

joining the botanists in the development of an accurate nomenclature. For while some sneer at nomenclature as a trivial matter and of no importance, it must be remembered that nomenclature is the expression of ideas, and ideas are of much importance.

CONWAY MACMILLAN.

University of Minnesota.

Photographs of Scientific Men.

A NOTE in your recent issue having to do with a request for the photographs of American botanists suggests that an appeal made through the columns of *Science* is likely to aid a collection made by myself. Some six or seven years ago, finding great difficulty in procuring the portraits of American scientists, I began gathering the photographs of the members of the National Academy of Science, and last year deposited in the Smithsonian Institution a collection of mounted portraits (with mounted autograph letters) of every member of our academy save two. This collection forms part, I believe, of the exhibit of the Smithsonian Institution at the Chicago Columbian Exhibition. The two portraits which are needed to make the set entirely complete are those of John Henry Alexander (1812-1867) of St. James College, Maryland, and later of the U. S. Coast Survey, and Jonathan Homer Lane (1819-1880), long connected with the U. S. Coast Survey and the U. S. Patent Office. I should be glad to obtain photographs of the two scientists or to make arrangements for the copying of any likeness of them known to exist.

MARCUS BENJAMIN.

640 Madison Avenue, New York City, May 18, 1893.

The Palæolithic Man in Ohio.

IN the second number of *The Journal of Geology*, Mr. Wm. H. Holmes has resumed his polemic against the evidence of the existence of palæolithic man in North America with a long article upon "Traces of Glacial Man in Ohio." Like his previous article upon the Trenton finds, this, too, is characterized by the kind of reasoning, which a correspondent of *Science* has called the argument *ad ignorantiam*, i. e., because he has failed to find palæolithic implements in a certain locality, therefore no one else has ever found them there. The present article, however, exhibits also a striking example of what might be called "the argument by monopoly." Mr. Holmes produces two fanciful cuts to show how the top of a gravel pit might have slid down so as to bury Indian relics coming from the surface; but he cannot see any sense in Professor Wright's preparing a plate to show precisely where in the same gravel-pit Mr. Mills actually found the object in dispute.

But the great difficulty about Mr. Holmes's discussion of this subject is that he has no correct appreciation of what a palæolithic implement really looks like. This is not to be wondered at when we reflect that his studies in "archæology" have been limited to investigations of the subject of "native art." He says "close analogies of form between Indian rejects and some varieties of European palæolithic objects are too common to permit the attachment of much value to this feature of this or any other similar find." Accordingly he proceeds to prepare a plate containing, besides the object discovered by Mr. Mills, of which he gives as good a copy as he can have made, four unfinished Indian celts found by him fifty miles away. Of these objects he says, "they correspond very closely in material and appearance with the New Comerstown specimen, as will be apparent from an examination of the plate. The figures are presented without identification in order that the student may, by an effort to distinguish them, convince himself of the similarity of the supposed paleolith to the quarry-shop rejects of the region."

Now I undertake to assert that any competent student of prehistoric archæology who has studied the subject in the Old World, where palæolithic implements have been found in large numbers, will have no difficulty in discriminating upon Mr. Holmes's plate between the true palæolithic implement and the four unfinished Indian celts placed beside it. All plates, however, fail to give a fair representation of solid objects like these, from the necessity of the case. They must be handled to be

understood. The four unfinished celts resemble those previously figured by Mr. Holmes in describing the objects he discovered near Washington, where I have myself found similar objects several years ago. I repeat here, what I have said in another place, "no trained archæologist would hesitate for a moment to pronounce that the objects figured in the article entitled 'A Quarry Workshop' (*American Anthropologist*, Vol. III., plate 4) do not bear the slightest resemblance to real palæolithic implements."

I conclude this note with what I have already urged to the readers of *Science*, that "only a jury of the acknowledged prehistoric archæologists of the world is competent to pronounce judgment upon this question."

HENRY W. HAYNES.

