

minute. It is familiar knowledge that the intensity and the polarisation of reflected and transmitted lights vary with the incidence; and it seems likely that in the Morpho the changing tints of blue may arise through a varying partition of the reflected and transmitted colours. While, then, diffraction does not usually affect the appearance of the wings, it is, however, interesting to a student in optics to use the scales for experiment. Let a few wings, light-coloured for preference, have the scales scraped off on to a piece of glass, and let these be covered with glass as in a lantern slide; when they are placed in strong sunlight, there is the appearance of so many minute sparkling diamonds.

Since I wrote before, I have felt that in humming-birds also the colour is seldom due to diffraction. In one which I have before me, the head is red or black, the breast is golden or olive-green; the details of the feathers have two colours, one on each edge. They are strong mixed colours, not like spectrum colours of any order. In the Gould collection at South Kensington I was, however, able to find two birds—*Rhodopis vesper* and *Calypte annae*—in which the pigment colours were so subdued that diffraction lights were able to have some influence in the mixed effect.

W. B. CROFT.

Winchester College, February 17.

Birds attacking Butterflies and Moths.

IN connection with the controversy on the above subject, I am permitted to add the testimony of an old friend of mine, Mr. H. S. Wise, of Ford, Drewsteignton, South Devon, an extremely keen and accurate observer, with wide experience both of British and Indian fauna. In letters to me dated February 9 and 12, 1902, he says:—"I have seen birds attack butterflies both in England and in India," and gives the following notes:—"On summer evenings, magpies hunt a grass field and catch immense numbers of moths, beetles and, I believe, butterflies. . . Last summer I shot a magpie, one of a family that was carefully working a large grass field; his beak was full of recently-caught Swift Moths (*Hepialus lupulinus*)." Later he says, "I have seen the common spotted flycatcher pursue a butterfly and miss it, giving up the pursuit; this was of course on the wing." Further, "titmice eat quantities of small moths, which they catch when at rest." Speaking of the large Yellow Underwing (*Tryphoena pronuba*), Mr. Wise tells me, "several small birds eat this moth, sparrows among the number; it is a strong moth, and the bird generally beats it on the ground to kill it before eating it. This insect is fond of lying on the ground among leaves, &c., and birds will hunt it out and catch it." Among other enemies of British Lepidoptera, Mr. Wise notes that "bats feed largely on the night-flying moths; *Tryphoena ianthina* is one I have seen them catch." My friend also refers to a note by G. C. Dudgeon, in the Journal of the Bombay Natural History Society for March 20, 1895, on the King Crow (*Dicrurus longicaudatus*) catching a butterfly (*Teinopalpus imperialis*, ♂), and adds, "In the case of a jungle-fire in an Indian forest, birds at once come and catch the numerous insects which fly up for safety, the above-mentioned King Crow being always to the fore." In India also lizards are formidable enemies to Lepidoptera. Mr. Wise says, "in Bombay there is hardly a lamp-post which has not got a gecko on it; these feed on the moths which are attracted to the light."

Mr. H. S. Wise, I am glad to say, promises to devote especial attention this summer to the question of birds attacking Lepidoptera, and to note, whenever possible, the name of the bird and the victim. If naturalists would more generally devote time to such work, we should soon accumulate sufficient direct evidence of the severity of the struggle for existence to place the matter beyond the possibility of dispute.

I regret to find that in my previous letter (p. 299) I unintentionally added a word to Mr. Latter's phrase, which should read "relinquished its hold in consequence of a luckily-aimed stick"—not "only relinquished," &c. The difference is not, however, essential, as the stick is stated to have been a cause of the bird's action.

LILIAN J. VELEV.

20 Bradmore Road, Oxford, February 15.

ONE morning in 1901 (actual date not recorded) I found a Humming-bird Hawk (*Macroglossa stellatarum*) on a window in my house. I opened the window and tossed it out, thinking it would fly away, but it fell to the ground, where it remained quivering its wings within six feet of me.

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A House Sparrow flew down from a Deodar, and with four dexterous pecks separated the wings from the thorax; it then pecked the middle of the thorax, splitting it, and with one or two more pecks separated the abdomen from the thorax. Taking the abdomen in its beak, the sparrow flew back to the tree from which it had come and, I presume, made a hearty breakfast.

The sparrow attacked the hawk in such a business-like way that it was obviously no new proceeding on its part.

There is always a martin's nest in my porch, and it is not uncommon to find wings and thorax of *Agrotis*, &c. on the seats or floor.

JOHN HARTLEY DURRANT.

Merton Hall, Thetford.

The Severn Bore.

SINCE writing to you on February 12, I have had the opportunity of observing the bore of this morning, a tide which corresponds with that of February 12, 1899, which was remarkable. But to-day's "head" was a very poor one indeed, for no reason that I can find out; no wind and no fresh water in the river of any consequence. The only measure that I could make was of the wave at the shore, which at one point, and one point only, rose to 2½ feet, whilst in midstream there was but little visible.

A distance of 520 yards having been measured out, and the time of passage having been taken by watches, I found that the speed was a fraction under 15 miles per hour.

The period occupied by the passage of the "head" from Newnham ferry was one hour; the mileage taken from the Ordnance map is a little over ten miles; average speed is, therefore, ten miles per hour.

This average cannot be far from correct, for I measured at Newnham, where the river is broad, and with wide sandbanks, which spread out on either side, up to Framilode, a distance of 5·2 river-miles, and here the banks begin to approach one another, and at five miles further up the stream is only 250 feet wide.

E. W. PREVOST.

Newnham, February 24.

Beautiful Birds.

IN reviewing my child's book, "Beautiful Birds," F. E. B., writing in your columns, says, "Why should he select the 'beautiful birds' only, and, by implication, condone the massacre of birds that have not that advantage?" The question is a misstatement of fact, which I hope you will allow me to show, though I can only do so by quoting myself. On the last page—which I daresay F. E. B. did not get to—there is this: "'Mother, promise not to wear any feathers except the beautiful ostrich feathers that you look so lovely in?' As soon as she has promised, then all the beautiful birds in the world (and that means all the birds, for all birds are beautiful) will be saved," &c. (The italics are mine). This is the final promise and the goal to which I have been leading. May I ask F. E. B. whether, if he wished to arouse a child's interest and sympathies in any subject, he would choose the more or the less salient material to do it with?

19 Clarence Square, Cheltenham, Feb. 9. EDMUND SELOUS.

I ADMIT that I did not observe the phrase which Mr. Selous quotes from his book. But supposing that he can quote half-a-dozen such, I cannot allow that my observations to which he takes exception contain any injustice to him or real misstatement of fact. I would commend to Mr. Selous Dr. Samuel Johnson's sound remark concerning a quite analogous statement. An orchard, observed the Doctor, would be properly described as barren of fruit, even if subsequent research discovered a dozen apples and pears upon two or three trees. Now Mr. Selous' book is called "Beautiful Birds." It is not called "Birds." It is clear, too, what Mr. Selous means by "beautiful." His plates and the greater part of his descriptions deal with the Paradiseidae, Humming Birds, and other birds which everyone calls beautiful. I do not find chapter after chapter relating to partridges, quails, sparrows, and other "plain" birds.

F. E. B.

King Og's Bed.

A HEBRAIST once told me that he thought that Og's iron bed, mentioned in Deuteronomy iii, 11, was a sarcophagus of basalt. The Hebrew word is "barzel," which is evidently the same as the Ethiopic "basal," iron, which Stormonth's dictionary gives as the derivation of "basalt." O. FISHER.

Harlton, Cambridge, February 20.