circumstance that a work bearing the title "Les Eaux Minérales de la Hongrie," published under the auspices of the Hungarian Commission of the last Paris Exhibition, and very extensively circulated by them, is found upon examination to be altogether unreliable in its information. In the interests of truth I feel called upon to point out to foreigners the unsatisfactory nature of this work. This condemnation of the work in question is borne out by the following facts:—The book enumerates less than forty per cent. of the localities in Hungary at which mineral springs occur, no fewer than a thousand of such localities being omitted. Perhaps it is by way of compensating for these omissions that the anonymous author augments his list by making two or three mineral springs out of one by not discriminating its synonyms, and also by enumerating others which have no real existence. In many cases the author has failed to indicate the localities to which his information refers, especially in those instances in which there are several places of the same name; and these difficulties are increased by the numerous typographical errors in the book. The analyses published in the work are of a very unsatisfactory character, for while more than one hundred of the most recent and valuable analyses are altogether omitted, others, which were made twenty or thirty years ago, and are therefore far less reliable, are included in it.

Although it cannot be expected that a large class of readers should take an interest in these details about the Hungarian mineral waters, yet I have thought it right to point out the unreliable character of this work in your widely-circulated journal, so that the errors should not be transferred to the pages of balneological works of a more general character. To the authors of such works I should be glad to furnish information concerning the mineral waters of this country, as it is a subject which I have made my especial study.

Buda-Pest

J. BERNÁTH

Does Sargassum Vegetate in the Open Sea?

It is related by Humboldt and Harvey that floating *Sargassum bacciferum* vegetates in the open sea, by sprouting branches with-

out fructification, whilst other naturalists have seen in the yellowish floating pieces only the pale and altered dead remains of the plant. If these floating fragments were capable of vegetating, their branches should be brown or olive-coloured like living specimens on the rocks below water on the sea-shore, and if floating *Sargassum* really grow, fructification should not be wanting.

I have heard from several travellers, who have sometimes crossed the Sargasso Sea, that they, like me, never saw other than pale [and dead floating sargassum, so that I believe those accounts of Humboldt and Harvey to be erroneous. Does any reader of NATURE know of living *Sargassum* in the open sea as a fact?

There exist many fanciful reports on *Sargassum*, e.g., that some branches of the floating *Sargassum* rise two inches above water, and are thus driven along by the wind. Can any one confirm this? No botanist has hitherto observed it, and no sea-weed is known to behave thus. Haeckel and other learned men who never crossed the Sargasso Sea, speak of "a colossal sea-weed forest of 40,000 geographical square miles."

I would be greatly indebted for exact information as to the degree of density in which *Sargassum* has been observed. Although I was eleven days crossing in a steamer the two great seas containing *Sargassum*, I saw nothing at all in the Pacific on the direct route from San Francisco to Yokohama; and in the Atlantic I observed only single fragments from 50 to 100 feet apart; other credible travellers assure me of having seen the *Sargassum* sometimes almost grouped together in loose masses or strips of about 400 feet in length, hardly at all entangled and of no depth. I doubt therefore, also, whether *Sargassum* could hinder sailing vessels.

OTTO KUNTZE

Leipzig-Eutritzsch, September 30

[In Dr. Kuntze's letter, vol. xx. p. 426, line 4, read: "In Eozoon they became;" line 31, "under red heat;" line 40, condensed, not into incandescent liquids, but into incandescent crystals; line 44, "granate" ("garnet," not "granite").]

A Liquid Rheostat

WHILE experimenting on resistance to the electric current, I have devised an instrument in which fluid is used to conduct the current under examination. This may perhaps be of use to some who are interested in this subject. The sketch, Fig. 1,

shows the nature of the instrument. AB is a piece of elastic tube containing a weak solution of salt in water; this is held in the clamp C. By the screw D the tube can be compressed and its sectional area altered, and through this its resistance. G is the galvanometer and E the battery. Finding the instrument to

be very sensitive on a reflecting galvanometer I thought that probably the tube would be a means of transmitting articulate speech. I find this to be the case. Fig. 2, AB, elastic tube similar to the one used in the former instrument; CC, mouth-

piece; E, disk, connected to the tube at E. AB is put in circuit with a telephone and battery; D, screw to regulate the pressure on the tube. I call the instrument, Fig. 1, a liquid rheostat.

Taunton, September 24

FREDERICK JOHN SMITH

The Carving of Valleys

MR. WALTER R. BROWNE tells us in NATURE, vol. xx. p. 504, that he has discovered in the valley of a highland burn evidence that "the agencies of 'sub-aërial waste' are seen to have worked their will for untold ages on the Cambrian sandstones of Glen Beansdale, and to have produced—nothing."