Boston, May 13, 1893.

BOOK-REVIEWS.

Mineral Resources of the United States. 1891. By DAVID T. DAY. Washington, D. C., Department of the Interior, Government Printing Office. 1893. 630 p.

It is somewhat unfortunate that these volumes cannot be more promptly produced, the late date of their issue impairing materially the value of the statistics contained. But in spite of this they are always welcome, and together—the present volume being the eighth in the series—they form a valuable component of every library. The arrangement is the same as in previous issues, and we find the familiar names of Birkinbine, Kirchoff, Weeks, Parker, and others under their respective specialties. Mr. Parker's statistical article on coal is exhaustive, occupying nearly 200 pages in all, and is supplemented by the articles on coke, petroleum, and natural gas by Mr. J. D. Weeks. Mr. Wm. C. Day continues his paper on stone from the "Resources" for 1889-90. An admirable and much-needed division appears upon the clay materials of the United States, written by Mr. Robert T. Hill, and as this is in some respects the feature of the present volume an outline may not be out of place. Beginning with descriptive remarks, Mr. Hill passes on to the commercial classification, the origin and natural classification, residual or rock kaolins, and sedimentary or bedded clays. The sedimentary clays of the geological formations are given in natural sequence. The accessory minerals used in the clay industries are described and then the occurrence of clay materials by States.

Other interesting articles are those on natural and artificial cements, by Spencer B. Newberry, both descriptive and statistical, on precious stones by the expert, Mr. Geo. F. Kunz, and Mr. Packard's descriptive article on aluminum, the last including several pages on bauxite, with analyses and a sketch of the development in the South. Alabama, Georgia, and Arkansas are mentioned as containing the mineral, but Tennessee with its good promise, Virginia, and North and South Carolina are not spoken of.

An unfortunate slip of the binder has placed pages 49-64 inclusive between pages 32 and 33, but in other respects the book is all that can be wished for.

C. P.

William Gilbert of Colchester, On the Loadstone and Magnetic Bodies. A translation by P. Fleury Mottelay. New York, John Wiley & Sons.

A RATHER acrimonious discussion between Professor S. P. Thompson and Messrs. Wiley & Sons has attracted even more attention to this book than it would otherwise have received. It will be remembered that the Gilbert Club was formed in England a few years ago, and that one of the objects of their existence was the publication by subscription of Gilbert's works. Professor Thompson was one of the committee on publication, and the matter seems to have been left mostly to him. From various causes, one of which was possibly the fact that the latter is translating and editing a number of books on his own account, the publication of the Gilbert Club has been delayed. Previous to the determination of the club to undertake the publication of Gilbert's work, Mr. Mottelay had been seized with the same idea, and, as neither he nor his publishers were in any way infringing on the rights of the Gilbert Club, the work has recently been

issued. This aroused the ire of Professor Thompson, who, not being able to find any fault with Mr. Mottelay, wrote a number of rather bitter letters to the various technical papers, in which he spoke very disparagingly of Messrs. Wiley & Sons, and their conduct in publishing a book he had intended to publish himself. He was so evidently in the wrong, however, that most of the papers refused to allow him space on the subject, and united in defence of the publishers of the book, and Professor Thompson himself has probably by this time seen his mistake.

Of the book itself there is nothing but praise to be said. Mr. Mottelay is a worker of no mean reputation in this line of work, and his notes are always interesting and instructive. The translation seems to have been well done, so far as can be judged by comparing a few passages of the original which have appeared with the book. Mr. Mottelay's acquaintance with the vocabulary of the Schoolmen is of great use to him in the work, not that Gilbert was a schoolman, very far from it, but the language of philosophy had only begun to get rid of their marks (if indeed it is entirely free to this day).

On reading the book, we are struck with the sturdy self-confidence of the man, Gilbert of Colchester. He was right, and he knew it. A little bit of this is due possibly to the age he wrote in, but even more, it seems, to the man. Fearless he is in drawing conclusions, and he does not hesitate to dispute the evidence of others when it does not agree with his theory. Yet in one instance only does he appear to have been mistaken, i.e., in his proposed method of finding longitude by the inclination of the compass, which he proposed under the idea that the inclination was constant.

