



LVIII. Notice respecting the manners and habits common to the shark and pilot-fish

C. Geoffroy

To cite this article: C. Geoffroy (1802) LVIII. Notice respecting the manners and habits common to the shark and pilot-fish , Philosophical Magazine Series 1, 13:52, 354-356, DOI: [10.1080/14786440208676140](https://doi.org/10.1080/14786440208676140)

To link to this article: <http://dx.doi.org/10.1080/14786440208676140>



Published online: 18 May 2009.



Submit your article to this journal [↗](#)



Article views: 2



View related articles [↗](#)

this effect of grace, it is requisite that the head should not present the same view as the chest, and that the hand and arm should not come on a line, but that each should contrast the other by an opposing turn. For examples, see the drawings (Plate VI. and VII.)

Of the feet, our knowledge of beautiful form can only be acquired through the medium of the antique, or fine pictures, being now deformed by the use of shoes. Suffice it to observe, the three foremost toes ought to be the longest; the small ones close, and turning out; and the great one a little separated, more or less in proportion to the action of the foot.

Beauty appears to delight in the irregular or picturesque, while the grand will ever be accompanied with the regular and simple.

LVIII. *Notice respecting the Manners and Habits common to the Shark and Pilot-Fish.* By C. GEOFFROY, Professor in the *Musæum of Natural History*.*

IT has been asserted that the sharks have subject to their empire a very small fish of the species of the *gadus*; that the latter precedes his master during his voyages, points out to him those places of the sea most abundant in fish, discovers to him the traces of the prey he is fondest of; and that, out of gratitude for such signal services, the shark, notwithstanding his voracity, lives in good intelligence with a companion so useful to him. Naturalists, always on their guard against the exaggerations of travellers, and not being able to conceive the motives of such an association, have doubted the truth of these facts. It will, however, be seen that they were wrong: the observations even which I have been able to make are accompanied with circumstances which perhaps never occurred with so many details to any one but myself.

In the month of May 1798 I was on board the *Alceste* frigate between cape Bon and the island of Malta. The sea was tranquil, and the passengers were much fatigued with the long duration of the calm, when their attention was attracted by a shark which they saw advancing towards the vessel. It was preceded by its pilots, which kept at a pretty regular distance from each other, and from the shark. The two pilots directed their course towards the poop of the vessel, inspected it twice from one end to the other, and, after having satisfied themselves that there was nothing which they could turn to

* From the *Bulletin des Sciences*.

their

their advantage, resumed their former route. During the various movements which they made, the shark never lost sight of them, or rather followed them as exactly as if he had been dragged by them.

He had no sooner been descried than one of the sailors got ready a large hook, which he baited with lard; but the shark and his companions had already proceeded to the distance of 20 or 25 millimetres before the sailor had made all his preparations: he, however, threw the piece of lard into the sea at a venture. The noise occasioned by its fall was heard at a considerable distance. The travellers were astonished, and stopped. The two pilots then detached themselves, and went to explore at the poop of the vessel. The shark during their absence sported in a thousand ways at the surface of the water; turned himself on his back, then on his belly, and dived to a greater depth, but always re-appeared at the same place. When the two pilots came to the poop of the Alceste they passed close to the lard, and no sooner observed it than they returned to the shark with a greater velocity than they advanced to it. When they reached it, the latter continued his course. The pilots then swimming one on his right and the other on his left, made every effort to get before him. Scarcely had they done so when they suddenly returned, and then went back a second time to the poop of the vessel. They were followed by the shark, who was enabled by the sagacity of his companions to perceive the prey destined for him. It has been said that the shark is endowed with a very delicate sense of smelling. I paid a great deal of attention to what took place on his approaching the lard. It appeared to me that he did not discover it till the moment it was pointed out to him by his guides; it was then only that he began to swim with greater velocity, or rather made a jump to seize it. He detached a portion of it without being hooked; but at the second attempt the hook penetrated the left lip, by which means he was hoisted on board.

It was not till the end of two hours, during which I was employed in anatomizing the shark, that I began to regret I had not observed more accurately the species which had devoted themselves so readily to the service of this voracious fish. I was assured that some of them might be easily procured, as it was certain they had not quitted the neighbourhood of the vessel; and a few moments after I was presented with an individual, which I found to belong to the pilot or *sanfre des marins*, and the *gasterosteus ductor* of the naturalists.

It would be, no doubt, curious to inquire what interest can induce animals so different in their organization, their size,

and habits, to form a sort of association. Does the pilot-fish feed on the dung of the shark? as C. Bosc thinks; and has it imposed on itself the painful duties of domesticity to find protection and safety in the neighbourhood of so voracious an animal?

LIX. *Experiments on Charcoal exposed to high Degrees of Heat in close Vessels.* By DAVID MUSHET, Esq. of the Calder Iron Works*.

IN a former communication I showed that in Stourbridge clay crucibles, made perfectly air-tight, a proportion of charcoal disappeared much greater than could possibly combine with the iron in contact with it. This I attributed to causes not yet ascertained, but worthy of investigation. In many experiments with diamonds, particularly those of D'Arcet and Macquer, it seemed that they disappeared when inclosed in balls of porcelain, and where it was supposed no air was present to promote combustion. The facts established by those eminent chemists appeared thus at variance with those principles by which the nature and properties of the diamond and other combustible substances were explained: nor have I yet learned if a satisfactory explanation of them has been given.

Having prepared a parcel of small Stourbridge clay crucibles nearly of the same size, I performed the following experiments with different proportions of charcoal.

Exp. I. In one of the crucibles was inclosed five grains of well dried charcoal: the crucible was yet moist. The mouth was afterwards brought together and accurately shut. When well dried in a temperature from 70° to 80° of Fahrenheit, it was placed in an annealing fire, and gradually heated till of a bright red colour. It was then placed in the assay furnace, and a considerable degree of heat excited for the space of 35 minutes. When withdrawn, and cold, it was carefully examined, and found free from cracks. It was then cautiously broken, but exhibited no marks of charcoal: one vitrid spot only was observable upon the bottom, which I supposed to arise from the fusion of the alkaline residuum after the destruction of the wood.

Exp. II. In this the crucible contained ten grains of charcoal. It was treated in the same manner, only exposed to a more violent and continued heat. When cold, no cracks ap-

* Communicated by the Author.

peared,