

short sketch of his life precedes Prof. Oersted's memoir, the substance of which had been already published in a scientific journal of Copenhagen.

The principal novel feature in Prof. Oersted's arrangement of the numerous species of oak—a genus including about 160 species in the Old World, and 120 in the New,—consists in the importance, for classificatory purposes, attributed to the form of the style and stigmatic surface. Upon these organs the sub-genera are chiefly based. We have had no opportunity of testing these characters, which it is unfortunate were not investigated by M. Alph. de Candolle, when preparing the *Cupulifera* for the "Prodromus," published in 1864. The omission of a Species-Index to the genus *Quercus* in the "Prodromus," makes it very tedious to ascertain how many of Liebmann's species are included in that work. Let us express the hope that in the final volume of this great work, yet to be published, we may be spared this annoyance in the case of the larger genera. D.O.

LETTERS TO THE EDITOR

[The Editor does not hold himself responsible for opinions expressed by his Correspondents. No notice is taken of anonymous communications.]

Prismatic Structure in Ice

OF late years attention has not unfrequently been called to this singular structure in ice, of which a number of instances are collected by the Rev. G. F. Browne, in his valuable book on the "Ice Caves of France and Switzerland" (chap. xviii.) In August, 1865, I had the opportunity of examining in his company some of these curious caverns; and since then have been on the look out for other instances of this structure. In January, 1867, I found it very well exhibited on a pond in Cambridge, an account of which may be found in the Proceedings of the Cambridge Philosophical Society, Part IV. and (more briefly) in my "Alpine Regions," pp. 94, 334. I again saw it last summer in a block of river or lake ice, which was brought on board a steamer at Christiansand (Norway) from an ice house. This block was about 8 inches thick. The prisms were rather irregular in form, the area of their ends varying from about a quarter of a square inch to one square inch, the sides being usually five or six in number. The prisms were at right angles to the planes of freezing, which were well marked.

These two were the only cases in which, from the first date until a few months back, I had succeeded in finding this prismatic structure clearly exhibited, but the present winter has proved very favourable to its development. I have seen it several times; in fact, after every severe frost; and under circumstances which have led me to suspect that I have often overlooked it on former occasions. In almost all the cases which I have lately noticed, the prisms were small, the area of their ends being generally about one-sixteenth of an inch. Hence, frequently the structure could not be detected without very close examination; as it was masked on the surface exposed to the air by the usual layer of disintegrating ice; and even when the under and unmelted side of a slab was examined, it had to be partly dried, before the delicate reticulation produced by the jointed structure could be observed by allowing the light to fall obliquely on it. The simplest mode of detecting it was to break the slab across, when instead of the usual conchoidal fracture of ice, a columnar structure was distinctly shown. Not unfrequently the first hint of its presence was given by the presence of a number of small holes in the under side of the slab. These, of course, were formed by water, which had trickled down from the thawing upper surface between the angles of the prisms, and had thus drilled itself a small tube. In one case—during a frost after a partial thaw—I found the structure mapped out, as it were, on the surface of the ice, but quite obliterated internally, except where some vertical lines of air bubbles marked the position of a tube or wider joint. In one of the cases above described, I totally obliterated the internal columnar structure by placing the ice in a freezing bath. I have often looked for, but never found it in glacier ice. I am therefore inclined to think that, though the large and strongly marked prisms are of comparatively rare occurrence, this finer structure may be found, if looked for, in every tolerably gradual thaw. Repeated

examination has also convinced me that the structure has no immediate connexion with the hexagonal form of the ice crystals; the angles of the prisms are too irregular and variable to admit of this explanation. Their sides, however, so far as I have seen, are always at right angles to the surface of freezing, and are best developed when the temperature of the neighbouring air for a considerable time does not differ much from 32° Fahr. I therefore consider the structure to be produced by contraction in the ice as it approaches the melting point, and so to be analogous to the columnar structure in basalt, though due to a rise instead of to a fall in temperature. St. John's College, Cambridge T. G. BONNEY

A Probable Cause of Malaria

SINCE men of science, such as Dr. Carpenter, Jeffreys, and Wyville Thomson, have proved by repeated and well-conducted experiments that there is life in the ocean,* that there are moving, sensible, living creatures, of nearly every description, in its deepest recesses, it seems rather an idle question, "de lanâ caprinâ," which has been raised lately about their manner of living there; how they get their food where no plant of any description has ever grown; whether they take in their food by *intussusception* with a mouth, or by that kind of oozing-in-and-out styled endosmose and exosmose,† or by any other kind of absorption, suiting the glair-like sarcoptic stuff which the oozone of old was made up of, and which is still at work in building, roll upon roll, the myriads and myriads of microscopic *Globigerina*.‡ Yet these seemingly idle questions when treated by men of science and of experience may become the source of discoveries far greater and more important perhaps than they anticipate.

Thus it is that the indefatigable Italian diatomist, Count Castracane, after having proved the very abundant growth of his puny *protégés* in the brackish waters of the *Maremme* and *Paludi pontine*, did not esteem it a bootless task to search for what they live upon, and also why they suddenly die away nearly all at once.

Such is the subject of a recent memoir which he has lately presented to the Roman Academy *Dei Lincei*, of which he is one of the most active members. After insisting upon the necessity of mastering the subject more thoroughly before attempting any new revision or classification of the diatoms, showing the system he had followed himself, and the results he had obtained, especially during the last year in making the round of the Istrian peninsula, taking his headquarters at Trieste and Pirano most particularly, where he gathered a rich harvest of very important materials for future study, he goes on to state that nothing is so fatal to the life of marine or even brackish water diatoms as a sprinkling of pure fresh water. This he proved by repeated and carefully performed experiments. From this fact he comes to the very probable conclusion that the sudden dying away of myriads of diatoms, besides, perhaps, myriads of other living creatures, during the rainy season might be, if not the only, at least one of the most efficient causes of *malaria*.

Before concluding this letter I wish to call the attention of the British scientific public to another Italian naturalist, M. A. Acorti, Professor of Natural History at the R. Gymnasium of Trieste, who has made the Adriatic a special subject of his studies, and is now engaged in the publication of the diatoms of that sea. "The sketching of his figures," says Count Castracane, "is of such beauty that I never saw anything better of the kind, and I hope they will be soon published that I may purchase them." J. GAGLIARDI

* We have now plenty of living Protozoa, Radiata, Annulosa, Mollusca, and even of Vertebrata *abyssicola*.

† On account of the porous substance, which is a speciality of those wonderful beings, Johnstone has classed them under the significant name of *Amorphosoa porifera*.

‡ After the late remarks on this subject by Prof. Wyville Thomson in NATURE, it is curious to see the manner in which a Fellow of the Royal Society of the last century (John Ray) treated "the various ways of extracting the nutritious juice out of the aliment in several kinds of creatures. For oviparous quadrupeds," he says, "as chameleons, lizards, frogs, as also in all sorts of serpents" (there were, of course, no protozoa known in his time), "there is no mastication or comminution of the meat either in mouth or stomach; but as they swallow insects or other animals whole, so they void their skins unbroken, having a heat or spirits, powerful enough to extract the juice they have need of, without breaking that which contains it: as the Parisian Academists tell us. I" (subjoins Ray candidly) "cannot myself warrant the truth of the observation in all. I have taken two entire adult mice out of the stomach of an adder, whose neck was not bigger than my little finger. These creatures, I say, draw out the juice of what they swallow without any comminution, or so much as breaking the skin; even as it is seen that the juice of grapes is drawn as well from the rape (cluster), where they remain whole, as from the vat, where they are bruised, to borrow the Parisian philosopher's similitude."