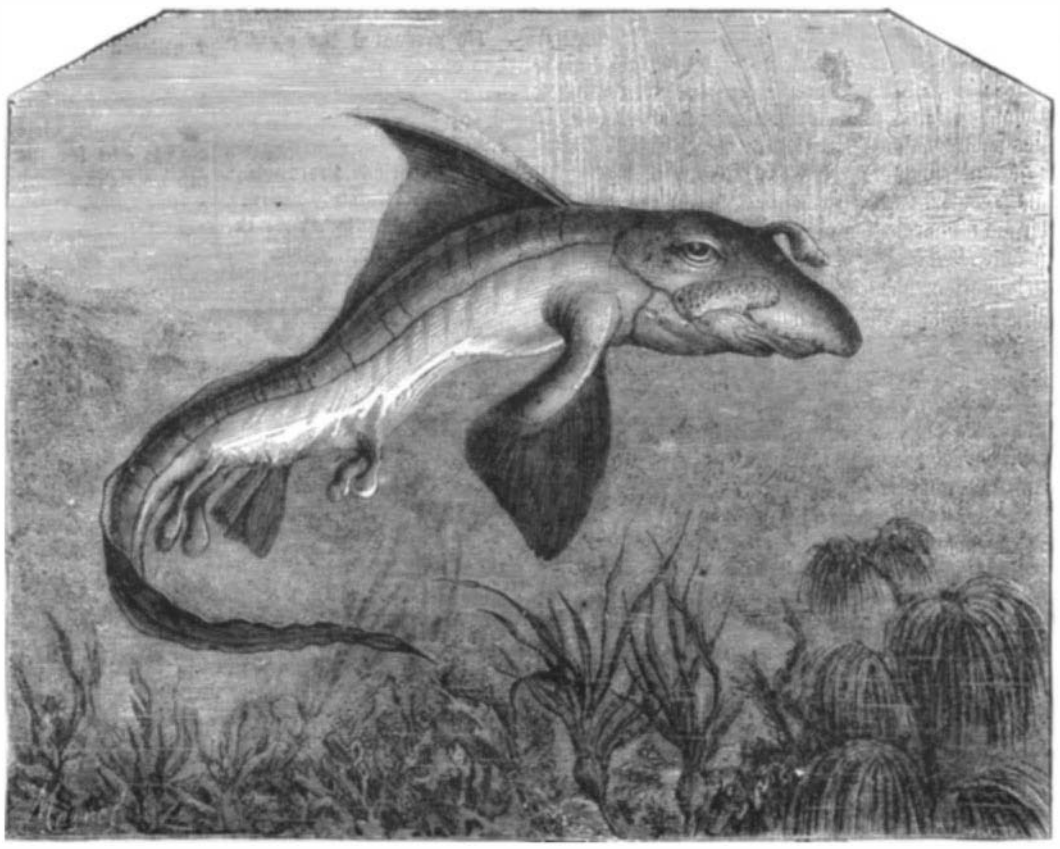
THE SEA CAT.

"Sea cat" is the popular name bestowed on certain cartilaginous fishes of the order *Holocephala* because of a peculiarity of their eyes, which have a greenish pupil, surrounded by a white iris, and which have the property of shining, especially at night, like the eyes of the cat. These fishes seem to form a group intermediate between sturgeons and sharks.

Nothing is stranger and more ugly in appearance than one of these fishes, especially the species represented in the engraving, and which is well deserving of its scientific name, *Chimæra monstrosa*. It is from three to four feet long, and its body, from the base of its enormous head, gradually diminishes in size and ends in a long slender tail like that of some reptile. Its skin is smooth, elastic, and flabby, of a silvery white, and covered with scales that are so minute that they are scarcely perceptible to the touch. It is thrown into folds and sinuous wrinkles all along the body and on the top of the head, so that it appears to be too large for the body that it envelops. Under the mouth, and on the lateral faces of the snout, it is perforated with numerous holes, from which issues a glutinous mucus. The pectoral fins are supported on a sort of thick fleshy arm. Before and behind the ventrals hang two appendages resembling small paws. Between the eyes there is a large fleshy club-shaped process, with serrated edge, and ending in a spine, which somewhat resembles a crown, and has given rise to one of the popular names of the fish—"king of the herrings." What makes the sea cat still more hideous is its quick and odd movements, bending and twisting, as it does, in all possible directions. Besides this, the different parts of its snout are constantly in motion, so that it has the appearance of making grimaces, which have been compared to those made by monkeys. There are two kinds of this fish—the northern sea cat (represented in the engraving) which is found in the North Sea and Northern Atlantic, and the southern sea cat (*Callorhyncus australis*), inhabiting the southern seas. The first of these pursues shoals of herrings and other migratory fish, and also feeds on jelly fishes and crustaceans. Its flesh is tough, but the Norwegians use the eggs (which, as in the sharks, are inclosed in a leathery capsule) as food, and employ the oil of the liver in diseases of the eyes and for wounds.

