

Gasteropelecinae have a well-developed sternum-like process and a muscle mass attached to it that should certainly be adequate for a wing-propelled flight.<sup>9, 10</sup> Field observations of *Thoracocharax maculatus* (Steindachner) could not satisfy the writer if such was the case.<sup>11, 12</sup> These flights were only seen at night by aid of a flashlight and were of such erratic occurrence that details of this sort could not be distinguished. On an anatomical basis it may well be, however, that here alone, in the fishes, is to be found a true wing propelled flight. If such is the case, the small size of these fishes and the failure to see any evident flapping in field observation leads one to incline to the idea that such wing movement might well approach to the mechanics of a buzzing insect flight. Against this is the form of the pectorals which are surprisingly similar to those of the exocoetids, and quite unlike any insect wing.<sup>13</sup> Since the field observations were made, other species in aquaria and in a fairly large outdoor pool have been experimented with in an attempt to study the flight to better advantage. So far a simple leap, such as a variety of fish might make, has been the only result. In the field it was quickly found that these fish would not fly unless there was water ahead of them; in other words, they could not be forced to fly ashore. Just how they knew when there was and when there was not open water ahead is not understood, but may be basic to their refusal to fly in small aquaria. This should not apply to the pool in question, which has two arms, each over twenty feet in length.

No longer ago than last year, a similar controversy took place on these very pages which the writer purposely refrained from entering. This was instigated by Mills<sup>14</sup> and adequately answered by Forbes<sup>15</sup> and Loeb.<sup>16</sup> Considering the literature alone since 1930 there have appeared four critical dissertations—three by Hubbs already referred to of some length, and one by Carter and Mander.<sup>17</sup> The earlier literature, running back to before the time of an adequate aerodynamic basis, need not be discussed here, except to say that it is of great volume and of large variation in quality. A lead into its vastness may be had from the bibliographies in the more recent papers mentioned herewith. In the light of this, it seems unfortunate that field naturalists continue to present the anachronism of explaining why and how the oceanic

flying fishes flap their wings to locomotor effect on a basis of more or less extended shipboard observation without bothering to take into consideration two fundamental elements involved; namely, that of mechanical possibility on an anatomical basis and that of the aerodynamic possibility on an engineering basis. There is adequate data to show that all the performances noted in the Exocoetidae are well in accord with the calculable limits of their aerodynamic characteristics as gliders.

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### HOME OF THE ANCON SHEEP

IN Darwin's "Animals and Plants under Domestication," Chapter 3, he refers to the ram lamb born in Massachusetts in 1791 with short crooked legs, like a turnspit dog, which was the ancestor of the Otter or Ancon, a semi-monstrous breed, valued because they could not leap over fences; since exterminated. His statement is based on the report of Colonel Humphreys, *Philosophical Transactions*, London, 1813, page 88. This achondroplastic character was perhaps recessive, because the Otter ram and ewe always produced Otter offspring (except one questionable case). I do not know of other published first-hand statements on the Otter sheep.

In May, 1899, while I lived in Cambridge, I paid a visit to Dover, Mass., and interviewed Mr. Frederick Wite, grandson of Seth Wite, Jr., the originator of the Ancon or Otter race of sheep; also Mr. George Ellis Chickering, of Dover, and his brother. In a graveyard I found a stone with the inscription, "Mr. Seth Wite Jun<sup>r</sup> Who Died July, 1799, Aged 46."

Mr. Chickering, who was probably about 65, stated that his father, who died in 1857, had Otter sheep, which he disposed of just before his death, and Mr. Chickering's father told him they were Otter sheep of Mr. Wite's breed. Mr. Chickering did not know of any Otter sheep later than this. He remarked that the sheep had peculiar crooked legs and thought likely they could not jump fences as well as other sheep, though his brother, standing by, said they would jump fences on occasion.

Mr. Wite's farm was on the Charles River, about three miles southwest of the village of Dover, near the Sherborn line—Latitude 42° 14' 15" N; Longitude, 71° 19' 30" W. This Frederick Wite, who appeared to be about 70 years old, knew that his grandfather, Seth Wite, Jr., had originated the Otter sheep, but knew nothing more about it. Mr. Wite, like Mr. Chickering, had never heard the name Ancon (only Otter) applied to these sheep.

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<sup>9</sup> *Ibid.*

<sup>10</sup> C. M. Breder, Jr., *Bull. Amer. Mus. Nat. Hist.*, 57: 191-176, 1927.

<sup>11</sup> *Ibid.*

<sup>12</sup> C. M. Breder, Jr., *Zoologica*, 4: 159-297, 1926.

<sup>13</sup> *Ibid.*

<sup>14</sup> C. A. Mills, *SCIENCE*, 83: 80 and 262, 1936.

<sup>15</sup> A. Forbes, *SCIENCE*, 83: 261-262, 1936.

<sup>16</sup> L. B. Loeb, *SCIENCE*, 83: 260-261, 1936.

<sup>17</sup> G. S. Carter and J. A. H. Mander, *Rep. Brit. Assn. Adv. Sci.*, 105: 383-384, 1935.