Dr. Newberry's work in the Colorado Cañon.

My attention has been drawn to the fact that the absence of any mention of the earlier explorations of the Colorado Cañon region in the review of Capt. Dutton's monograph (p. 327) does an apparent injustice to these, and particularly to Professor Newberry's work in that district. It is to be regretted that the limit of space available rendered an historical notice of the progress of geological discovery in this remarkable region impossible, while a paragraph in the review, intended to apply merely to the work of the later geological surveys organized as such, may be interpreted as ignoring that of previous government expeditions which antedated these by many years, and were carried out in the face of difficulties and even dangers with which later parties have not had to contend. This was very far from being the intention; and, indeed, Professor Newberry's work in the cañon region is so well known to geologists, and so highly appreciated, that an attempt to ignore it in any complete account of the region could but reflect on the author. THE REVIEWER.

The occurrence of the Hessian fly in North America before the revolution.

The American philosophical society of Philadelphia appointed, in 1791, a committee for the purpose of collecting, and communicating to the society, materials for the natural history of the insect called Hessian fly, as also information of the best means of preventing or destroying the insect, and whatever else relating to the same might be interesting to agriculture.

At a meeting of the committee, April 17, 1792, it was resolved, that for obtaining information of the facts necessary for forming the natural history of this insect, *before its entire evanishment from among us*, it be recommended to all persons whose situation may have brought them into acquaintance with any such facts, to communicate the same by letter, addressed to Thomas Jefferson, esq., secretary of the state to the United states.

Nine questions were proposed, on which information was particularly wanted. I quote here only the first.

"In what year, and at what time of the year, was this animal observed for the first time? Does it seem to have made its appearance in this country only of late years, or are there any reasons for supposing that it was known in any part of the United States previously to the commencement of the late revolution?"

The resolutions of this meeting are printed in full in Carey's *American museum* (Philadelphia, 1792, vol. xi., June, pp. 285–287) by the committee, — Thomas Jefferson, B. Smith Barton, James Hutchinson, Caspar Wistar. The *American museum* was discontinued after 1792. The last volume contains no report of the committee.

As is obvious from the first question, it was at this time not settled whether the insect had been observed here before the revolution, or not. Mr. A. Fitch quotes the publication in the *American museum*, and stated that no report had been made by the committee. The importance of this question, and of a committee with Jefferson at the head, led me to ask Prof. J. P. Lesley whether the old minutes of the Philosophical society contain any unpublished report, or any thing else relating to the Hessian fly. I received from Mr. Henry Phillips, jun., secretary of the society, the following answer, under date of March 28, 1884: —

At the request of Professor Lesley, I have examined our old minutes in reference to the Hessian fly, and append on next page the results of my search. I know *positively*[1] that before the revolution our newspapers are full of communications in reference to the Hessian fly *eo nomine*. I cannot recall to mind any one paper, but I remember perfectly frequently seeing these articles when reading for other purposes. I cannot find that the committee ever reported.

[1] The Italics are by Mr. H. Phillips.

Extracts from the minutes.

1768, May 18. Com. on husbandry to consider whether any method can be fallen upon for preventing the damage done to wheat by the Hessian fly. *N.B.* — Mr. DuHamel has written on the subject.

1768, June 21. Paper on the Hessian fly read by Dr. Bond; ordered to be published. See No. 4, original papers.

1768, Oct. 18. Col. Landon Carter, Sabine Hill, Va. Observations on the fly weevil destructive to wheat; ordered to be published. [Is published in vol. i. of the transactions of the society. Cf. Harris, Injur. ins., p. 502. DR. H. A. H.]

1791, April 15. Jefferson, Dr. Barton, Hutchinson, Thomson, and Dr. Wistar, a committee to collect materials for forming the natural history of the Hessian fly, and the best means for its prevention and destruction. [Do not find this committee ever reported. H. P.]

1791, Aug. 19. Memoir on Hessian fly by T. L. Mitchell of Long Island read.

