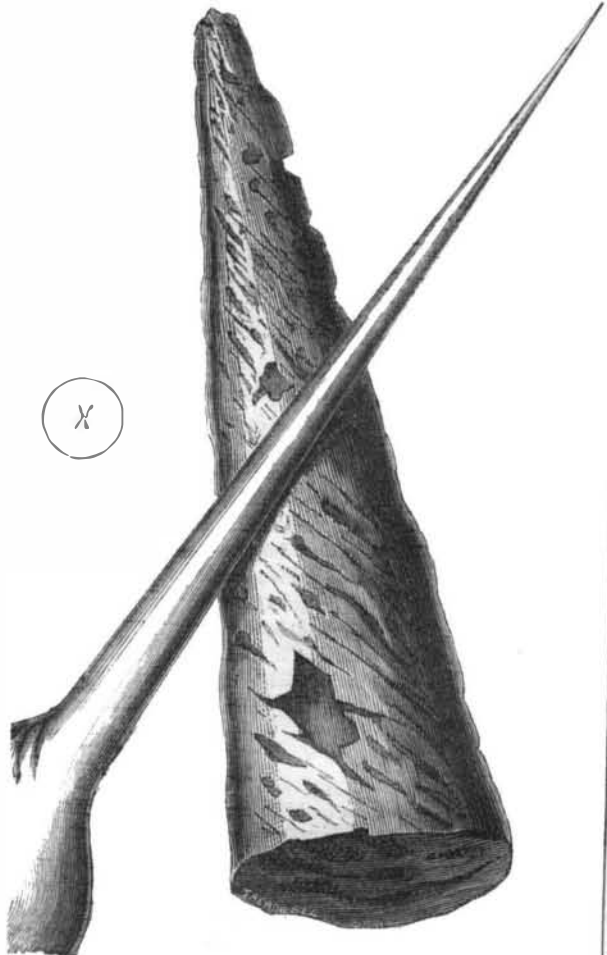


NATURE AND ART.

Conversing recently on the inborn genius of all true artists, and the futility of attempting to supply Divine gifts by a forced educational training, an eminent sculptor of our acquaintance remarked that he had really learned very little from his instructors, in fact, that he never had a master.



A fine cambric needle and the sting of a wasp, under a microscope.

We replied that we could name his master; and when he surprised, asked the name, we said: "Nature." He at once agreed and acknowledged that the artist is always learning in Nature's school. Painters give the same testimony, and admit that, for instance, the highest achievement of the greatest landscape painter falls far short of the reality. The strongest proof, however, of Nature's superiority is found in the accuracy of her handiwork. If we critically examine a human production, and compare it with the result of Nature's mysterious manipulation, we are amazed beyond conception. Take, for instance, the point of the finest cambric needle, and place it under the microscope with the sting of a bee or wasp: the apparently polished and pointed needle will then look like a rough, blunt bar, which, in fact, it really is; but the deficiency of our vision prevents us discovering this, while by help of the microscope we become able to perceive the truth. What, however, does this powerful aid to our vision reveal in regard to Nature's similarly shaped product, the sting of the wasp or bee? It shows us that it is smooth and uniform in its tapering dimensions, and has a point so fine that the highest power of the instrument does not cause it to appear blunt, as is the case with the needle. In fact, it is the most perfect apparatus for the purpose for which it is intended, while our needles are only attempts to produce a sharp point, which the microscope shows us we cannot do. We give here an engraving of the appearance, in the microscope, of the two objects named; the drawing is taken from an ancient work of Lieberkühn, published in Germany in 1760.

The comparison of these

two objects is only a single illustration of a general fact, which the investigator of Nature observes everywhere. The anatomist is continually surprised and fascinated by the structure of the animal under investigation; he finds, not only that every part is exquisitely adapted to its purpose, but that this fitness is carried into the minutest details, which the human eye can only unravel when aided by the powerful modern microscope.

THE DEVIL FISH.

There has always been a certain fascination about the marine monsters of the old mythologies; but modern researches in natural history have played havoc with the authenticity of many of these legends, and the *See Polyp, octopus*, or devil fish, is almost the only survivor of the world of the prodigies who choked Laocoon and would have devoured Andromeda. Greek writers astounded their readers with accounts of *octopi* large enough to devour ships, and these and many other exaggerated stories have caused many persons to deny the existence of this animal, the rarity of which is a further excuse for incredulity. But the large aquaria erected lately at Hamburgh, Germany, and Brighton, England, have each obtained a specimen; and the habits and configuration of the creature can now be easily studied.

