

as the station possesses—which are not, as yet, extensive—will be gladly placed at the service of visiting naturalists without charge, but microscopes can not usually be supplied. It should be understood that at present the station is equipped and manned solely with reference to the survey. Any one who may contemplate accepting the invitation here extended should communicate with the Director at the University of California, Berkeley, California. The resident naturalist for the present year is Mr. B. M. Davis whose address is Point Loma, San Diego, California; and for special information relative to materials available for study at particular times, living facilities, etc., he should be communicated with.

The following are among the species of animals that may be had at any time, at certain seasons of the year, or by special efforts in collecting:

Ceratium, several species; *Thalassicolla* and other spumularia; *Acanthometron* and other Acantharia; several sponges, species undetermined; *Tubularia crocea*, *Corymorpha palma*, *Campanularia æstualis*, *Sertularia desmoides*; of medusæ: *Obelia* sp., *Pelagia* sp.; *Sphæronectes köllikeri*; *Renilla amythystina*, *Virgularia* sp., *Cerianthus* sp., *Edwardsia* sp., *Sagartia pedrensis*, *Epiactis prolifera*, *Anthopleura californica*; *Toxopneustres* sp., *Strongylocentrotus purpuratus*, *Lovenia cordformis*, *Echinarachnius excentricus*, *Asterias capitata*, *Asterina miniata*, *Phataria* sp.; *Ascopodaria* sp., *Bowerbankia* sp., *Crisia* sp., *Scrupocellaria* sp.; several opisthobranchs; *Bulla mebulosa*, *Monocerus* sp., *Cerostoma* sp., *Chiton conspicua*, *Pectin æquisulcatus* and *monotimeris*, *Octopus punctatus*; *Calanus finmarchicus*, *Eucalanus attenuatus*, *Acartia tonsa* and other species, *Oithona*, several species, *Phronima* sp., *Paraphronima* sp., *Euphausia splendens*, *Callianassa longmana*, *Alpheus clamator* and other species, several hermit crabs; *Ciona intestinalis*, *Perophora* sp., *Pyrosoma atlanticum*, *Salpa runcinata-fusiformis*, *Cyclosalpa affinis*, *Doliolum tritonis*, *Oikopleura* sp., *Dolichoglossus pusillus*, *Tornaria ritteri*; *Branchiostoma californiense*, *Polisto-*

trema stouti, *Gyropleurodus francisci*, *Galeus californicus*, *Urolophus halleri*, *Fundulus parvipinnis*, *Typhlogobius californiensis*.

WM. E. RITTER,
Director.

CORONADO, CALIF.,
July 7, 1904. —

PROFESSOR TAGUCHI'S BRAIN-WEIGHT.

TO THE EDITOR OF SCIENCE: In response to a further inquiry concerning the brain of the Japanese anatomist, K. Taguchi, the following communication was received from K. Yamagawa, president of the Imperial University of Tokio:

"In reply to your favor of May 9, 1904, I am sorry to say that the figure for the weight of brain in the last information, sent to you through Miss Gardener about the post-mortem examination of the late Professor Taguchi, was found to be wrong. It seems to me that the weight of his brain was put down as 1,920 instead of 1,520, which is the right figure, by mistake when it was copied from the original record. I apologize, etc.

K. YAMAGAWA."

The corrected figure places Taguchi's brain in the thirtieth place among those of men notable in the professions, arts and sciences, instead of second place, as first reported.

EDW. ANTHONY SPITZKA.

July 28, 1904.

SPECIAL ARTICLES.

VARIE AUCTORITATIS.

A PLEA for exactitude in citation of the older writers on natural history is, perhaps, less likely to be sustained than in the case of modern authors, on the ground of their being antiquated and of minor importance. Nevertheless, from an historical and esthetic standpoint, precision of reference is as desirable in the one case as in the other. It is of course less irksome and time-consuming to accept some standard authority in lieu of verifying original sources; but errors once introduced into general compilations are apt to persist indefinitely. Instances of the latter sort are to be found in nearly all compendiums of the

history of natural science, particularly those of geology and paleontology.

A few cases invite attention. One fresh at hand is furnished by Dr. S. F. Emmons's interesting address on 'Theories of Ore Deposition historically considered.*' It is remarked in one place that 'as early as Origenes, 600 B. C., the observed occurrence in the rocks of casts of shells and plants was attributed to periodical floodings of the land.' Now there was one Origen, an illustrious Alexandrian theologian and founder of the science of the church; but of an Origenes who lived in the fifth century B. C., history is silent. From the date assigned by Dr. Emmons it is probable that he intended to indicate Xenophanes, who commented on Sicilian fossils; or if he really had in mind one of the early Christian writers who mention them, the names of Pomponius Mela and Tertullian suggest themselves. But to make of Origen a plagiarist of Greek philosophy *malgré lui* is uncharitable, considering his defense of its study. Dr. Emmons also credits de Saussure with being the originator of the term geology. It was, however, proposed much earlier, Richard de Bury having introduced it as a special term, '*geologia*, or the *earthly* science,' in chapter xi. of his *Philobiblon*,† written one year before his death in 1345.

For another example one may refer to Dr. O. P. Hay's recent paper on Cretaceous fishes from Mt. Lebanon,‡ in which he quotes an English authority (Mr. J. W. Davis) as saying that these remains were first mentioned by Herodotus. But inquiry is made of the father of geography in vain for confirmation of this statement, though a passage indeed occurs in Book ii. relating to fossil shells of Africa. Apropos of Lebanon fishes, we notice that Dr. Hay's authority extracts an article from a Parisian newspaper relating to their discovery

* *Bull. Geol. Soc. America*, Vol. XV. (1904), pp. 1-28.