Everybody conversant with our actual knowledge and the literature on the Hessian fly, will acknowledge it to be excusable that I took the liberty to again ask Mr. Phillips if by chance the year 1768, together with the name Hessian fly, was not a clerical error; the more so, as Mr. Morgan in Dobson's Encyclop. (vol. viii. p. 491) states, "The name of Hessian fly was given to this insect by myself and a friend early after its first appearence on Long Island."

To day I received from Mr. Phillips the following letter, dated April 1, 1884: —

1. 1768 is not an error. It occurs in the proper place in the old MS. vol., and there can be *no doubt* about the fact. *Similiter* the words *Hessian fly*.

The term came in use in Pennsylvania from the early German immigrants long before the revolution. I am *sure* the term occurs in our Pennsylvania gazettes long prior to that period.

2. Cannot say if that paper (of Dr. Bond) was ever published. Possibly in some gazette *pro bono publico*. There is no clerical error as to the date and name.

Dobson is certainly incorrect in the statement you quote. [Mr. Morgan's pretension to have given the name Hessian fly. DR. H. A. H.]

At this writing it is not an easy matter for me to *verify* my own statement as to the communications which I have seen in the early Pennsylvania gazettes before the revolution. I have had great use often in days past for historical researches, and the recurrence of the name of the Hessian fly in these early days was a frequent matter of conversation with me and friends, friends of two generations older than myself. While I am perfectly convinced that my memory is accurate, yet a statement of that nature should be verified for historical use. I regret I have not the present opportunity of so doing; yet, in view of the minutes of 1768 bearing upon the matter, I don't doubt the accuracy of my memory, although it was *obiter*.

The importance of these letters is an excuse for their publication, which is done with the permission of the writer. DR. H. A. HAGEN.

Cambridge, April 2.

A spider's device in lifting.

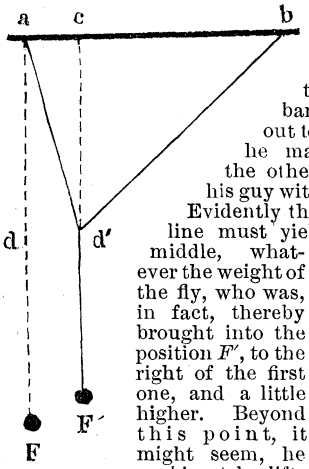
The interesting description by Mr. Larkin (*Science*, No. 58) of the lifting by a spider of a large beetle to its nest reminds me of quite another device by which I once saw a minute spider (hardly larger than the head of a pin) lift a house-fly, which must have been more than twenty times its weight, through a distance of over a foot.

The fly dangled by a single strand from the cross-bar of a window-sash, and, when it first caught my attention, was being raised through successive small distances, of something like a tenth of an inch each; the lifts following each other so fast, that the ascent seemed almost continuous. It was evident that the weight must have been quite beyond the spider's power to stir by a 'dead lift;' but his motions were so quick, that at first it was difficult to see how this apparently impossible task was being accomplished. I shall have to resort to an illustration to explain it;

for the complexity of the scheme seems to belong less to what we ordinarily call instinct than to intelligence, and that in a degree we cannot all boast ourselves.

The reader who questions the propriety of the last remark may be invited to pause, before hearing the spider's device, to consider how *he* would proceed to lift a whole ox hanging vertically beneath him at the end of a hundred-fathom cable, if he had no appliances whatever except some spare rope.