The illustration here presented to our readers was drawn from life from the specimen at Hamburgh, by Herr Karl Stelling, for the *Illustrirte Zeitung*, from which we produce it. The corporal economy of the creature is most peculiar. The body consists of two parts, one a bag, containing the stomach, etc., provided with two eyes, and the other a nucleus and eight arms, each tapering to a point. On the under side of these are seen orifices by which the fish can attach itself, by suction, to any living object, which would have little chance of escape. By rapidly extending and closing the arms, it can rise in the water with great force and even throw itself into a boat. In repose, it curls itself up and remains almost motionless in a corner; but its ferocity is to be seen in its incessant watchfulness and the constant state of nervous activity in its long sinuous appendages.

The species shown in our illustration exists in the Atlantic and Indian Oceans and the Mediterranean and Red Seas. The ordinary size measures two feet from tip to tip of the

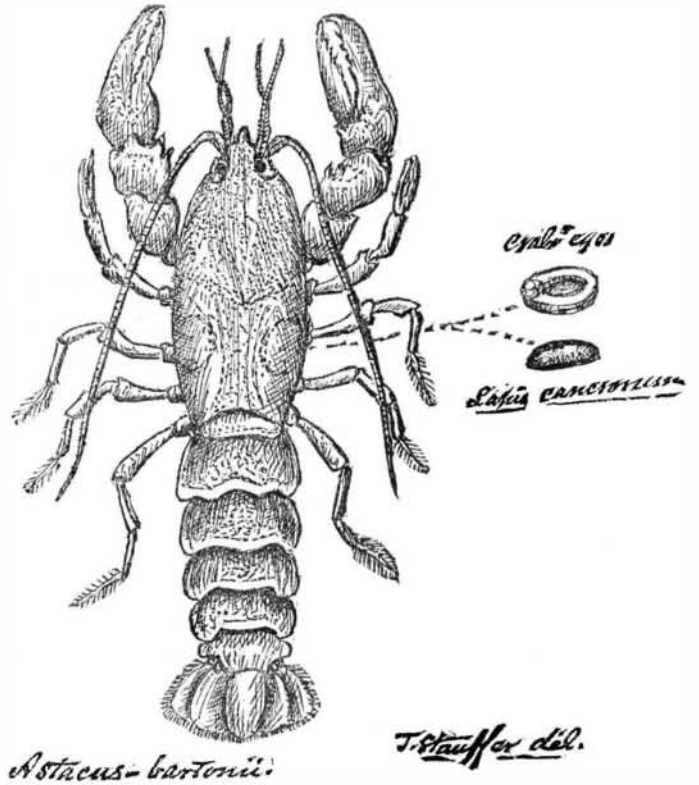
arms, and there is no reason to believe that any larger than five feet now exist; but historians, otherwise credible, report the capture of some which measured forty feet.

Correspondence.

[For the SCIENTIFIC AMERICAN.]

Fresh Water Crawfish or Crayfish.

I was surprised, on examination, to find no mention made of our common crayfish in the works on crustacea in my possession. I have known this creature from youth up, and of



*Astacus bartonii*

later years as the *astacus bartonii*—fresh water lobster. Sanborn Tenney, A. M., in his "Manual of Zoology for Schools, Scholars, and the General Reader," New York, 1865, page 463 (subject, *Macrurans*, the long-tailed decapods), simply mentions that the "*homarus* contains the American lobster, *h. americanus* (De Kay), which is from one to two feet long." With this meager information, he passes to the

*gasturans* or stomapods.

The accompanying figure represents the full size of our common species found in the streams, and I have seen them in the bottom of springs, in Lancaster county, Pa., and I presume they are equally common elsewhere.

My attention was called to this species by Squire Wright, of the Lancaster *Intelligencer*, who gave me two beautiful pearl-white, hard substances, flat on one side, with a central slightly depressed disk, the other side slightly convex, fully five sixteenths of an inch in diameter, of a circular form, smooth and hard as ivory or pearl, nearly one eighth of an inch in thickness. He informed me that he took these out of the body of a crayfish found crawling (and apparently sick) on the banks of the Conestoga, near Lancaster. Having been a druggist for over twenty years, I recognized these bodies, once in vogue as a medicine, and known to me as crabs' eyes, but why or wherefore, I knew not, as a druggist. However, as a naturalist of later years, I knew their source, so far as it regarded foreign species, but it was new to me to find they were so large and fully developed in our native species. Linnæus classified the crustaceans among the insects; Cuvier and others clearly showed that they were as distinct from insects as a whale is from a fish, properly speaking. The crabs' eyes, called *oculi cancerorum* or *lapides cancerorum*, were formerly used in medi-



THE DEVIL FISH IN THE HAMBURGH AQUARIUM.