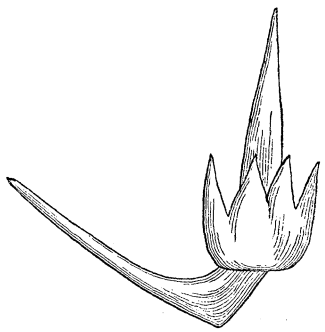
fifty skeletons deposited from one to five feet below the surface. The usual method of sepulture practised by the Santa Barbara stock of Indians prevailed here; namely, the knees were drawn up against the breast, and the corpse was buried face downward.

With the skeletons were found three ollas carved from crystallized talc, which were used for cooking-purposes; two large sandstone mortars, finely finished, used for triturating grain and acorns; a sandstone bowl about one inch deep and six inches in diameter; two conical pipes and several large beads of serpentine; several sheets of mica with hole drilled at the side; a broken tortilla stone; several balls of paint; and thousands of shell and glass beads, wampum, ornaments, etc. In a Haliotis shell (H. splendens) I found eight old fashioned flat brass buttons, with numerous specimens of wampum, manufactured from Olivella biplicata. The remains of a metal knife were discovered, which, with glass beads, buttons, and a portion of an old-fashioned water-bottle, shows that this place was inhabited since the advent of the white man, or within the past three hundred and forty-three years.

Probably the most interesting relic discovered was a metal fish-hook. It has a shank about four and a



half centimetres in length, with a point about three and a half centimetres long, which, from its shape, I should judge was of Indian manufacture. An Olivella shell was scalloped or notched, leaving it somewhat in the shape of a crown. The base was perforated, and the shank of the hook pushed through it. This was doubtless intended as an attraction to the fish. The species is Olivella biplicata, some of which are very white, and, at the end of a line, would be nearly or quite equal in brilliancy to the pearl oyster-shell used by the South-Sea Islanders for the same purpose. By the kindness of the publisher of *Science*, an engraving of the fish-hook is presented. It is in a somewhat restored form, the original being corroded to some extent by rust.

STEPHEN BOWERS.

San Buenaventura, Dec. 8.

New find of fossil diatoms.

Seeing a reference to diatoms occurring in clay strata in a railroad-cutting near Philadelphia, in two of the recent issues of *Science*, I wrote to Dr. Koenig, the discoverer, for a sample of the diatom-bearing clay. I received the clay promptly, and am delighted to be able to say, that, after a five-minutes' preparation, I had the pleasure of noting a very rich slide containing at least thirty species of diatoms; the forms corresponding chiefly to the recent fresh-water forms, but characteristically different, as relates to the association of the species, when compared with the forms occurring in the sub-peat deposits of the eastern United States.

My reason for making this communication is, that the value, interest, and importance of this new find of diatomaceous material has not been sufficiently emphasized in the two articles in *Science*, and might be overlooked by diatomists, and all who are on the constant lookout for new localities of fossil diatoms.

K. M. CUNNINGHAM.

Amoeboid movement of the cell-nucleus.

The study of the cell-nucleus has become a subject of such absorbing interest in biology, that we feel justified in asking a little of your space to make known what seems to us a promising field for investigation. During the last year, in studying the blood of Necturus, after its removal from the body and in the blood-vessels, we were struck with the great size and distinctness of the nucleus of the white corpuscles. But what seems especially interesting and important is the fact that the nucleus of the white blood-corpuscles exhibits a very marked amoeboid movement, both in the vessels of a curarized animal and on the microscopic slide. These movements are as vigorous and easily followed as are those of the cell-body; and often both the cell-body and nucleus are undergoing amoeboid movement at the same time, the movements of the cell-body and nucleus seeming to be entirely independent of each other. From the ease with which the white corpuscles are obtained and observed, from the size and activity of the nucleus and its distinctness in the living condition, it is confidently expected that the study of the white blood-corpuscle of Necturus will greatly assist in making more definite our knowledge of the nucleus, its so-called membrane, and the processes of its division.

S. H. and S. P. GAGE.

Anat. lab. Cornell univ., Dec. 25.

English sparrows.

In *Science*, Dec. 18, appeared some remarks on the English sparrows that do not at all agree with our experience here. We have many orchards and groves in and around our village. Many of us have provided boxes for wrens, martins, bluebirds, etc. Robins, cardinals, crimson-breasted grossbeaks, catbirds, etc., are innumerable around us. A few years ago some of our people, accustomed to watch the many kinds of birds that frequent our court house grove, asked me about 'a little bird that had just newly appeared in the grove.' They said that it was "driving all the other birds away. Not content with merely fighting and mastery, it drove the others clear out of the town." The people had been watching them for some days, and reported that half a dozen birds had actually made themselves the sole possessors of our melodious grove, heretofore so delightfully noisy with the songs of the many native birds. I suspected the cause, and, as soon as I saw the 'strange little birds,' pronounced them to be those 'winged rats,' the English sparrows. For twenty years I had kept several boxes for martins at my own place. About thirty pairs were making their homes at my doors. Suddenly I missed them, but the screech of a pair of English sparrows took