A few extracts from the work will give a good idea of the man and his work.

Before doing so, we may mention the fact that Lord Bacon thought that Gilbert had carried his theory a little too far, and had said that Gilbert had "endeavored to build a ship out of materials not sufficient to form the rowing-pins of a boat."

Page 2. "But lest the story of the loadstone should be jejune, and too brief, to this one sole property then known were appended certain figments and falsehoods, which in early times no less than nowadays were by precocious sciolists and copyists dealt out to mankind to be swallowed. For example, they asserted that a loadstone rubbed with garlick does not attract iron nor when it is in presence of a diamond. The like of this is found in Pliny and in Ptolemy's "Quadripartitum," and errors have steadily been spread abroad and been accepted — even as evil and noxious plants ever have the most noxious growth — down to our day, being propagated in the writings of many authors, who, to the end that their volumes might grow to the desired bulk, do write and copy all sorts about ever so many things about which they know naught in the light of experience. Such fables about the loadstone even Georgius Agricola, a man that has deserved well indeed of letters, has inserted as truthful history in his books, 'De Natura Fossilium,' putting his trust in others' writings."

Page 102. "In Baptista Porta's opinion there seems to be a mixture of stone and iron, i.e., ferruginous stone, or stony iron. 'The stone,' he says, 'is not changed into iron so as to lose its own nature, nor is the iron merged in the stone, but that it retains its own essence; and while each strives to overcome each, from the struggle results the attraction of the iron. In the mass of the loadstone there is more stone than iron; therefore the iron, lest it should be dependent on (subdued by) the stone, craves the strength and company of iron, to the end that what it cannot procure of itself it may obtain by the help of the other. The loadstone does not attract stones, because it has no need of them; and if one loadstone attracts another, it is not for the sake of the stone, but of the iron shut up in the stone.' As though the iron in a loadstone were a distinct body, and not blended with one another like all other metals in their ores. And it is a height of absurdity to speak of these substances thus confounded together as warring with each other, and quarreling, and calling out from the battle for forces to come to their aid. Now iron itself when

CALENDAR OF SOCIETIES.

Agassiz Scientific Society, Corvallis, Ore.

May 10. — Professor Dumont Lotz, Food Adulterants.

Biological Society, Washington.

May 20. — V. A. Moore, the Distribution of Pathogenic Bacteria in the Upper Air Passages of Domesticated Animals; C. V. Riley, Some Further Notes on Yucca Pollination; B. W. Evermann, The Ichthyologic Features of the Black Hills; W. H. Dall, New Forms of Fossils from the Old Miocene of the Gulf States; C. Hart Merriam, Biology in our Colleges; C. Hart Merriam, Facts of General Biological Interest Resulting from a Study of the Kangaroo Rats.

Geological Society, Washington.

May 24. — Whitman Cross, On the Occurrence and Characteristics of Laccolitic Rocks; Walter H. Weed, The Northern Peaks of the Crazy Mountains, Montana.

INDEX TO VOLUME XVIII OF SCIENCE

is in preparation, and will be issued at an early date.

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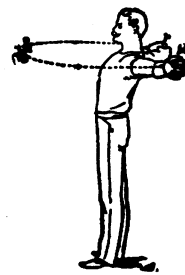
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touched with loadstone seizes iron with not less force than loadstone itself. These fights, seditions, conspiracies, in a stone, as though it were nursing quarrels as an occasion for calling in auxiliary forces, are the maunderings of a babbling hag, rather than the devices of an accomplished prestigator."