Without making any attempt to explain how the old river channel he describes is not "choked by the debris which has come down from its sides," further than to suggest that "the tiny rannel which now drains the gully" may sometimes be, not the little streamlet which Mr. Browne saw, but a great roaring torrent quite capable of "direct erosion of its own, and of sweeping away the debris" which may have tumbled into it from its sides, it appears to me remarkable that evidence against sub-aërial denudation should be brought from the Scottish highlands where every mountain and valley seem to testify eloquently in its favour. I am pretty familiar with a great part

of the northern highlands, and I do not remember a single mountain which does not bear on its flanks ample evidence of the energy of this form of erosion. It is now some years since I have been at Loch Maree, but if I am not greatly mistaken Ben Slioch itself is draped in loose angular fragments, the result of its own decay. If Mr. Browne, while in these regions, visited Glen Sligachan, in Skye, he must have found that wherever he walked in that wild valley, it was on fragments of rock that have not only slid down the mountain sides in vast torrents, but spread out over the whole floor of the glen, burying the original glaciated surface deep beneath them; and in all parts of the more southern and central highlands we find the same irresistible evidence of the continued waste of the hillsides by heat and cold and the rainfall.

As to the behaviour of streams in excavating valleys, very much depends upon the character and arrangement of the rocks over which the river flows; there are many streams in both

highlands and lowlands which in one part of their course have cut deep vertical gorges not unlike cañons, while at another they have scooped out wide open valleys with gently sloping sides, so to come to any conclusion based on the assumption that the eroding action of streams is uniform is very unsafe.

Mr. Browne seems also to take a very peculiar view of the extent of the ancient glaciers, as he speaks of the channel of the little stream he describes as "sufficient to guide the glacier in its flow," seeing that the great glacier which flowed over Scotland from north-west to south-east took no notice of such a channel in its course as the Firth of Tay, but swept over it and the county of Fife beyond, scarcely showing a trace of being deflected at all. Surely there could not be such an enormous difference in the dimensions of the glaciers on the opposite coast as this would indicate. Whatever was the case on Loch Maree, the glaciers that moved down Loch Assynt and Loch Broom were no pignies.

JAS. DURHAM

Newport, Fife, September 27

The Bis-cobra, the Goh-sámp, and the Scorpion

SNAKES of all kinds are held in great horror by the natives of India, and they slay indiscriminately and ruthlessly all they come across, but this horror pales before the terror inspired even by the names of the bis-cobra and goh-sámp,—terror so great, that, if met with, the harmless animals are given the widest berth possible, and their destruction is never attempted. Though actual animals, they are virtually mythical, that is as regards the deadly properties assigned to them, and we easily recognise in them the originals of the flame-breathing dragon and deadly basilisk. The gaze of the bis-cobra is awful even from a distance and its bite is instant death; and if the goh-sámp breathes upon, or at you, you fall dead at once.

With such awful reputations attached to them, I lost no time, in my early career, in attempting to make the acquaintance of these formidable reptiles, and, after much labour, succeeded.

No one would help me in procuring a bis-cobra, and my servants repeatedly warned me against the risk and madness of the attempt. At one time I had engaged the services of a savage woodsman in collecting birds' eggs, and to him I, one day, applied for a bis-cobra, but he at first refused, and it was only the promise of large bakhsheesh that ultimately induced him to promise his assistance. After several days he appeared carrying an earthen pot at the end of a long bamboo, and meeting me, whispered mysteriously in my ear "Sahib! bis-cobra!" Glad of the news, I summoned my servants, who, when they heard the reason of the summons, reluctantly formed a distant semi-circle. The pásee cautiously put down the pot and also retired to a distance. In no way dismayed, I approached the pot, removed the dirty rag around its mouth and looked in. As expected, I found a beautiful brown and yellow lizard, freely protruding in its fear a forked anguine tongue, and anxious to escape. On taking it up it seized my hand with its delicate teeth, and in this position I held it up to the horror-stricken servants who exclaimed in fear "Sahib! sahib! chör do, phenk do (Master! master! let (it) go, throw (it) away!)." Then, on my declining to do either, they, like the barbarians of old, waited anxiously to see whether I "should have swollen or fallen down dead suddenly," and, seeing no harm, they quietly dispersed.

My adventure with the goh-sámp was unsought and equally satisfactory.

