

plumage, and look dirty and draggled. The old birds when in their best breeding plumage, as seen on their nests, are handsome enough.

Whilst on the subject of flight, I would say a few words about the flight of the Flying-fish. Dr. Möbius has lately produced an elaborate paper* on the much vexed question as to whether Flying-fish move their wings in flight or not, and after examination of the muscular apparatus, and watching the living fish, has come to the conclusion that they do not do so at all. There are two widely different genera of fish, which have developed long wing-like fins for support in progress through the air, the ordinary Flying-fish, the various species of *Exocætus* allied to the Gar-fish, and the Flying Gurnets, species of the genus *Dactylopterus*.

I have never seen any species of *Exocætus* flap its wings at all during its flight. These fish merely make a bound from the water, and skim supported by their extended fins, the tips of which meanwhile quiver in the air occasionally, from the action of air-currents against them, and sometimes from the shifting a little of their inclination by the fish.

I believe, however, that I cannot be mistaken in my conviction, that I have distinctly seen species of Flying Gurnets move their wings rapidly during their flight. I noticed the phenomenon especially in the case of a small species of *Dactylopterus* with beautifully coloured wings, which inhabits the Sargasso Sea. Whilst out in a boat collecting animals amongst the Gulf Weed, these small Flying Gurnets were constantly startled by the boat and flew away before it, and as they did so, appeared to me to buzz their wings very rapidly.

Their mode of flight seemed to me to be closely similar to that of many forms of Grasshoppers, which cannot fly for any great distance, but raise themselves from the ground with a spring, and eking out their momentum as much as they can by buzzing their wings, fall to the ground after a short flight.

I watched these little Flying-fish fly along before the boat, at a height of about a foot above the water, for distances of 15 or 20 yards, and I chased them and caught one or two with a hand-net amongst the Weed. Dr. Möbius, who similarly watched the flight of a species of Flying Gurnet, maintains that neither form of Flying-fish flap their wings at all during flight. I do not consider the question as yet set at rest. Of course no Flying-fish can raise themselves in the air by means of their wings alone.

There are even pelagic insects. One of these (*Halobates*)

* K. Möbius, Die Bewegungen der fliegenden Fische durch die Luft z. für. Wiss. Zool. 1878, s. 343.