protect them still & heavily loaded stem, against the action of the winds.

Such was my view, when I received a letter from Decarie, spending widely about parasites (It is a hobby with him) I wrote to my Bethelhem friend to request him to pursue our researches of August, and send me roots taken from the ground with all possible precaution and ascertain whether they were connected through the glands with any other roots. Now these roots, so small in August, had grown considerably, some were the size of a small quill, 8 to 10 inches long, and the root almost capillary and all extending horizontally, or almost so, a few inches (2-2½) below the surface. The glands were irregular and much larger than in August. Several of the shorter fibres were connected together by these very glands, which were also fixed to rotten sticks and in one or two instances to living roots. Here follows what my friend says in this regard: "Où j'étais à votre désir, j'ai examiné avec le plus grand soin les racines des différents *Gerardia* qui se trouvent dans mon voisinage; elles comprennent

"Celles des *G. flava*, *Guericifolia* & *pedicularia*, et c'est trop tard pour le *linearifolia*, sorti qu'il
"avaient disparues. Il est sans doute été plus favorable, pour surprendre le secret de ces plants
"qu'ils fussent en pleine croissance et se croit que le mois de Juin leur aurait été plus propre à cet
"examen. Le *Gerardia*, j'en suis convaincu, est une plante parasite, mais à quel degré,
"est ce qu'il est difficile de déterminer. J'ai trouvé des racines, presque sans glandes et
"mais vivant dans une espèce de terre de bruyère et autres matières végétales
"peu ou isolées des racines voisines. Vous trouverez parmi celles que j'envoie, des
"endroits marqués par un petit morceau de papier blanc, où les glandes de la racine du *Ger.*
"sont fortement attachées à une racine étrangère dont, comme une sangsue, elle se nourrit
"à sa discrétion, mais je n'ai pas exclusivement dépendante de la cuisine des voisins
"pour leur subsistance."

This case, cited by my friend, is an isolated fact with half a dozen large roots he has sent to me; and many such attachments as the above one are visible between the largest & smaller fibres, or dead branches half rotten. Instead of convincing me ^{the} parasitism condition of our *Gerardia*, I am the more inclined to see in the working of these glands the formation of a kind of net-work connecting the fibres together or fixing them to anything in their vicinity, to give to these roots a power of resistance against any external violence. Compare one *Gerardia* to the true parasite, to our *Thoradendron*, *Acutebium*, &c. and you will, I think, be convinced that they do not deserve that ugly name.

Decarie considers the *Saurataceae* all parasites. Buckley, who has seen much of his Buckley & Pyralis, says they are not and, although I have good reasons to believe our *Comandra umbellata* a parasite, he assures me having found part of the *Livida* entirely isolated and remote from any trees or large plants. You have both Buckley & Pyralis in your garden, what do you think of them in this regard? I have ready for you several good specimens of *Hydrogrammum* left which I will send you as soon as I receive a confirmatory letter from Dr. Darlington. Quel bon avis de vous! Adieu and believe me ever yours,

C. DeCarie

With respects to your lady.



Prof. Anna Gray

Cambridge

Massachusetts.





Durand, Elias. 1861. "Durand, Elias M. Dec. 14, 1861." *Elias Durand letters to Asa Gray*

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