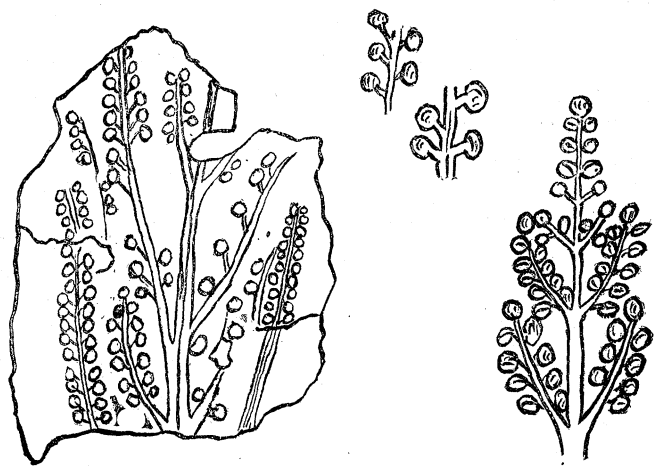
The little spider proceeded as follows (*a b* is a portion of the window-bar, to which level the fly was to be lifted from his original position at *F*, vertically beneath *a*): the spider's first act was to descend halfway to the fly (to *d*), and there fasten one end of an almost invisible thread; his second, to ascend to the bar and run out to *b*, where he made fast the other end, and hauled on his guy with all his small might. Evidently the previously straight line must yield somewhat in the middle, whatever the weight of the fly, who was, in fact, thereby brought into the position *F'*, to the right of the first one, and a little higher. Beyond this point, it might seem, he could not be lifted; but the guy being left fast at *b*, the spider now went to an intermediate point (*c*) directly over his victim's new position, and thence spun a new vertical line from *c*, which was made fast at the bend (at *d'*), after which the now useless portion *a d'* was cast off, so that the fly now hung vertically below *c*, as before below *a*, *but a little higher*.



The same operation was repeated again and again, a new guy being occasionally spun, but the spider never descending more than about halfway down the cord, whose elasticity was in no way involved in the process. All was done with surprising rapidity. I watched it for some five minutes (during which the fly was lifted perhaps six inches), and then was called away. L.

Two species of tertiary plants.

In looking over the plates of Mr. L. Lesquereux's Tertiary flora (U. S. geol. and geogr. surv., F. V. Hayden in charge), I noticed on plate xiv. a figure which seemed to have a familiar appearance. It was like the fruiting-frond of a fern, but the explanation called it Caulinites fecundus, Lesqx. The description on p. 101 referred to it as probably representing the undeveloped flowers of some palm. Turning to Gray's Botany, plate xviii., I was struck with the resemblance between his figure of Onoclea sensibilis and that given by Mr. Lesquereux. I have shown the two species side by side in fig. 1, and there is no doubt in my mind that the Caulinites fecundus is nothing but a part of the fertile frond of Onoclea sensibilis.



a, Caulinites fecundus, Lesqx. FIG. 1. *b*, Onoclea sensibilis, L.

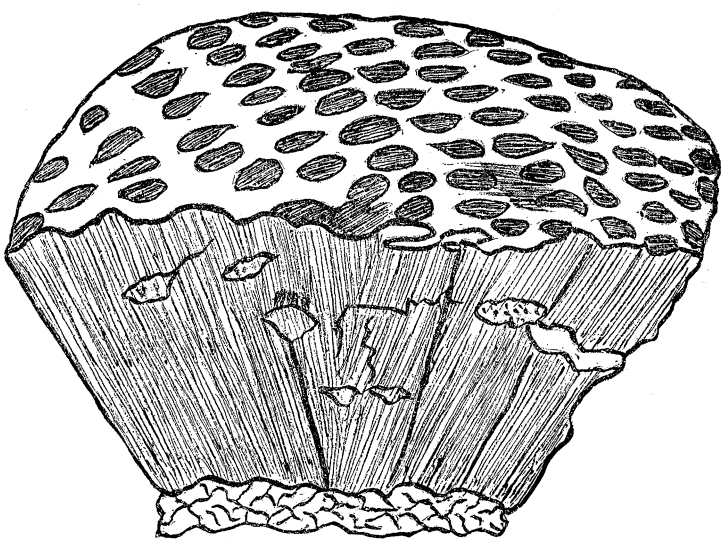


FIG. 2. — Zamiostrobus mirabilis, Lesqx.

In the Annals of the lyceum of natural history, New York, vol. ix. p. 39, Dr. Newberry records the finding of the sterile fronds of Onoclea sensibilis in strata of miocene age at Fort Union, Dakota. He considers that "there is little room for doubt, . . . that during the miocene age a species of Onoclea flourished in the interior of our continent, of stronger habit than either of the living varieties, and holding a mid-