To test this matter in another way, I captured a number of specimens and with finely pointed scissors cut the heart or dorsal vessel, at the middle of the thorax. These insects lived nearly twenty-four hours, proving that the circulation of blood is not dependent entirely upon the heart, and, in fact, these insects lived as long as others which were not mutilated at all, and were kept in the same dish merely as a check. I could not find that these insects differed in their actions in any way from those that were perfectly normal. Another set of specimens was treated by cutting not only through the heart, but also through the œsophagus where it passed through the prothorax, and thus the alimentary canal was severed. Specimens so treated died somewhat sooner than did the previous lot, although they also lived nearly twelve hours. It was also noticed of these insects that the tongue or proboscis was frequently extended and retracted as in the case of those insects in which the abdomen was removed. Another set of specimens was treated by cutting the nervous cord in the thorax just behind the posterior legs. This resulted in the paralysis of the hind legs, but did not appear to affect either the fore and middle legs or the wings. Where the cord was cut between the middle and hind legs, exactly the same result was obtained. Cutting the cord between the fore and middle legs, close to the middle legs, however, resulted in the paralysis of everything behind the fore legs, and of the wings as well; although the insect lived for more than six hours afterward, both the head and its appendages and the fore legs responding readily to stimulation. As a result of this crude series of experiments, it would seem that the vital point, or, better, the controlling nerve centre in flies, is located in that large ganglion situated in the prothorax, just above the fore legs, and that so long as this remains intact, the insect retains power of motion and evidences active life. Severing or piercing this ganglion, killed the insest at once.

LETTERS TO THE EDITOR.

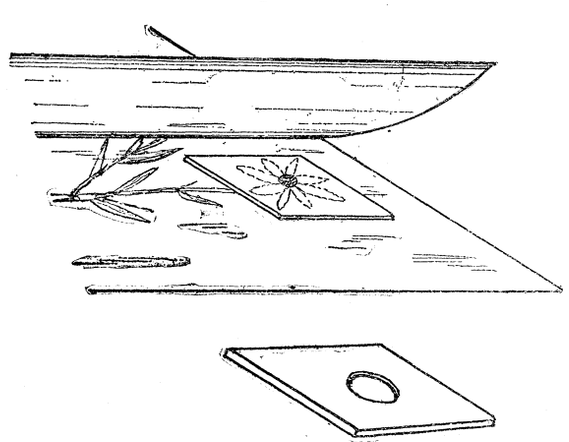
***Correspondents are requested to be as brief as possible. The writer's name is in all cases required as a proof of good faith.

On request in advance, one hundred copies of the number containing his communication will be furnished free to any correspondent.

The editor will be glad to publish any queries consonant with the character of the journal.

Herbarium Specimens.

In preparing specimens of the Composite family for the herbarium, it is difficult to press the flower so that the



rays will not wilter, owing to the fact that the head keeps the paper from pressing upon the rays. The following device has been used by the writer with much success in preventing this difficulty, and might be useful to students who are collecting autumn flowers.

A small square or disk is cut from blotting paper and a hole is cut in its centre, a little larger than the head of the flower. If, in pressing, this disk be put over the flower, allowing the head to come up through the hole in the centre, the rays can be pressed out flat. The thickness of the disk should vary accordingly as the head is thick or thin.

Richard H. Rich.

Beverly, Mass., Sept. 25, 1893.

Minnesota Mounds.

I read with considerable surprise Mr. Schneider's article entitled "Notes on Some Minnesota Mounds" in *Science* of Sept. 1, and I at once felt it to be my painful duty to correct some gross misrepresentations. I happened to be working in the same party with Mr. Schneider when he made the valuable discoveries which he describes and therefore am in a position to criticize his statements.

It is true that we found a number of Indian burial-grounds in the vicinity of Mille Lacs. Most of these were still in use, or had been so until quite recently. In two which I assisted in opening we found some decidedly modern relics, e. g., a U. S. ten cent piece used as a bangle, a glass butter-dish, a rubber comb and a jack-knife such as any Yankee boy might carry. These graves were arranged in rows and were usually covered with superstructures of wood, which might be compared to dog-kennels. We found a few graves rather older than the above, and which were covered with low mounds of earth, but even here there were traces of wooden stakes, which gave evidence of their recent origin. As to the mound at Lake Warren, which Mr. Schneider dug into, I confess that I was not present when it was opened. I have, however, seen the "relics" which were collected from it—in fact I am in a position to see them whenever I wish. Without stopping to question whether the age, sex and stature of the individuals could be accurately determined from the very fragmentary skeletons which he found. I would say that the bones are nearly as well preserved as some which we found in one of the covered graves above described and which I know to have not been buried more than twenty-five years. It is hardly necessary to point out the absurdity of supposing that a hole in which the "roughness of the sides" was still apparent could have been filled for several hundred years.

The specimens of pottery which he describes are merely fragments of baked clay utensils of the roughest sort, just such as all the American Indians manufactured before they obtained iron kettles from the whites.

In fact there is not the least evidence that any of these bones or relics are of any great age or that they belong to any race older than the Indians which inhabit this district at present. They are of no more value to the archæologist than bones dug from the nearest cemetery.

Francis B. Sumner.

University of Minnesota, Minneapolis, Minn., Sept. 23, 1893.

Origin of Gold.

I would like to draw attention to a somewhat fallacious deduction which appeared in an interesting little article, "The Origin of Gold," in your issue of Sept. 1st. The author mentions the remarkable fact that, in a part of Southern India, quartz-veins, though traversing both gneiss and belts of rocks, which have been termed the Dharwar, are gold-bearing in the Dharwar only, and are never productive in the gneiss. Mr. Lake then argues: "It is clear, therefore, that the gold cannot have been introduced into the reefs from below, for in that case there would be no difference in that respect between the reefs in the gneiss and the reefs in the Dharwar."