

shield is quadrangular, about as broad as long, and narrowed behind; the second, third, and fourth are hexagonal, the second rather broader than long, and the fourth longer than broad; the second has a very blunt keel, occupying its hinder half; the third and fourth are sharply keeled, the keel being prominent near the hinder edge, especially of the fourth shield; the fifth shield four-sided, much contracted in front, and with a slightly raised sharp central keel.

The margin is very narrow on the sides, wider and sharper-edged in front, wide and rather arched over the hinder legs, rather narrow and very strongly dentated behind. The sternal shields are like the dorsal ones, radiately and concentrically striated, but not so strongly. The head is olive black-speckled above, beneath pale yellowish, darker-marbled on the sides; the legs and feet are uniform brown, covered with small scales, the front ones with two broad band-like scales just over the feet; the toes are united together to the end; the claws are narrow and sharp. Length $3\frac{1}{2}$, breadth 3 inches.

Note on a Species of Molva from the Gulf of Genoa.

By Dr. A. GÜNTHER.

M. Canestrini, in a paper "I Gadidi e Macrouridi del Golfo di Genova"*, has briefly mentioned and figured a Gadoid fish which he considers as identical with *Lota lepidion*, Risso. Mr. J. Y. Johnson was so fortunate as to rediscover this fish of Risso at Madeira; and the specimen, which I have fully described under the name of *Haloporphyrus lepidion*†, proves that the main characters given by Risso, especially that of the four-rayed first dorsal fin, are correct. On the other hand, M. Canestrini's fish has fourteen rays in that fin, and therefore it cannot be identified with that of Risso. It is evidently a species of *Molva*, and, if not identical with *M. vulgaris*, one closely allied to it. I must leave M. Canestrini to settle this point, and can only add that it is improbable that a northern species like the Ling should be found in the Mediterranean.

On the Osteography of the Sirenia compared with that of the Pachydermata and Cetacea. By J. F. BRANDT.

In his memoir on *Rhytina Stelleri*, Professor Brandt compares the skeleton of that animal with those of the Manatees, Dugongs, and *Halitheria*. The latter fossil animals may be regarded, from the presence of traces of hind limbs, as the most perfect forms of the Sirenia; the *Rhytinæ*, on the contrary, from the want of teeth in the adults, as the most imperfect. Thus the Dugongs would constitute a form intermediate between the *Halitheria* and the *Rhytinæ*, whilst the Manatees, notwithstanding the different affinities which they present with the Dugongs, *Halitheria*, and *Rhytinæ*, would be collateral forms, distinguished by the tail and teeth, and approaching the Pachydermata, especially the Tapirs and *Dinotheria*. In this way the Sirenia would be related to the Pachydermata on two different sides, by the *Halitheria* and the Manatees.

* Arch. per la Zool. ii. p. 366.

† Catal. Fish. iv. p. 358.

The Sirenia, according to Brandt, are not Cetacea, but rather purely aquatic Pachyderms, which, however, in accordance with our principles of classification, may very well form a distinct order.—*Comptes Rendus*, Sept. 7, 1863, p. 489.

Note on the Lemming (*Lemmus norvegicus*, *Desm.*).

By M. GUYON.

The emigrations of the Lemmings, like those of the migratory Locusts, are not periodical, and are attended, like them, by a greater or less amount of damage in their course. The Norwegian Lemming inhabits the highest parts of the mountains, where it lives chiefly upon mosses and lichens. Like all its congeners, it sleeps through the day, and only awakens at the approach of night. Its activity is then extraordinary: it moves, as it were, in every direction at once—tearing, gnawing, and murmuring.

For some years the Norwegian Lemmings had not migrated; but they migrated again in the spring of the present year, although in smaller numbers than usual. Towards Lillehamar, in the early part of July many were still to be seen running about in the gardens, and along the houses, and crossing the streets, which were completely strewn with their dead bodies. Notwithstanding its tenderness, the Lemming is strong and courageous. When pursued, it flies at first, but soon turns and defends itself with teeth and claws: it bites severely. Whilst on its defence, it utters very sharp cries. The Lemmings often fight together; and it seems probable that, under certain circumstances, they devour each other.

The cause of the emigration of the Lemmings has been supposed by some naturalists to be the presentiment of a severe winter, by others the deficiency of nourishment at the points where they live, and by others, again, their too great multiplication in certain years. Let us examine these three supposed causes of the emigration of the Lemmings.

1. *A severe winter, of which the animals have a presentiment.*—If this were the case, the emigration would always take place at a period more or less approaching winter. But the emigration took place this year in the spring.

2. *The deficiency or scarcity of nourishment at the points inhabited by them.*—The Lemming, as already stated, lives upon lichens and mosses; and these plants have not been less abundant on the mountains this year than in preceding ones.

3. *The great multiplication of the animals in certain years.*—This cause appears the most plausible, and we may adopt it until a more probable cause is discovered.

It has been said that the Lemming, in its emigrations, follows invariably a direct line, and is stopped by no obstacle, however large; but no doubt a little of the marvellous has been intermixed with the history of this interesting little mammal. In all probability, the direction which it follows in its emigrations is given to it by the declivity of the soil, so that it will always descend like water from its mountains.



Brandt, Johann-Friedrich. 1863. "On the osteography of the Sirenia compared with that of the Pachydermata and Cetacea." *The Annals and magazine of natural history; zoology, botany, and geology* 12, 406–407.

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