In the southern sea cat the snout ends in a gristly appendage, bent backward at the end so as to resemble a hoe; the anterior dorsal is very far forward over the pectorals; the second over the ventrals and reaching to the caudal, and the tail does not end in a filament. The singular shape of its snout, which is not unlike that of the tapir, has gained for it the familiar name of "elephant fish." It is about the same size as the northern animal, and is silvery, tinged with yellowish brown.

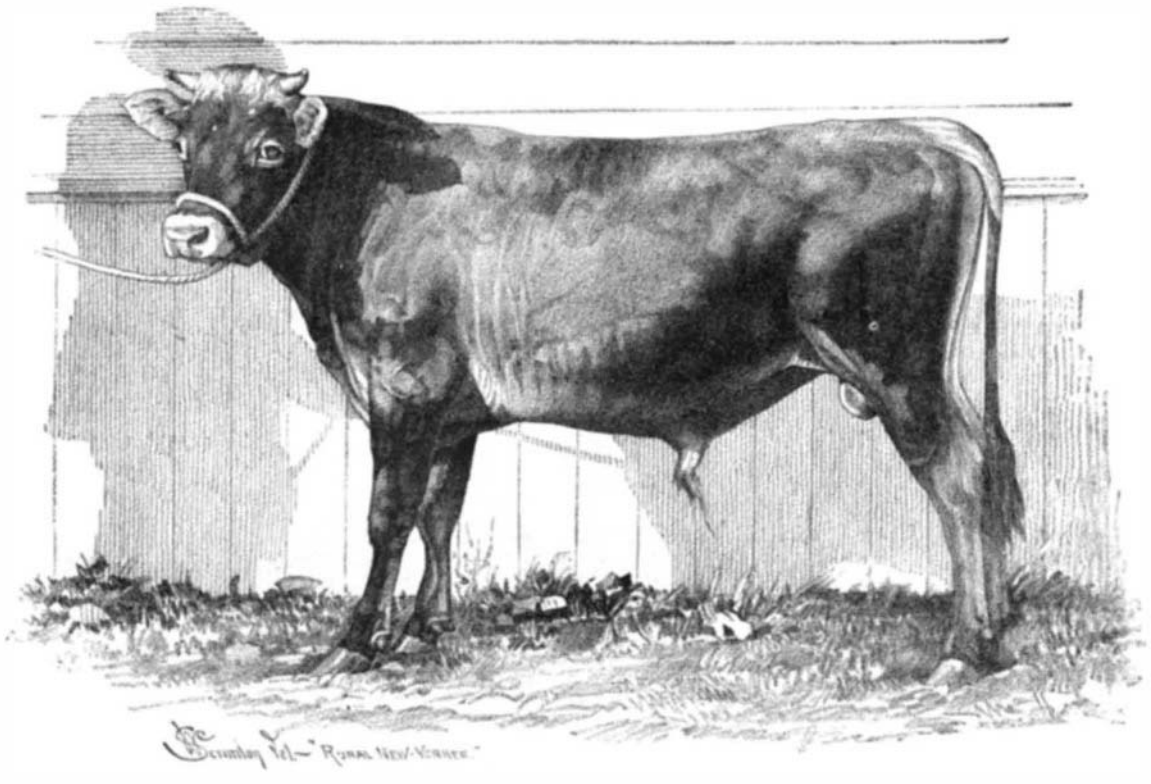


THE SEA CAT

JERSEY BULL DIAVOLO.

This bull was the first prize in the yearling class at the New York State Fair in 1880. It is the property of Hon. Erastus Corning, of Albany.

The engraving, from a photograph taken for the *Rural New Yorker*, at the time of the Fair, and reproduced with great faithfulness, is a very correct portrait of this spirited and beautiful animal. That he is "good enough" goes without saying, for he won the highest honor in a large class. The photograph, as usual, slightly exaggerates the legs, perhaps, but the life-like play of light on the hide, the shadows, the spirited pose of the animal, are excellent, and so well preserved that the picture is a source of pleasure simply as a work of art. Diavolo was sired by Stockwell 3d, the noble bull which won the first prize at the same show in "aged" class, and was imported by Mr. Corning. His dam, Tranquillity, is by the same sire, her dam being Daisy Morton, also imported.



