

# THE NATURALIST.

## THE BOULOGNE AQUARIUM.

**S**IR,—Your readers will be interested by some notice of a construction at present going on at Boulogne, which, when complete (as it will be in a couple of months), will certainly be one of the most interesting objects in the place, and will tempt naturalists as well as tourists to stay a few hours at least to see the largest and best arranged aquarium yet imagined. The following particulars are derived, partly from an actual inspection of the works a few days ago, and partly from some notes communicated by the architect and designer of the building.

The aquarium, properly so called, is beneath the level of the sands on which the *établissement* is built, and which it immediately adjoins. A canal, partly of salt water and partly fresh (ingeniously contrived to allow this double arrangement), forms a sort of moat around the whole inclosure. Each canal communicates with a certain number of tanks by means of an irregular opening in rockwork on one side. The tanks are faced with glass on the side opposite this opening, and seen only by the light entering the water through these glass walls from above. The light thus coming in illuminates a covered chamber like a cavern. The animals will either be confined to one tank or allowed to circulate at pleasure, and as by steam-pipes a moderate and uniform warmth can be kept up in part of one of the canals, various kinds of fishes can be housed. The arrangements for the aquarium are thus very convenient and complete, and the water can be kept in continual circulation without difficulty, as the level of the canal is not above extreme high water mark.

In all this, if built in the usual way, there would perhaps be nothing very remarkable. Excellent taste is shown in the subterranean arrangements, which are roomy and even spacious. A small oyster park is to be placed near the entrance, and every convenience for breeding fish as well molluscous animals will be introduced.

But the material made use of, the general style of the building, the introduction of an enormous amount of shelter for the marine animals, and a vast surface for the future inhabitants of the water to be brought here, together with all the details of the affair, are peculiar and interesting.

The building is very large. It is excavated entirely out of loose sea sand to a depth of some 10 feet and more below the general surface, and parts of it are to rise 60 feet above the surface. A spiral staircase will lead to the top. The whole is intended to imitate a rocky fragment of a cliff, penetrated by various passages, and with perfect access to every part. The dimensions involve about two millions of cubic yards. The whole work will be completed absolutely and exclusively in hollow brick and Roman cement. There is not to be a single beam or plank of wood, and not a particle of metal, except, indeed, a little peroxide of iron and salts of copper, used as permanent colouring material. The total cost is not to exceed £4000. It was commenced in February, and is to be ready in July.

When it is considered that there are many wide and perfectly flat arches, a great expanse of terrace, which is all flat roof, and is to be covered more or less with vegetation, two rock-work towers, one 60 feet above the ground, solid enough to bear a number of visitors at a time, and permit water, brought up by concealed pipes, to fall in a cataract, it will be evident that the architect is no ordinary person. The bricks are made according to his plans; they are long square tubes, or nests of such tubes; and his secret, according to his own account, has been taught him by the study of the honeycomb, which he has adapted to his purposes with extraordinary ingenuity.

The colour of all the rock-work, the walls of the canals, the floors and roofs, the stalactites and other ornaments is the pale grey obtained by cementing the sea-sand into a kind of concrete. It is here and there coloured by metallic oxides. Shells and pebbles are left in the indurated sand, which does not differ in appearance from fragments often seen by the seaside accidentally infiltrated by water containing carbonate of lime.

It is to be hoped that the contents will be as interesting and varied as the plan is ingenious. There are fourteen tanks of the largest size, and there will be ample space for all the ordinary inhabitants of aquaria.

D. T. A.

### SALE OF THE LATE R. GORDON CUMMING'S MUSEUM.

THE celebrated museum and diorama of South Africa, recently belonging to the late R. Gordon Cumming, will be sold by auction by Messrs J. C. Stevens on Friday and Saturday next. It is hardly necessary to state that the collection includes a vast number of very magnificent specimens; there are no less than twenty-five skulls of large carnivora, eight heads of hippopotami, thirty of red-deer, fifty of roes, sixty rhinoceros horns, numerous large skins, and other specimens, amounting altogether to nearly six hundred lots.

### NOTES AND QUESTIONS ON NATURAL HISTORY.

**SILENCE OF THE CUCKOO IN THE NEIGHBOURHOOD OF EASTBOURNE.**—A gentleman who is out of doors a great deal, and who

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