awkward-looking fashion. I must have stayed and watched them for about twenty minutes, when out came the spider and descended the single line to the beetle, on which he boldly rushed; after a few seconds the beetle's struggles got weaker and weaker, when the spider returned to its den; in a few seconds more the struggles of the beetle ceased. Now, did the spider intend the beetle for its food when he cut away his web to save it from destruction from the beetle's struggles, or was that an after-thought, or why should he know it was a "creature comfort"? and was the fact of the line being so near the ground an accident, or was it premeditated? If you put a small pebble or small piece of wood in a web, a spider will let it drop altogether; if you put a grasshopper in it he rapidly turns it round till the creature looks like a mummy; but I suppose circumstances alter cases even with spiders.

JAMES R. GREGORY

THE following fact may be of interest to those of your readers who are connected with the correspondence in your columns regarding the possession of intellect by brutes.

Having been much worried by the depredations of bandicoots (*Mus giganteus*) I laid three pieces of bread for them smeared with Roth and Ringeisen's phosphor paste. Next morning the pieces of bread were found near the door where they had been placed but turned *upside down*. The bandicoot evidently was suspicious of the poison, had turned over the bread and nibbled away all the sound portion. On the next night I smeared the poison on very thin slices of bread, leaving hardly any of it free from the paste. On this occasion the caution of the bandicoot seems to have deserted it, for the bread was eaten, and the dead animal was found next day in the garden.

Bangalore, India, January 8 ELPHINSTONE BEGBIE

Suicide of the Scorpion

Apropos of the discussion on this point that has lately taken place in NATURE, will you allow me to say that I tried the experiment referred to therein a score of times at least during my long residence in India, and that I never saw the phenomenon so graphically delineated by Byron. My experiments were conducted in cholera and other camps, in the open air, often in the presence of others, and always under circumstances which could admit of no doubt. The conclusion I came to in the matter was that "the scorpion girt by fire" is too stupid or too cowardly a creature to "cure its pain by darting its sting," or anything else, "into its desperate brain." It either rushed blindly into the flames at once, and was then and there destroyed, or it wandered meaninglessly about the margin of "the circle," recoiling nervously from the actual contact, or retiring as far as it could from the heat, to resume, after a short respite, its old manœuvres. I believe as the result of these inquiries that the impression or belief created by the fine imagery of the great poet is a myth and nothing more. WM. CURRAN

Warrington

WILL Mr. Gillman or some other tell us *how* scorpions achieve suicide? The animal stings, as I know to my cost, by a backward lash out and straightening of the tail, and the force which drives the somewhat blunt point into the enemy goes on accumulating as the reversal becomes more complete, and reaches its maximum on or near the horizontal plane and at the furthest point of extension. But when the tail is drawn back above the animal's head, the point is turned upwards, and therefore away from the head, and even if it could be turned towards the head, there is no possible force to drive it through the tough or hard carapace.

Can a man pummel his own back? Can a horse kick its own belly? But the feat attributed to the scorpion, apart from its moral obliquity, is physically even more triumphant. B.

Stags' Horns

OBSERVING in a late number of NATURE a communication concerning the disappearance of stags' horns after being cast off, and a request for information upon the subject from whatever source it might be had, I venture to send the following:—

A few winters ago I spent some weeks in the woods of Georgia, where most of my time was devoted to deer-hunting. In roaming over the woody *hummocks* of that country I several times stumbled upon the cast-off antlers of bucks. Being, like your correspondent, impressed with the popular belief that these were always buried or in some way destroyed by the animals, I inquired of old hunters if it was of common occurrence to meet with them, and was told that they were not rarely found just as we had seen them upon the occasion in question. I suppose that the popular belief in their burial or destruction arose out of the fact that about the time for shedding their horns the bucks retire to the most secluded spots accessible so as to avoid disturbance by other bucks or any enemy during the first few days of the tender, velvety stage of the new horns, and into such retired places man does not commonly venture.

This brings to mind the similar habit which prevails among most crustaceans. The edible crab of this region, for example, waits for a very high tide, and goes with it far inland, where, in shelter of some dark nook, and quite away from its common enemies, it slips off the old shell and spends a few hours on land awaiting the hardening process of the new one before entering again into the struggles of life. The fishermen have learned, however, that the most favourable times for catching *soft crabs* is connected with certain phases of the moon, to which they attribute some mysterious influence upon the crabs directly; of course the dependence of tides and moon solves this little mystery.

BOLLING W. BARTON

Baltimore, Maryland, U.S.A., January 22

MOUNTAIN BUILDING[1]

FEW problems in physical geology are more fascinating than that which deals with the origin of mountains. At the same time few present greater difficulties. In the first place it is absolutely necessary to ascertain the facts of mountain structure before proceeding to frame any theory to account for them. Yet to do this involves an amount of mere physical toil which of itself raises a formidable impediment to progress. For the mountains cannot be understood from a distance. One may not intuitively interpret them by merely looking at them from below. They must be climbed and scrutinised in detail from crest to crest and valley to valley. But to be able to understand what one sees in these elevated regions, one must have an eye that has been well trained in the observation of geological structure, and which, while losing sight of no essential detail, can yet detect the dominant lines amid the apparent disarray of crag and scar, slope and pinnacle. In the next place, having elicited the fundamental facts, it is needful to find for them some explanation which, while connecting them harmoniously and luminously, shall be in strict accordance with the laws of physics, and from the point of view of geological dynamics may be regarded as not only possible but probable.

Thus two obvious paths lead to the consideration of the subject. By the one we are conducted into the region of geological observation in the field. By the other we are drawn to the laboratory and the workshop, where the processes of nature can in some measure be repeated and watched. But these two roadways lie near each other, and the traveller along either of them, if he would keep himself from profitless divergence, should never lose sight of the other. Unfortunately this caution has not always been followed. Hence theories of mountain growth have been proposed, some of them wholly regardless of the real facts of mountain structure, others as defiant of physical possibilities.

Within the last few years the most detailed studies of the actual structure of mountains yet attempted have been carried out among the Alps. Chief among these are the admirable monograph of Dr. Baltzer upon the Glärnisch, and the still more remarkable and beautifully illustrated work of Prof. Heim, on the mechanism of mountain-making. These two writers deserve the thanks of all who take interest in the many questions which the forms of the mountains never cease to raise in the mind. They

1 "Der Mechanismus der Gebirgsbildung." Dr. F. Pfaff. (Heidelberg, 1879.)