JERSEY BULL DIAVOLO.

Black Sheep of Australia.

Mr. Charles Darwin communicates to *Nature* the following extract of a letter from a Mr. Sanderson, of Chilhurst, which seems to explain the reason for raising and scattering black sheep among flocks of white ones on ranches in Australia. Mr. Sanderson writes: "In the early days, before fences were erected and when shepherds had charge of very large flocks (occasionally 4,000 or 5,000), it was important to have a few sheep easily noticed among the rest; and hence the value of a certain number of black, or partly black sheep, so that colored lambs were then carefully preserved. It was easy to count ten or a dozen such sheep in a flock, and when one was missing it was pretty safe to conclude that a good many had strayed with it, so that the shepherd really kept count of his flock by counting his speckled sheep. As fences were erected the flocks were made smaller, and the necessity for having these spotted sheep passed away. Their wool also being of small value, the practice soon grew of killing them off as lambs, or so young that they had small chance of breeding, and it surprised me how, at the end of my sheep farming experience of about eight years, the percentage of colored lambs produced was so much smaller than at the beginning. As the quantity of colored wool from Australia seems to have much diminished, the above experience would appear to be general."

Filtration and Decolorization.

BY C. G. PFANDER, LONDON.

It consists of dried or baked granulated clay mixed with blood to the proportion of about three of clay to four of blood; sometimes a proportion of vegetable charcoal is added. This mixture is moulded into lumps of convenient form, dried, broken into small pieces, mixed with an equal bulk of granulated clay, and then carbonized in a retort. This material, when screened, constitutes the new filtering material especially adapted for treating sugar, etc. The dust screenings will remove color from solutions of sugar and form a new product.

NATURAL HISTORY NOTES.

The Colors of Flowers.—Hitherto it has been supposed that the colors of flowers were due to so many different materials, each color being a chemical combination having no relation with the others. But now, however, Prof. Schuetzler, in a communication to the Vaudois Society of Natural Sciences, shows that, when the color of a flower is extracted by placing the latter in alcohol, the addition of an acid or alkali will give all the colors that plants exhibit. Flowers of pæony, for example, give when put into alcohol a violet-red liquid. If to this solution binoxalate of potassa ("salt of sorrel") be added the color becomes pure red. Soda causes it to change, according to quantity used, to violet, blue, or green. In the latter case the green liquid appears red by transmitted light, just as a solution of chlorophyl (the green coloring matter of leaves) does. The sepals of pæony, which are green bordered with red, become entirely red when put into a solution of binoxalate of potassa. These changes of color, which may be obtained at will, may well be produced in plants by the same causes, since in all plants there are always acid or alkaline matters. Moreover, it is quite certain that the change from green to red observed in leaves in autumn is due to the action of the tannin which they contain on the chlorophyl. Consequently, without wishing to affirm it absolutely, Prof. Schuetzler believes that *a priori* there is in all plants but one coloring matter—chlorophyl—which, becoming modified by certain agents, gives all the tints that flowers and leaves exhibit. As for white flowers, it is well known that their want of color is due to the fact that their cells are filled with a colorless fluid, and that their opacity proceeds from the air contained in the interspaces.

When such flowers are placed under the receiver of an air-pump they are seen to lose their opacity and become transparent in measure as the air is exhausted.

Relation of Fish to the Lime in Water.—In a recent paper by Herr Weith, entitled "Chemical Investigation of Swiss Waters with Reference to their Fauna," he gives a large number of quantitative analyses of the water of Swiss lakes, rivers, and streams, with regard to the proportion of lime and earthy substances generally contained in them. In this research a very interesting relation appeared between the quantity of fish and the amount of lime contained in the water. The result arrived at was that, in general, of the various bodies of water under otherwise similar conditions, those which contain the most *dissolved carbonate of lime* also contain the most fish. The explanation of this fact is also given by the author. The simple carbonate of lime is found largely distributed on the bottom and banks of lakes, etc., but it is insoluble, and therefore cannot be taken up by the water. If, however, the water contains carbonic acid in abundance (which of course is produced by the respiration of animals) this transforms the carbonate into the bicarbonate, which is readily soluble in water. The correctness of this view was proved by the author by experiment. By a sure chemical analysis, then, one may with considerable probability form a prognosis as to the quantity of fish in a body of water, to say what its chemical composition was, and to find his estimate remarkably verified. An important practical consequence would be deducible from these facts, if further experiments should confirm the supposition that not only do