Walking in my garden one day, I met the gardener running away with affrighted look from a pear tree, and asked the reason; he could only gasp out "Goh-sámp, sahib, goh-sámp!" and implore my return. Delighted at the opportunity, I pressed on, and soon saw the awful reptile trying to dodge my gaze; a large scaly, uncanny looking tree lizard about fourteen inches long. In the distance the mali (gardener) implored me to beware his "phoonk" (blast of breath), but I courted it, by trying to dislodge him, which I succeeded in doing by shaking the bough, and then he threw himself on the ground and scuttled up another tree. Both lizards are absolutely harmless, and I believe a poisonous lizard is quite unknown.

The scorpion is not dreaded like the snake, but, like it, is inevitably killed. Its habits and pursuits well deserve study; my observance of the former has enabled me to clear away (to my own satisfaction) many obscurities with regard to its poison weapon and the mode of using it. And let me declare at once that the popular idea regarding scorpionic suicide is a delusion based on impossibility. Owing to the position and nature of its

weapon, the animal cannot strike itself. It does not protrude a sting as bees, *et hoc genus omne*, do, and the line of strike is downwards and backwards, with at times a lateral but yet downward motion. As literally described in Holy Writ, *it strikes but does not sting*; and its motion in so doing may be imitated by seizing the tip of the index or middle finger with the thumb, and suddenly liberating the former.

The poison is acid and albuminous; the latter I presume, as on placing a living specimen in spirit, the animal in its death throes ejected it, and it immediately coagulated in threads.

The pain and constitutional disturbance attendant on scorpion strike are often very severe, and children have occasionally succumbed; but adults only complain of the pain, which generally passes off in half-an-hour. On two occasions I have passed through a host of migrating crickets, once by day and once by night; on the first occasion my carriage wheels crunched for a mile through a cricket migration; and on the second my palkee bearers' feet slid about amid crushed crickets; on this occasion one of the bearers yelled out that a scorpion (out on a cricket spree) had struck his foot, and hobbled up to the palkee. Having the means at hand I applied a paste of ipecacuanha and laudanum, with almost immediate relief, and the bearer trudged on with the rest.

Peshawar

H. F. HUTCHINSON

Certain Animal Poisons

I HAVE had unpleasant experiences of the poisonous properties of the Portuguese man-of-war, the great hornet, and the centipede.

While bathing at the Cape as a boy I managed to get the long lovely blue tentacle of the first round my wrist, and well recollect the attendant long-enduring agony and irritation, while the blue mark remained long on my wrist. Twenty-five years after, while soaking in a P. and O. steamer's marble bath in Madras roads, I suddenly received what seemed an agonizing stab below my left knee, and jumped out of the bath with the pain. The cause was at once apparent, a bit of the fatal blue filament had been pumped into the bath, and left the familiar mark on my knee, and I bore it for a long time.

On one occasion I was showing some friends over the famous "Arrah House" and opened a small window to let in more air and light; in doing so, I unwittingly disturbed the adhesions of a great hornet's nest, and one of the infuriated inmates at once stung me on the left temple; the pain was intense and the swelling immediate; aware of the constitutional disturbance which would follow, I made for home (about 500 yards distant), and reached the threshold of my drawing room, and there I was brought to an instant standstill, unable to move hand or foot, and trembling like an aspen leaf. I was laid on a sofa, and asked for a glass of port wine, which soon revived me.

This dreadful hornet, nearly two inches long, deep brown with a broad yellow band across the abdomen, builds large globular paper nests, and is not rare in the Himalayas, where it may often be seen in the pines. The hillmen dread it extremely, and with good reason, for a swarm, or even a few individuals will attack you fiercely and follow you for miles.

Griffs, who have fired at a nest, against the remonstrances of their hillmen, have paid dearly for their rashness. When attacked, the hillmen squat down and drawing their blankets closely around them, await the subsidence of the storm, rarely escaping two or three stings. I have known one of these hornets kill a child by its sting; and many horses have been destroyed by an infuriated swarm. These are the dreadful animals which assisted in the expulsion of the Amorites of old.

The common bee, which in India often builds in trees and ruins, frequently attacks men and horses, irritated by the smoke of the fires (for cooking) lighted under the trees or in the buildings, and a general *saave qui peut* is the only mode of escape.

Many ludicrous adventures occur from this cause out here, and I will describe a recent one. The officers of a British regiment stationed at Umballa were dressing for Sunday morning Church parade, when the alarm was given in the compound of three who lived together, that the bees were abroad. As escape from the parade was impossible, and the infuriated bees had to be faced, the three griffs made a syce (horse attendant) envelope himself in a blanket, while each wrapped a sheet around himself, and then formed a line, the front officer holding on to the syce's bamboo, and the other two to one another's swords, and in this guise they groped their way out of the compound surrounded by