

SCIENCE.

FRIDAY, MARCH 7, 1884.

COMMENT AND CRITICISM.

IN the rapid progress which animal morphology has been making in this country during the past few years, we doubt whether the vertebrates have had their due share of attention. With the exception of Cornell, we believe that the larger laboratories are turning their students principally to investigation among the invertebrates,—among this class, Cambridge and Baltimore. We do not for a moment under-estimate the immense value of this work, or the high standard it has attained; but are we not slighting the rare opportunities the United States afford for vertebrate research, and allowing it to be done by foreigners? To illustrate by a few examples out of many. In embryology the alligator and the urodele amphibia present the most important field of work. As regards the former, Professor Kitchen Parker of London has just completed a monograph upon the development of the skull, principally based upon American material. As regards the latter, is it not surprising, that, with an abundance of living specimens at ready command, the best work upon the angiology of the group is coming from Boas in Denmark; and upon the anatomy and embryology, from Wiedersheim and others in German laboratories; while here we have only to show a few current researches upon the neurology? Our large avian fauna invites the kind of systematic anatomical work which the late W. A. Forbes, and his predecessor as prosector, A. H. Garrod, undertook in the London zoölogical gardens. But there is another quarter where the harvest is still greater and the laborers fewer; that is, vertebrate paleontology. We can count upon the fingers of one hand the investigators in this magnificent field; yet there is enough work for several lifetimes in the fossils already exhumed, without mention of those which lie waiting the collecting-sack of the explorer.

HOWEVER just "Professor Rowland's vigorous denunciation of American science text-books" may be in respect to the sciences with which he is conversant, it need not be forgotten that in at least three departments of natural history this country has been seasonably provided, by its most competent hands, with text-books, which, for their purpose and scope, have not been surpassed in any other part of the world. It is a remarkable fact that two of them, Dana's Mineralogy and his Geology, are from the same hand.

THE suggestions regarding the preservation of our few important aboriginal monuments, made by the curator of the Peabody museum to its trustees at their recent annual meeting, is one that should excite general interest and attention. These monuments are fast disappearing under the plough and harrow, and many are further endangered by the growth of population in their neighborhood. As a rule, the land about them could be purchased of their present owners for comparatively small sums; and trusty keepers could be installed at no expense beyond the free lease of the reserves, with liberty to till such outlying portions as could do no harm to the monuments.

It would be eminently proper for the states in which these monuments exist to take efficient action for the preservation of the most important; but, if the states are likely to delay in the movement, the townships or local societies should at once secure the works from further destruction. These failing in immediate action, why cannot an association be formed for the purchase and care of ancient monuments; the association to hold them, until, by legislative action, each state shall take those within its borders under perpetual care? or perhaps it would prove the speediest and most satisfactory method of all, if persons specially interested in the preservation of certain of them

would combine to purchase the sites, and transfer the custody of the same to the trustees of the Peabody museum at Cambridge, which, as the only institution in the country specially devoted to American archeology, would be a fitting and safe almoner of such a trust.

A FEW months ago a piece of vandalism which shocked the scientific and artistic worlds was perpetrated in Munich. Some fiend took it into his head to disfigure the beautiful new marble statue of Liebig by staining it with a dark liquid. It was at first thought that it would be impossible to remove the stains, as they were found to have affected the marble to some depth beneath the surface. A commission of chemists, consisting of Professors von Pettenkopper and Baeyer, Liebig's successor, and Dr. Zimmermann, was appointed to investigate the matter, with a view to determine the nature of the stains, and to remove them if possible. It was found that nitrate of silver had been used, with which some permanganate of potassium had probably been mixed. It is gratifying to learn that the work of the commission has been entirely successful, the stains having been completely removed without injury of any kind to the statue. The method used consisted in transforming the metals, silver and manganese, into the sulphides by treating the spots with sulphide of ammonium, and then with cyanide of potassium. The chemicals were used in the form of pastes, made by mixing them with finely-powdered porcelain-clay.

GEN. TENNANT has recently called attention to a possible cause of variation in the rates of chronometers, which has never before been considered; namely, the humidity of the air. The subject is well worthy of investigation; and it is to be hoped that those interested in determining the rates of chronometers will also make observations on the humidity of the air around the chronometer, in order to determine whether any such effect is really produced. Gen. Tennant's results are not presented in such a form that a positive conclusion can be reached.

THE appointment of Professor Flower to succeed Sir Richard Owen as superintendent of the natural-history department of the British museum is as gratifying to American naturalists as it is to the majority of those in England. The removal of this section of the museum to the new building, South Kensington, will, of course, sever it still further from the control of the chief librarian, who is technically the head of the entire organization; while the new policy of making it an educational museum, as well as a museum of research and record, adds much to the responsibilities of its officers. Professor Owen, having brought his career as an active investigator to a wonderfully satisfactory conclusion, is glad to be relieved of administrative duties, and to retire to his country home near Richmond, to devote his few remaining years to quiet study. Professor Flower, who succeeded him as conservator of the museum of the Royal college of surgeons, has demonstrated in that capacity his ability as a museum director. His work as an investigator has been extensive and important; and there is no naturalist in England who is more deservedly popular, or who could command a more unanimous support among his fellow-workers. Seconded, as he is, by three such experienced assistants,—Dr. Gunther, keeper of the zoölogical collections; Dr. Woodward, keeper of the geological collections; and Dr. Carruthers, keeper of the botanical collections,—there can be no doubt that Professor Flower will be able to add very much to the efficiency of what is already the most extensive natural-history museum in existence.

