effect here given is due to the actual formation of a partial vacuum produced by the wind blowing across the trap-door, and not to a fault in the barograph, I will accept it. Certainly any such effect as this could have been easily learned long ago by the watching of an ordinary barometer. I have watched the barometer, both mercurial and aneroid, in very high winds, and have never seen any thing at all like this effect. GAN.

Oct. 1.

Constitution of the earth.

Reading yesterday the address of the president at the British association for the advancement of science at the recent meeting in Birmingham, it seemed to me, that, in discussing the geology of the Atlantic and the constitution of the earth, too much is ordinarily attributed to original action of sedimentary deposition.

In the *Scientific American* of June 19, 1885, is a section of the earth on a scale of five inches to its diameter. Upon this, in a greatly exaggerated vertical scale, are figured the heights of mountains and the depths of the ocean. But in a smaller figure the author shows that the thin line used to describe the circumference would, in its thickness alone, include the whole of the departures of the mountain-peaks and deepest seas from the true circle or ellipse which should represent the outline of the globe. If we suppose a five-inch globe of terra-cotta (red and well-burned clay) to be dipped for a few moments into a muddy ditch, when it comes out with a film of water adhering to its surface, this thinnest film filled with animalcules, adhering but so quickly evaporating, will, on this scale, represent all the water contained in all the oceans and lakes; and the small quantity which the slightly porous terra-cotta globe has absorbed will represent a greater quantity of water than all that is contained, or ever has been contained, in the depths and caverns and fissures of the earth itself.

The microscopic Desmidiaceae, Pleurosigmae, wriggling vibriones and bacilli, so well known to modern science, and playing such important parts in life and death of man, will, swimming in the adherent film, be greatly magnified representations of the huge monsters which crawled in the slime of morasses, and swam in the oceans of primeval chaos, when the earth first took form, and ceased to be void. The almost infinitesimal film of water will represent all the water that ever constituted a part of this world in which we live: for science tells us that no violence has ever been able to project a stone beyond the sphere of the earth's attraction, and that no vapor of water, no gas, can float in the thin ether which surrounds or penetrates our fifty miles of atmospheric depth. What part, then, in the constitution and formation and changes of the matter forming the depths of the earth can this very small proportion of water's sedimentary deposits play in the general construction of the globe? To us infinitesimal bodies, the surrounding rocks are immense. Seen from the planet Mars in connection with the whole mass of the earth, what are they? A skin, an envelope, thinner than the model's adhering watery film. Certainly we are more directly interested in the superficial strata which we can see and feel than in the deep masses of which we can learn so little that we speculate as to whether they are solid or fluid without reaching certainty. But the depths in the general plan and constitution of matter far outweigh the surface formations. And fire (for they are certainly hot) has had much more to do in moulding the earth than water and its sediments. M. C. MEIGS.

Washington, D.C., Sept. 25.

The excessive voracity of the female Mantis.

A few days since, I brought a male of Mantis carolina to a friend who had been keeping a solitary female as a pet. Placing them in the same jar, the male, in alarm, endeavored to escape. In a few minutes the female succeeded in grasping him. She first bit off his left front tarsus, and consumed the tibia and femur. Next she gnawed out his left eye. At this the male seemed to realize his proximity to one of the opposite sex, and began to make vain endeavors to mate. The female next ate up his right front leg, and then entirely decapitated him, devouring his head and gnawing into his thorax. Not until she had eaten all of his thorax except about three millimetres, did she stop to rest. All this while the male had continued his vain attempts to obtain entrance at the valvules, and he now succeeded, as she voluntarily spread the parts open, and union took place. She remained quiet for four hours, and the remnant of the male gave occasional signs of life by a movement of one of his remaining tarsi for three hours. The next morning she had entirely rid herself of her spouse, and nothing but his wings remained.

The female was apparently full-fed when the male was placed with her, and had always been plentifully supplied with food.

The extraordinary vitality of the species which permits a fragment of the male to perform the act of impregnation is necessary on account of the rapacity of the female, and it seems to be only by accident that a male ever escapes alive from the embraces of his partner.

Westwood quotes from the *Journal de physique*, 1784, an instance in which the female of the European species — Mantis religiosa — decapitated the male before mating; but I know of no record of a similar occurrence with M. carolina, nor of the further mutilation described above.

Riley, in his 'First monthly report,' p. 151, says, "The female being the strongest and most voracious, the male, in making his advances, has to risk his life many times, and only succeeds in grasping her by slyly and suddenly surprising her; and even then he frequently gets remorselessly devoured."

In Packard's 'Guide,' p. 575, we find, "Professor Sanborn Tenney tells me he has observed the female after sexual union devour the male."

L. O. HOWARD.

Washington, D.C., Sept. 27.

A mummified frog.

My letter which appeared in your issue of Sept. 24, describing the specimen of a mummified Hyla, contained an error, which I here wish to correct. The frog was taken from the McLean county coal-shaft of Illinois, and not of Pennsylvania, as stated, and the newspaper account was published in Burlington, Ill. There is, however, a McLean county in Pennsylvania, and it was through this fact that the slip in question occurred. R. W. SHUFELDT.

Fort Wingate, N. Mex., Sept. 29.