So much for his attacks on the older philosophy. As an example of his own reasoning, we may give the following: "What is it that produces this movement? (speaking of the attraction of electrified bodies). The body itself circumscribed by its contour? Or is it something imperceptible for us, flowing out of the substance into the ambient air? And, if it is an effluvium, does the effluvium set the air in current, and is the current then followed by the bodies? Or is it the bodies themselves that are directly drawn up? But, if the amber attracts the body itself, then suppose the body itself is clean and free from adhesions, what need is there of friction? Nor does the force come from the lustre proceeding from the rubbed and polished electric, for the vincentina, the diamond, and pure glass attract when they are rough, but not so strongly nor so readily; because they are not so readily cleaned from the extraneous moisture settled on the surface, nor are they subjected all over to such an equal degree of friction as to be resolved into effluvia. Nor does the sun, with its shining and its rays, which are of vast importance in nature, attract bodies thus, and yet the common run of philosophers think that liquids are attracted by the sun, whereas only the denser humors are resolved into rarer, (and) into vapor and air; and thus, through the motion given them by diffusion, they ascend to the upper regions, or, being attenuated exhalations, they are lifted by the heavier air. Neither does it seem that the electric attraction is, by the effluvia, rarefying the air so that the bodies, impelled by the denser air, move towards the source of rarefaction. If that were so, then hot bodies and flaming bodies would attract other bodies, but no lightest straw, no rotating pointer is drawn toward a flame. If there is afflux and appulsion of air, how can a minute diamond, the size of a chick-pea, pull to itself so much

air as to sweep in a corpuscle of relatively considerable length, the air being pulled toward the diamond only from round a small part of one or other end? Beside, the attracting body must move more slowly or stand still before coming into contact, especially if the attracting body be a broad flat piece of amber, on account of the heaping-up of air on the surface, and its rebounding after collision. And if the effluvia go out rare and return dense, as with vapors, then the body would begin to move towards the electric a little after the beginning of the application, yet when rubbed electrics are suddenly applied to a versorium, instantly the pointer turns, and the nearer it is to the electric, the quicker is the attraction. . . . In addition to the attraction of bodies, electrics hold them for a considerable time, hence it is probable that amber exhales something peculiar which attracts the bodies themselves, and not the air. It plainly attracts the body itself in the case of a spherical drop of water standing on a dry surface; for a piece of amber held at a suitable distance pulls towards itself the nearest particles and draws them into a cone, were they drawn by the air the whole drop would come toward the amber."

Page 273. "The variation in the Indian Ocean all the way to Goa and the Moluccas is noted by the Portuguese, but they are mistaken in many points, for they follow the first observers who set down the variations for sundry places, ascertained by the use of unfit instruments, or by inaccurate observations, or by conjecture. Thus in the island of Brandô they make the compass vary 22 degrees to the northwest. Now, in no region, in no place on the earth that has not a higher latitude than that, is the variation so much as 22 degrees; in fact the variation on the island is trifling, so when they say that in Mozambique the compass varies to the northwest one point, they are in error, even though the compass they use be that of Portugal, for without a doubt the needle varies in Mozambique to the southwest one-quarter of a point or more."

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R. A. F.

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The undersigned has skins of Pennsylvania and New Jersey birds, as well as other natural history specimens: which he wishes to exchange for marine, fresh water, and earthworms of the South and West. Correspondence with collectors desired. J. Percy Moore, School of Biology, University of Pennsylvania, Philadelphia.

For sale or exchange.—I have a Caligraph typewriter (No. 2) in perfect order and nearly new. It is in a heavy leather, plush-lined office case, the whole costing me about \$100. I desire to obtain for it, either by sale or exchange, a new No. 5 "Kodak" camera, with six double feather-weight plate-holders and the latest pattern of their tripod. The lens and pneumatic time-shutter must also be the same as those now sold with the last No. 5 Kodak. The price of what I desire in exchange is \$78. Address, for particulars, P. O. Box 314, Takoma, District of Columbia.

For sale.—An Abbe binocular eye-piece for the microscope. Alfred C. Stokes, 527 Monmouth St., Trenton, N. J.

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Wants.

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