WE referred, a few weeks since, to the favorable opportunity now afforded for observations upon Saturn. At the January meeting of the Royal astronomical society of London, there was an interesting discussion upon the markings upon the planet observed by Mr. Pratt of Brighton, and other members of the society. The planet was described as having on each side of its equator a zone of creamy tint, unusually free from markings. At about latitude 10° south, there was a strong narrow belt sharp-

ly defined on its equatorial side, diffused upon its polar side, and gathered in places into wispy notches and curved markings. The color was a vandyke brown. Several other belts of different tints were interposed between this one and the pole. Other observers mention the existence of loops somewhat resembling the markings on Jupiter. The planet is now too far past its opposition to be well observed during the present season; but the opposition of December next will be yet more favorable for observations, and will, we hope, be taken advantage of by all possessors of telescopes.

LETTERS TO THE EDITOR.

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

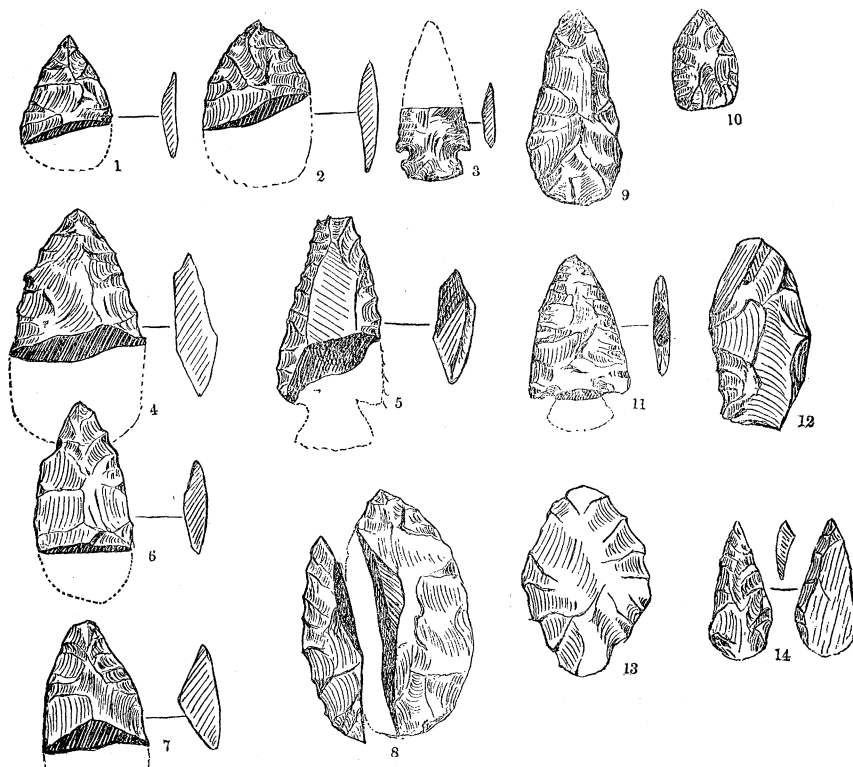
Arrow-points at Evanston, Ill.

IN the sand-ridge at Evanston, just back from the beach, and which follows the shore more or less

flint-chippings for an area of several square yards, marking spots where formerly stone implements were chipped. The very fresh appearance of the chippings upon the surface at this remote day, as if just dropped there, is accounted for by the sweeping of the wind from the exposed quarter over such localities, winnowing the particles of sand from the heavier flint. The chippings scattered in the light soil around the operator, while he fashioned the implements, remain at the original site; but, as the sand is gradually blown away, they appear at a lower level than before, and strewn over the hard, smooth surface which the wind has left.

In protected places, on the other hand, where the blowing sand accumulates in drifts, chippings, instead of being exposed, have been covered to a considerable depth, as excavations in the vicinity often show.

The mineral used was in all cases a reddish chert of various shades, found abundantly in the shape of rounded stones upon the beach. The chippings are irregular flakes, amounting in certain localities to what might readily fill a bushel basket; and search nearly always reveals some broken and unfinished arrow-points of the same mineral. The successive stages occur, from the rough chert flake to the completed implement; the most common being simply a half-arrow point, presenting a fracture across the shorter diameter: more rarely, specimens show a lon-



continuously for a number of miles south, there are exposed intervals where the frequent violence of the lake-winds does not permit the usual growth of vegetation. These places are often scattered with

itudinal fracture. The abundance of specimens indicates that occasionally, after an implement had assumed nearly the desired shape, an unskilful stroke split it; and the pieces were allowed to fall with the