

Rec March 26  
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THE GEOLOGICAL AND NATURAL HISTORY SURVEY OF MINNESOTA.

Of course my notes below are only guesses. I shall be greatly obliged  
N. H. WINCHELL, State Geologist. for your determination of these specimens, some  
or all of which I think you can decide upon even without the flowers,  
which also I shall hope to submit to you, at least for all the species and varieties found at the Pipestone quarry, during the coming summer.

Address: In Care of Prof. N. H. Winchell.  
Minneapolis, Minn., March 22, 1883.

Dr. George Engelmann, Dear Sir:

Very Respectfully Yours, Warren Upham.  
By this mail I send in a newspaper package, addressed the same as this letter, four specimens of *Opuntia* from southwestern Minnesota; hoping that you will kindly write their names by return mail. (The specimens may be retained. Of course I would prefer to send better specimens, and in flower; but their names are wished for a catalogue of the plants of this state, phænogams and vase. crypts, which may be put in print next month, or in May or June. For this I have much aid from Mr. John Leiberg, of Mankato, for whom you recently determined *Wolffia Columbiana*, Karstén.)

The largest joint of prickly pear sent (marked by red twine) is believed to be *O. Missouriensis*, D.C.; it is from the famous Red Pipestone quarry, where it is plentiful.

The little joint (marked by black thread), from the same locality, is believed to be a variety of the preceding. Is this its right identification?

The more slender specimen from that locality, marked by white thread, with small, terete and cylindrical, wrinkled joints, and pulvilli much nearer together, bearing different, little spines, is believed to be *O. fragilis*, Haw.; which has also been found at an isolated station much farther east at Baraboo, Wisconsin.

Of the specimen, with small joints, from Redwood Falls, Redwood Co., Minn., marked by blue twine, I cannot decide whether to think it *O. fragilis*, Haw., or some dwarf form of *O. Rafinesquii*, Engelm., or *O. Missouriensis*, D.C. (Above.)



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Rec April 6  
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Cypripedium <sup>sp</sup> <sup>var</sup> <sup>undegerson</sup>  
A.B. Howell  
Schw. Schumannii Torr

THE GEOLOGICAL AND NATURAL HISTORY SURVEY OF MINNESOTA.

N. H. WINCHELL, State Geologist.

Address: In care of Prof. N. H. Winchell.

Minneapolis, Minn., April 3, 1883.

Dr. Engelmann, Dear Sir:

My grateful thanks are due for your notes on our specimens of Opuntia.  
During the coming summer I think Mrs. C. H. Bennett, of Pipestone City, to whom I have written in reference to this, will send you for identification a good collection of all the species and varieties that grow at the Pipestone Quarry.

In preparing a Catalogue of the Plants of Minnesota for this Survey, I come upon the species Sagittaria subulata, Engelm., in Dr. Lapham's List of Minn. plants. Of this I find no account in Gray's Manual, and no reference to it in the Flora of Colorado, in Watson's report for King's Survey, or in Rothrock's report for Wheeler's Survey. I therefore wish to appeal to you for a description of it, or reference to the name (synonym) under which it is included. Our Catalogue is to give the description of all its species which are not found in Gray's Manual.

I find also Cyperus alterniflorus, Schw. in Dr. Lapham's list; and Carex lupina, Wahl., recorded by Dawson as found on our northern boundary. I can find no description of these, and wish to obtain their descriptions and reference by vol. and page to the work from which they are quoted. Cyperus alterniflorus, Schw., I can find no trace of, but suspect it may be represented by a synonym in Gray's Manual, of which you may be able to inform me. The other,



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Carex Oupina, Wahl., I have found a reference to as occurring "from Greenland to Bear Lake and the Rocky Mountains"; and I think its description and notes of its geographical limits, which I wish to obtain a copy of, are to be found in Boott's "Illustrations of the genus Carex". If you could favor me with the quotations needed respecting these Cyperaceae, I should be greatly indebted.

By this mail I send you the Eighth and Ninth Annual reports of this survey, each of which contain notices of the botany of portions of this state, and of the glacial geology of this region by myself, besides much by Prof. Winchell and others of his assistants.

The Flora of Minnesota, for which these notes are desired is to state, under each of its 1400(±) species, their geographical limits <sup>in Minnesota</sup> (if they are not found throughout the whole state), and notes stating whether they are abundant, common, only frequent, or rare.

With Great Respect, Yours,  
Warren Upham.

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One more inquiry: I shall be greatly indebted if you can give me any notes of the occurrence of species of Isoetes, Marsilia, or Azolla, in Minnesota. This I think you may supply from your recent review of American Isoetes sp.

**THE GEOLOGICAL AND NATURAL HISTORY SURVEY OF MINNESOTA.**

Our only note now of these genera is Dr. Lapham's naming Azolla Caroliniana, Willd., as found in this state. Hoping you will not be too much troubled by these questions, I remain Very Respectfully Yours,  
Warren Upham

N. H. WINCHELL, State Geologist.

Address: In care of Prof. N. H. Winchell.

Rec April 19<sup>th</sup> Minneapolis, Minn. April 17, 1883.

Dr. Engelmann, Dear Sir:

Please accept my

thanks for your letter of the 9<sup>th</sup> inst., respecting Sagittaria, Cyperus alterniflorus, Schweinf., Carex lupulina, Vahl., etc. Professor Macoun, who in 1875 reported Carex lupulina on our northern boundary, now writes me that he thinks that sedge only arctic in America, and that his determination was probably erroneous for C. Torreyi, Tuckerman.

