

This sandstone is soft and is broken up and rounded into huge boulders, which are covered with a smooth, chocolate-coloured, ferruginous glaze, deposited by the river, and hardened by the sun. These boulders thus glazed might well have been regarded by Mr. Stanley as trap and lava, &c., while the large grain of the stone, together with the appearance of the blocks in some places might suggest its being granite. This sandstone with the exception of a little which is quartzitic, is the only rock I have seen between Manyanga and Stanley Pool, and is certainly the rock at the great Ntamo cataracts here.

On the hills and cliffs about the Pool there are some white shining patches, which I hear are sand, but I believe there is no calcareous rock in the neighbourhood. The pool itself is a strange break in the lines of sandstone hills, which, although now much eroded by water, are the remains, doubtless, of what was once a plateau, at the level of about 1500-1800 feet above the sea.

On the road to San Salvador from our old Musuka station we find boulders of ironstone and small nodules of the same, mixed with clay, on the top of quartz, micaceous, and granitic rocks. Limestone crops up in several places, but the principal formation visible is the ironstone clay. In all this country I have not met with a trace of a fossil of any kind.

When at Landana, about two miles south of the mouth of the Chiloango River, some months ago, I saw some stones from the cliffs which appeared to be almost identical with a Portland stone (?) which I have seen used in fortifications in the south of England. There were many fossils, but I could neither spare time to examine the cliffs nor carry many specimens, being on an express journey by hammock up the coast. This was the only occasion that I have met with any fossils in Africa, and that in a part of the coast now well known through the work of the German Expedition. The quartz, micaceous, slate, shale, and sandstone rocks of this part of the continent are a poor field for palæontologic research.

I am very curious as to the geological formation of the Congo Valley between this point and the Stanley Falls, but at present have learned nothing. I should expect, however, to find the sandstone the only visible rock.

I wish that I could speak with better acquaintance with the names of the rocks, but often I feel sorely puzzled. On our first journey to Stanley Pool we mistook some strangely shaped hills near to Manyanga for granite, but have since ascertained them to be singular relics of the sandstone.

I need not enter into details of our work, which are so fully and constantly reported in the *Missionary Herald*. Regretting that the information I can supply is so meagre,

Believe me, dear Sir, yours very truly,

W. HOLMAN BENTLEY

Intelligence in Animals

1. I OBSERVE that Dr. Romanes, in his very interesting work on "Animal Intelligence," has been good enough to notice an account given by me in *NATURE*, vol. xi. p. 29, of an instance of a scorpion committing suicide under special excitement. It may be well to remention the fact that in this case the rays of the sun, focused on the back of the scorpion by means of a common lens, were the exciting cause of the self-inflicted fatal sting; and to set the matter at rest it may be remarked that two witnesses who saw the experiment can corroborate my statements. On reconsidering the whole affair, however, it occurred to me that in wounding its own back the scorpion may have merely been trying to get rid of an imaginary enemy. The concentrated rays of the sun no doubt caused pain, and the sting was probably directed towards the seat of this in an automatic manner, as a defensive act. This seems to me a more feasible explanation than to regard the action as due to an instinct detrimental to the individual and to the species.

2. While writing on the subject of "animal intelligence," it has occurred to me that the following remarkable example is worthy of being put on record:—Some years ago, while living in Western Mysore I occupied a house surrounded by several acres of fine pasture land. The superior grass in this preserve was a great temptation to the village cattle, and whenever the gates were open, trespass was common. My servants did their best to drive off the intruders, but one day they came to me rather troubled, stating that a *Brahminy bull* which they had beaten had fallen down dead. It may be remarked that these bulls are sacred and privileged animals, being allowed to roam at

large and eat whatever they may fancy in the open shops of the bazaar-men.

On hearing that the trespasser was dead, I immediately went to view the body, and there sure enough it was lying exactly as if life were extinct. Being rather vexed about the occurrence, in case of getting into trouble with the natives, I did not stay to make any minute examination, but at once returned to the house with the view of reporting the affair to the district authorities. I had only been gone a short time, when a man, with joy in his face, came running to tell me that the bull was on his legs again and quietly grazing! Suffice it to say that the brute had acquired the trick of feigning death, which practically rendered its expulsion impossible, when it found itself in a desirable situation which it did not wish to quit. The ruse was practised frequently, with the object of enjoying my excellent grass, and although for a time amusing, it at length became tiresome, and resolving to get rid of him the sooner, I one day, when he had fallen down, sent to the kitchen for a supply of hot cinders, which we placed on his rump. At first he did not seem to mind this much, but as the application waxed hot, he gradually raised his head, took a steady look at the site of the cinders, and finally getting on his legs, went off at a racing pace, and cleared the fence like a deer. This was the last occasion on which we were favoured with a visit from our friend.

G. BIDIE

Ootacamund, June 5

The Mealy Odorous Spot in Lepidoptera

THE mealy spot on the base of the front margin of diurnal Lepidoptera, which emits an odour supposed to serve for sexual purposes, is present only in the male. It is therefore most interesting to observe that this spot is not always present in different individuals of the same species. Among the numerous varieties of *Papilio priamus* proved by rearing to belong to that species, the spot in question is present only in *P. priamus*, and is wanting in the male of all the varieties which have come under my observation. *Callidryas eubule* has the spot present only in specimens from Florida; it is wanting in all specimens from other localities of the United States, including a large number from Texas. In *Colias electra* and *edusa*, Keferstein (*Wien. Zool. Bot. Gesell.* 1882, p. 451) states that after an examination of a series of males he has found the mealy spot only exceptionally present, and the same is supposed by him to be the case in other species of *Colias*.

It would be interesting to know how this exceptional presence of so prominent a characteristic is to be explained.

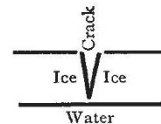
Cambridge, Mass., June 21

H. A. HAGEN

Causes of Glacier Motion

UNFORTUNATELY not having been present when Mr. W. R. Browne read his paper on glacier motion at the Royal Society on June 15, 1882, it only came under my notice when published in *NATURE*, vol. xxviii. p. 235. It is doubtless of little importance, but there is one sentence which does not seem to read exactly as I wrote it, namely, "It (a glacier) will get a series of cracks in its longer axis," should be "across (or transverse to) its longer axis," which I think makes the meaning more clear.

I may perhaps mention that when ice on lakes becomes from four to seven feet thick the effect of a sudden decrease of temperature does not, for obvious reasons, always cause a complete solution of continuity of the ice all the way through from its upper to its under surface, the crack being wedge-shaped, thus—



so that the water sometimes does not flow into the crack; the equable and higher temperature of the water counteracting at a certain point of the ice's thickness the penetration and consequent contracting influence of the colder air.

When the ice has acquired the great thickness above mentioned, the cracks by contraction are never so wide as when the ice is from one to three feet thick, but as far as I can remember they were more numerous, and when the water did not flow into them, were drifted full of snow by the first breeze of wind.

4, Addison Gardens, July 7

JOHN RAE