

collision, which seemed almost inevitable, with the roof of the "Glastonbury Kitchen." Directly after the seizure of the butterfly, Mr. Holland saw the wings fluttering to the ground, evidently cut through at their bases by the beak.—E. B. P.

I CAN corroborate the statement that the house-sparrow frequently pursues and captures the large white cabbage butterfly.

Probably the kestrel preys extensively on the emperor moth, whose wings I have seen lying at the base of the small hummocks formed by the *Juncus squarrosum* on the Orkney moorlands. These tufts were much used as resting places by kestrels and hen harriers, but as neither hawk is capable of catching a bird on the wing, the moths were presumably captured while at rest.

The black-headed gull feeds on the common ghost moth. Regularly every season, during many years, I saw some half dozen or more of these gulls flying backwards and forwards, about three feet above the ground, over the grass in front of my house, hawking after the white oscillating ghost moths in the long summer twilight of a calm Orcadian evening.

W. IRVINE FORTESCUE.

7, Bon Accord Square, Aberdeen, February 3.

The Severn Bore.

IN NATURE of January 23 there is an interesting illustration of the Severn Bore, as photographed by Dr. Vaughan Cornish. If I understand the note rightly, the bore took a little more than a minute to travel 500 yards, and this gives a rate of almost exactly seventeen miles an hour at the given locality.

On March 13, 1891, Mr. T. H. Thomas, R.C.A., and I measured the velocity of the bore between a point on the right bank of the river near the King's Head Inn (which is sixty yards north of the sixth milestone from Gloucester on the high road to Newnham) and a point further up on the right bank of the river, near Denny Farm and opposite to the fifth milestone from Gloucester.

The second hands of two watches were timed exactly together, and we found that the bore reached the first observer at 10h. 24m. 45s., a.m., and the second at 10h. 27m. 48s., a.m., the interval being 183 seconds.

Measured on the six-inch ordnance map, the distance along the central line of the river is 4750 feet. The velocity was therefore $17\frac{7}{10}$ miles an hour for the part of the river observed. The river channel there is of a fairly uniform width of 250 feet.

The date chosen was that of the second highest tide of the spring equinox. At 10h. 25m. the height of the bore, above low water level, as measured by a post close to the river bank near the King's Head Inn, was 4ft. 10in. As the bore passed on, the level sank to 3ft. 4in. By 10h. 30m. the water following the bore reached a height of 5ft. 4in. At 10h. 32 $\frac{1}{2}$ m. the height was 6ft. 4in., and at 10h. 34m. the water covered the post, the top of which was nearly 7ft. above low water level. There was thus a rapid rise of the river in the rear of the bore. As seen in mid-stream, the height of the crest of the bore seemed only about 3ft. above that of the water in front of it.

There was a gentle breeze from the north-east. Had there been a south-westerly gale blowing up stream, no doubt the phenomenon would have been much more impressive, but it is of interest to record observations made under fairly normal conditions.

The rushing sound, heralding the advancing wall of water, was audible for some distance. The crest of the bore was whitened by a fringe of foam, and a good deal of spray was thrown up on the banks, where the water of the wave appeared to be higher than, and somewhat in advance of, that in the middle of the river.

A small boat in the path of the bore suffered no inconvenience beyond a slight tossing. The late Frank Buckland greatly exaggerated when he described the bore as "the greatest natural phenomenon in the British Isles," and stated that its pace was equal to that of an express train. Dr. Cornish (NATURE, vol. lixii, p. 127) estimates the velocity of the bore, on April 30, 1900, as eight miles an hour between Newnham Ferry and Denny Farm, a river distance of about nine miles. But the velocity evidently increases as the stream narrows, and, in the short portion which we observed, it will be noticed that the velocity was more than twice that estimated over the longer distance.

CHAS. T. WHITMELL.

Leeds, February 3.

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Persistence of the Direction of Hair in Man.

In "The Descent of Man," p. 19, under the heading of Rudiments, Darwin refers to the long isolated hairs seen in the eyebrows of certain individuals, as representing similar hairs in the superciliary region of the chimpanzee, baboon and certain species of macacus. An analogous phenomenon, with a different significance, found sometimes in the pectoral region in man, seems to be worth notice. I have recently examined two persons, a male aged twenty-eight and a female aged thirty-three years, both with particularly hairless, smooth skins, and each showing, at a critical point in the pectoral region, certain outstanding hairs set closely together, the former three long hairs an inch in length, and the latter two hairs an inch and a half in length. The point of interest lies in the position and direction of these few scattered hairs, which are as noteworthy, in their way, as "erratic blocks" on a level plain. In the female case the two hairs were set just over the middle of the left second costal cartilage, and they pointed persistently upwards towards the neck. In the male case the three long hairs were set close to the sternum in the left second intercostal space pointing persistently downwards. The situations of these two curious islets of hair are exactly above, on the one hand, and below, on the other, the level at which the upward chest-stream and the downward chest-stream always divide in a hairy subject. The remarkable persistence in their ancestral direction of these few "fossil" hairs, as they might be called, seems to confirm the view that if man has inherited his hairy covering from a simian ancestry it has been modified in many regions by use and habit since he inherited it. We say that a little straw shows the way in which the wind blows, and I submit that sundry stray hairs on the body of man similarly testify as to the trend of certain mechanical forces which have acted and still act upon him.

WALTER KIDD.

The Colours of Wings of Butterflies.

MR. CROFT'S letter (NATURE, January 2, p. 198) on the subject of colours of wings of butterflies raises an interesting point.

In pressing the wings of butterflies between sheets of gummed paper in order to obtain impressions for record, I have frequently noticed that in those cases where a brilliant light blue wing is to be pressed the impression usually fails to give the correct colour; in transmitted light the impression is not blue, and in reflected light the colour is patchy and of a much darker blue; for example, the blue of a *Junonia erythraea*.

I have before me a wing—inside brilliant peacock blue, purple-blue, bronze-brown, according to the incidence of the light; in transmitted light the colour is brown. The outside of the wing is brown.

Taking an impression of this wing in transmitted light the impression is brown, in incident light very dark blue and dark bronze in patches; the peacock blue fails entirely.

If a scale of this wing be examined under a low power it appears brown in transmitted light, but peacock blue (and varying shades according to position of scale on stage with reference to light) if the transmitted light be cut off and reflected light alone used.

It would appear, therefore, that this wing owed its chief colours to other causes than pigment.

W. G. B.

India, January 21.

EXPERIMENTS ON VENTILATING COWLS.¹

THE report of the work of the cowl committee of the Sanitary Institute presents the results of the numerous experiments made by the committee in the course of upwards of twenty years of its existence—an existence unfortunately terminated by the deaths in rapid succession of all its members. The last survivor, Mr. Rogers Field, B.A., M.Inst.C.E., the most active member of the Committee, died on March 28, 1900.

The committee left in manuscript more or less complete records of some seven thousand experiments on cowls and terminals, together with particulars of the arrangements for testing the instruments employed, a synopsis prepared with a view to a comprehensive report, and

¹ The Work of the Cowl Committee of the Sanitary Institute. *Journal of the Sanitary Institute*. (Edward Stanford, 1901.)