The Sagittaria about which I inquired in my last letter first appears in Dr. C. C. Parry's List of Plants in Owen's report on the geology of Wisconsin, Iowa, and Minnesota, p. 619. It there is printed "Echinodorus subulatus, Engelm.", and perhaps you will write me that this is a good species of that genus; and if so, I would be greatly obliged for its original description by you, stating name of book, and number of page, from which quotation is made. All our Minn. species which are not described in Gray's Manual, we shall thus add descriptions of, quoted.

But Dr. J. A. Lapham's List of Minn. Plants, now out of print, gives no Echinodorus, but seems to have changed this species of Parry's list to Sagittaria subulata, Engelm. [It should be S. subulata, as you write.] If this is truly a Sagittaria, I suppose it must be S. graminea, Michx., or S. pusilla, Nutt., of the second of which Gray gives Alisma subulata, Pursh, as a synonym; but that species seems, by Gray's notes of range, to be confined to the vicinity of the Atlantic sea-board. Can I call this an Echinodorus, or Sag. graminea, or S. pusilla? One more inquiry above.



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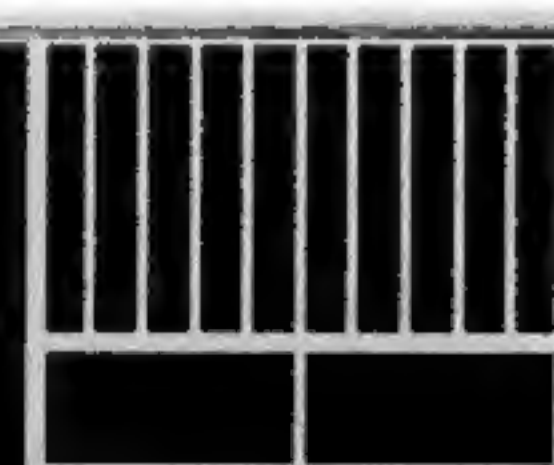
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Rec'd Oct 20<sup>th</sup>  
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THE UNIVERSITY OF MINNESOTA.

AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE.

Address: In care of Prof. S. H. Winchell.

MINNEAPOLIS, AUGUST, 13, 1883.

Dear Dr. Engelmann:

Some time ago my friend,  
Mrs. <sup>C.H.</sup> Bennett, of Pipestone City, <sup>Minn.</sup> sent you a representative col-  
lection of the Cactus species and varieties found at  
the famous red pipestone quarry in the southwest part  
of this state. She writes me that no information has  
been received from them.

If you received the plants sent by her, will you  
please write upon the enclosed card, which is rightly  
addressed to me, and mail it, the names of the species  
and varieties of Opuntia thus sent?

This I wish for the catalogue of Minnesota plants  
which I am preparing for the Geol. and Nat. Hist. survey  
of this state, about which you will remember my  
former correspondence and your determination of Wolffia.

It was at my request and for this catalogue  
that Mrs. Bennett sent these to you.

Very Respectfully,

Warren Upham,  
Asst. State Geologist of Minn.



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I hope your notice of Aristida basiramea may appear in the March or April Number of the Botanical Gazette. From examination of numerous species of Aristida sent me by Dr. Hsey, I believe ours is a very distinct, well marked, and interesting species. None of those exhibit any such short flowering branches at the base. W.U.

**THE GEOLOGICAL AND NATURAL HISTORY SURVEY OF MINNESOTA.**  
N. H. WINCHELL, State Geologist.

Rec Jan 4<sup>14</sup>  
23 - 8

Address: In care of Prof. N. H. Winchell.  
Minneapolis, Minn., Jan. 1st, 1884.

Dear Dr. Engelmann:

Your favor of Dec. 27th, concerning Aristida basiramea was received yesterday. I like the name; but if you think this likely to be an inconstant character, I should like A. Minnesotensis. It is plentiful here, east of the Mississippi, on the state university grounds, and I have received a considerable supply of it from St. Cloud, about 60 miles northwest from here on the Mississippi. I also have a single specimen (but a good one) from the Pipestone quarry in this state, near its southwest corner, 160 miles southwest from here. In all these the characters of the species are very constant, and all of them show the feature referred to by the specific name basiramea.

As there are at least three eastern graminologists to whom I am under obligations for their opinions in this matter, all these (and Watson, Coulter and Arthur besides) having failed to recognize this Aristida as anything hitherto described, I think I may fairly say to them that I return my thanks and decide to refer the species to you for description and name, as the species belongs to the Mississippi region and I suspect is also to be found in Manitoba and upon the plains of Dakota and Nebraska and perhaps farther west and south, in company with your Buchloe. Thus my eastern friends will be perhaps better content than if I were to select one of them to name and describe the species. I have hope yet to receive specimens of this Aristida collected by others, as Prof. Coulter, or Prof. Macoun of the Canadian Geol. and Nat. Hist. Survey, and within a month or less will send you a full set of specimens from all the localities possible.

Very respectfully,  
Warren Upham.



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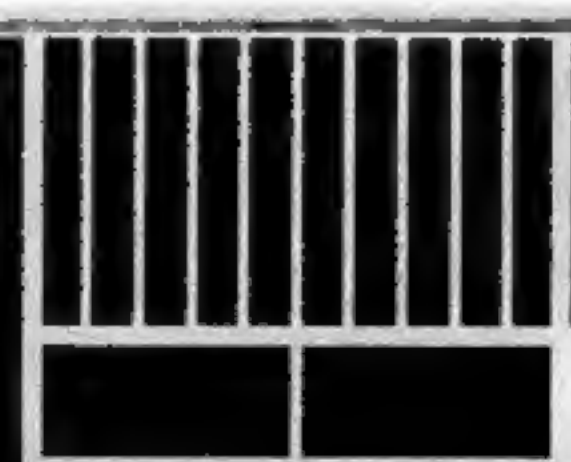
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