† Mr. E. C. Thomas' translation is now accessible in the initial volume of the King's Classics (1903).

‡ *Amer. Nat.*, Vol. XXXVII. (1903), pp. 685-695; also *Bull. Amer. Museum Nat. Hist.*, Vol. XIX. (1903), pp. 395-452.

by the last of the Crusaders; but no mention is made of the famous chronicles of Saint-Louis, by Sire de Joinville, in which this narrative occurs.* That Voltaire was familiar with the latter can scarcely be doubted, and who knows whether it may not have been father to his sarcastic suggestion that fossils were probably nothing but the *disjectamenta* of pilgrims returning from the Holy Land?

But for the context, we might not be able to recognize under Professor Marsh's appellation of 'Albert the Great'† a celebrated scholastic philosopher of the thirteenth century, whose proper name was Albert von Bollstädt. Admirers of his learning accorded him the title of *Doctor Universalis*, envious ones called him the 'Ape of Aristotle,' though such contempt was unmerited. The name by which he is best known, Albertus Magnus, has been supposed to mean simply Albert the German. Dante refers to him, for instance (*Conv.* iii., v. 113), as 'Alberto della Magna,' la Magna—or l'Amagna—being Germany, whence also the modern Gallic equivalent. The patronymic of a well-known sixteenth century writer, George Bauer, or, in its more usual Latinized form, Agricola, has also been a source of some confusion. Even so careful a writer as L. F. Ward, for example, refers to him in his 'Sketch of Paleobotany' as Georgius Bauer Agricola.

An anachronism occurs in the statements of the last-named author, and also in those made by Marsh, Lyell and other historians of geology, regarding theories of continental subsidence attributed by them to Alexander ab Alexandro. A pre-Copernican writer, he was naturally a stranger to the heliocentric cosmogony, and it is not surprising that his 'Dies Geniales' is barren of speculations such as have been claimed for it, especially by Brocchi. It is also impossible to verify the latter's assertion that fossils are mentioned in Boccaccio's *Filocolo*, and the allusion to fossil plants

* 'Sayette' of de Joinville, the scene of King Louis' discovery, and where news of his mother's death reached him, is the old French name for Sidon.

† 'History and Methods of Paleontological Discovery' (1879), p. 7.

in 'l'Acerba,' by Cecco d'Ascoli, is of the vaguest description.

A curious misquotation occurs in the bibliography of the older literature contained in Agassiz's 'Poissons Fossiles,' where 'Les Observations sur l'histoire naturelle, sur la physique,' etc., 'an anonymous work in six volumes,' is credited to Gauthier. The title obviously refers to the journal conducted for twenty years under that name by the Abbé Rozier, and continued after 1794 as the *Journal de Physique*. The author of the alleged anonymous communication on Bolca fishes cited by Agassiz at the end of his bibliography was the celebrated geologist Albert Fortis, his correspondence with Testa having been collected and published in book form by Count Gazola in 1793 and 1794.

To devote attention to minor minutæ of this nature will no doubt be esteemed by many as 'time elaborately thrown away.' But it must be conceded that accuracy even in smaller matters possesses an intrinsic virtue, and is as well worth striving for as are the third and fourth decimal places in mathematics, *Cui bono* may not be translated into the parlance of ideal scholarship.

C. R. EASTMAN.

HARVARD UNIVERSITY,
CAMBRIDGE, MASS.

BOTANICAL NOTES.

ECOLOGICAL PLANT STUDIES.

PROFESSOR ATKINSON has recently issued a pamphlet of sixty-seven pages giving the outlines of a course of twenty-one lectures on the relation of plants to environment, delivered in the Summer School of Cornell University in 1903 and 1904. Contrary to the views of some 'ecologists,' the professor devotes a good deal of time (nine lectures) to a study of the structure of plants, under such headings as the organization of the plant, plant tissues, types of stems, foliage-leaves, root, flower-shoot, pollination, fruit and distribution, before taking up ecology proper. Under the latter appear such titles as ecological factors, vegetation types, plant migration, plant formations, forest societies, etc. While these lectures are merely outlined, it is not difficult to

see that we have here a rational and logical presentation of this much-abused and generally badly taught subject.

From Professor Clements we have in the table of contents of an ecological work by him, now in press, a similar outline of another phase of the subject. This work (which will cover about 300 pages) is to be devoted to research methods in ecology, treated under four heads or chapters: (1) foundations of ecology, (2) the habitat, (3) the plant formation and (4) experimental ecology. Under the first are discussed the need of and the essentials of a system in ecology; under the second, the factors (water content, humidity, light, temperature, wind, precipitation, air-pressure, soil, etc.) and their measurement by instruments. The third chapter deals with the methods of research, the quadrat, transect, migration circle, photography, cartography and herbaria. In the fourth chapter, devoted to experimental ecology, the purpose and the scope are set forth, followed by a discussion of methods of field experiment, control experiments, comparative morphology and competition cultures. A book of this kind should go far towards correcting the looseness which has characterized too much of the work in ecology. It is to be brought out by the botanical seminar of the University of Nebraska.

ANIMALS IN THE PLANT KINGDOM.

No doubt many a botanist has felt that quite too many animal-like organisms have been included in the plant kingdom in recent years. The slime molds were originally included upon their superficial resemblance to the puff-balls, at a time when anything like a critical study of the biology of the organisms was unknown. De Bary long ago placed the slime molds 'outside the limits of the vegetable kingdom,' yet they are persistently retained in botanical manuals, and systems of plants. Thus they still hold their place in Engler's 'Syllabus der Pflanzenfamilien' in spite of his statement—'kein Anschluss an höhere Pflanzen.' Scientific consistency certainly demands their removal from the plant system. With them, also, should be cast out some much more recent animal intruders—the