

tubes containing the pure metal, which had been manufactured and preserved out of contact with any hydrocarbon, were prepared, the metal being obtained free from oxide and the absorption-spectrum being observed in the manner already described. As soon as the metal began to boil, a series of bands in the blue (Na γ) made their appearance, and shortly afterwards bands in the red and yellow (Na α), stretching as far as the D lines, came out. At this period of the experiment the D lines widened, thus blotting out a series of fine bands occurring in the orange (Na β), some of which, consequently, could not be mapped. All the bands of the sodium-spectrum shade off, like the potassium-bands, towards the red.

When the vapour of sodium is examined in a red-hot iron tube, the colour of the lime-light, as seen through it, is a dark blue. As the sodium is swept away by the current of hydrogen passing through, the colour becomes lighter, and the transmitted rays can be analyzed by the spectro-scope. At first, the whole red and green and part of the blue is cut out entirely. The D lines are considerably widened, and an absorption-band is seen in the green, apparently coinciding with the double sodium-line, which comes next in strength to the D lines. All the colours, therefore, seem to be shut out, except part of the orange, part of the green, and the ultra-blue. As the sodium-vapour becomes less dense, more light passes through, and the same absorption-bands are seen as are observed in the other method. The vapour then has a slight bluish-green tint, but is nearly colourless.

The following numbers give the wave-lengths of the more refrangible edge of the sodium absorption-bands in tenth-metres, obtained in the manner above described:—

6668	6361	6105	5999	β	4964
6616	6272	6092	5150		4927
6552	6235	6071	5129		4889
6499	6192	6051	5082	γ	4863
6450	6162	6035	5038		4832
6405	6149	6016	5002		4810

Plate IV. shows the general appearance of the two absorption-spectra.

II. "Note on the alleged Existence of Remains of a Lemming in Cave-deposits of England." By Professor OWEN, C.B., F.R.S. Received April 25, 1874.

In the "Report on the Exploration of Brixham Cave" (Phil. Trans. 1873) it is stated (p. 560):—"With the appearance in the cave of the smaller common rodents now living in this country, we have to note a remarkable exception, that of the Lemming (*Lagomys spelæus*)." And again, in the list of animal remains as determined by Dr. Falconer and by

Mr. Busk, there occurs (p. 556):—"16. *Lagomys spelæus*. Lemming . . 1." This is throughout the "Report" treated as an original discovery, the importance of which is impressed upon the Royal Society by the remark:—"This circumstance tends to give a greater antiquity to a portion of the smaller remains than from their condition and position we might have been disposed to assign to them" (*ib.* p. 560, note). These remains are referred to "the smaller common rodents now living in this country," viz. "Hare, Rabbit, Water-rats," "at least two species of *Arvicola*" (*ib.* p. 548).

The supposed existence of remains of a Grisly Bear in the Brixham Cave (Mr. Busk having "reason to believe that bear-remains referred to *Ursus priscus* belong in fact to *Ursus ferox*"—an "important determination") leads to the remark:—"The presence of another small North-American animal has been ascertained, viz. the Lemming" (*ib.* p. 556).

At the date of publication of my 'British Fossil Mammals,' it is true that no fossil evidence of a Lemming (*Georychus*, Illiger; *Lemmus*, Link) had come to my knowledge; but I have since obtained such of species of both *Spermophilus* and *Georychus*, the latter nearly allied to, if not identical with, the Siberian Lemming (*Georychus aspalax*), from a deposit of lacustrine brick-earth near Salisbury, associated with *Elephas primigenius*. The Lemmings, I may remark, belong to the family of "Voles" (*Arvicolidae*), not of "Hares" (*Leporidae*); but the fossil from "the surface of the cave-earth far in the Reindeer gallery" of the Brixham Cave (Report, p. 558) appears from the figures (plate xlvi. figs. 12, 13) to be rightly referred to *Lagomys*, and to the same species determined and named (p. 213, figs. 82, 83, 84) in the 'British Fossil Mammals' (1846). The specimen submitted to me by Dr. Buckland was found by the Rev. Mr. M'Enery in Kent's Hole, Torquay, and includes a larger proportion of the skull than the specimen figured in the "Report" from the Brixham Cave. It is evidently a Pika, or tailless Hare, not a Lemming. And the determination of the original or first evidence of *Lagomys spelæus*, now in the British Museum, led me also to remark:—"None of the circumstances attending its discovery, nor any character deducible from its colour or chemical state, indicate it to be an older fossil than the jaws and teeth of the Hares, Rabbits, Field-voles, or Water-voles already described; yet it unquestionably attests the former existence in England of a species of rodent, whose genus not only is unrepresented at the present day in our British fauna, but has long ceased to exist in any part of the Continent of Europe" ('British Fossil Mammals,' p. 213). The Lemmings still disturb, by their multitudinous migratory swarms, the husbandmen of Scandinavia.