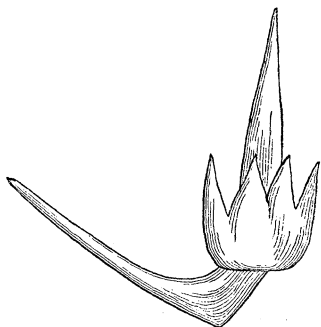


fifty skeletons deposited from one to five feet below the surface. The usual method of sepulture practised by the Santa Barbara stock of Indians prevailed here; namely, the knees were drawn up against the breast, and the corpse was buried face downward.

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 tritulating 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 *Halotis* 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 freshwater 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

their place. Well, we exterminated these sparrows, and our birds came back.

C. I.

Oregon, Mo., Jan. 1.

The discussion of the merits of the English sparrow, as shown in the contributions to *Science*, indicates a wide difference of opinion. Some of the conclusions reached by your contributors are unwarranted by any facts based on a thorough knowledge of the bird's habits as known in this country. It is very convenient to join in the cry of enemy, thief, pest, and like epithets; but that is not a scientific method of reaching conclusions. We want a bill of particulars, more facts and less crusade against these 'assisted emigrants.'

They are charged with driving out other birds from our city. My home and place of observation being within twenty-five miles of New York City, I can speak from careful observation that this charge has but little value in this locality.

Very few birds care to dwell in cities, except in the suburbs. It is neither congenial to their taste nor adapted to their requirements, while the English sparrow is essentially a native of a city, finding comfortable shelter and abundant food wherever partially digested grain may be found, in stables or along the highways travelled by horses. Excepting in the spring and summer months, this waste material is the almost exclusive food of this bird. Now we will consider the country life of this sparrow.

They are charged with destroying our crops. Have the farmers of this country made this complaint, or must we echo the tirade from abroad? As a farmer, my observation is, that the amount of wheat this bird appropriates during the few days of harvesting is too insignificant for notice. I know of no other grain that is molested in the slightest degree. That they are large destroyers of insects during the summer months, every observer knows. The army-worm finds in the English sparrow one of its most vigilant enemies. As to the garden fruits, we find that it molests none, and kindly leaves all the cherries to the robins and cat-birds. I have many grape-vines trained against my buildings, with an abundance of sparrows roosting amid the clusters of grapes, and have wondered at the sparrow's poor judgment in not tasting a single bunch. Such is my observation of this bird: social in its habits, apparently of the most happy disposition, but at times pugnacious with his relatives, which encounters are never fatal in their consequences. Certainly it is no concern of ours; for they seem to possess, in a remarkable degree, the spirit of forgiveness, and live, on the whole, in great social harmony. We rightly know them as pest when they soil our piazzas and deface our window-casings.

J. D. HICKS.

Old Westbury, N.Y.

Equality in ability of the young of the human species.

"We have a pernicious habit in this country of supposing, that . . . all men . . . are born equal as to their abilities." "We have a different theory in regard to horses."

"It would, perhaps, be a good plan, if the young of the human species were divided into two groups at an early age,—one large, and one small; one composed of those of whom nothing more than plain

living is expected, and the other composed of the race-horses, of those whose ancestors, or whose chance endowments, give reason to hope that they may give some aid to learning or to culture. Any one whose destiny is to do difficult thinking in after-life should . . . dwell long among the geometrical concepts, should become thoroughly imbued with the bare and rigid form of reasoning, and should have the results as familiar as his mother-tongue."

A criticism of a recent book on geometry, in *Science supplement* of Jan. 1, gives occasion to the critic to give the above views of a topic much wider than that of geometry. He would differentiate the human species into two groups,—the race-horses and dray-horses,—and train them accordingly, and the basis of the differentiation would be 'ancestry,' or 'chance endowments.' Suppose this had been done in the past, what chance is there that Watt, Stephenson, or Ericsson would have become known as engineers; Franklin, Faraday, or Edison as electricians; Napoleon or Grant as soldiers; Lincoln or Garfield as statesmen; Livingston as an explorer; Carlyle as a writer? Is it not notorious that most great men have not been descended from distinguished ancestors, and that in most cases their chance endowments have not been discovered, either by themselves or by their friends, until the age of manhood? The habit in this country, of supposing all men born equal as to their abilities, has had ample justification in the past, and may have in the future. Among the poorest families in the farthest west there are many Grants, Lincolns, or Garfields; among callow-chandlers' clerks there are Franklins; among Scottish farmers there are Carlyles; the poorest weavers may produce another Livingston; and some obscure Corsican may be another Napoleon. We of the American branch of the Anglo-Saxon race have all a good ancestry. Six generations back, each of us had thirty-two male ancestors, at least one of whom must have been distinguished as a king, a statesman, a general, a thinker, or possibly as a 'gentlemanly scoundrel,' or freebooter; and all American babies are born with some 'chance endowment,' which, if given the proper environment, will develop into ability. But, alas! the chances are that the growing child will not be given the proper environment. He may have the ancestral traits or the chance endowments which would lead him to be a great soldier, an artist, an engineer, or a farmer; and he will be sent to school, where all these traits or endowments will be repressed, and his education will tend to make him a storekeeper or a politician; or he may not be sent to school at all, and ancestral poverty may be the cause of his remaining a coal-miner or a 'farmer's hand' all his life, and Gray's 'Elegy' may be used as his epitaph.

Whether the young of the human species will develop into race-horses or dray-horses is not generally determinable by ancestry or by 'chance endowment,' but rather by environment during youth and early manhood. The youth has the ancestry of both dray-horse and race-horse combined, and the 'chance endowments' are numerous enough to include some of the qualities of both. Better assume that the young are born equal in ability, and in their early training, beginning with the kindergarten, give them an equal chance to develop into mechanics, storekeepers, artists, farmers, or lawyers, than to differentiate them into the classes of race-horses and dray-horses at the beginning.

W. K.