

Kitts (in the wild state) dates from about ten years previous to the visit of Labat, in 1700—so that they have been denizens of the island close upon two centuries now. The manner of their introduction may not even have been known to the English settlers of the colony.

It was on this occasion, the good Father informs us, that he first ate monkey. "It is true," he says, "I was a good deal shocked when I saw four heads in the soup, very much resembling infants' heads, but when I tasted of the dish I had no difficulty in overcoming my scruples, and continued to eat with pleasure," for, he adds, "C'est une chaire tendre, délicate, blanche, pleine d'un bon suc, & qui est également bonne à quelque sorte de sauce qu'on la mette."

The worthy Father feelingly dwells upon the admirable qualities of young monkeys in the form of soup or otherwise. The people of St. Christopher and Nevis might benefit by the experience and example of good Father Labat. Why not try young monkey as an article of diet generally? The planters would thus receive some compensation for the destruction of their canes and provisions by this pestilent mammal.

Trinidad, in a natural history point of view, may be considered more as a portion of South America than as belonging to the West India Islands proper. The two kinds of monkeys found in Trinidad are, I believe, met with in the opposite mainland. There is, therefore, no mystery as regards their existence in that island. The same remark applies to Nevis with respect to St. Christopher.

An example of almost exactly the same nature as that above related regarding the monkeys of St. Christopher has taken place in Dominica within the last half-century, and in like manner might pass out of remembrance unless placed on record.

About forty years ago a planter of this island visited his friends in Martinique: in returning from thence he brought with him two opossums, male and female. Shortly after they unfortunately escaped from their cage, and made their way into the woods. This was the current belief at the time and afterwards. The fact, however, is certain of the importation of the animal about that period. Their numbers increased rapidly, and not many years had passed when one of the results of their presence in the forests was the disappearance of the large frog, or crapaud, of the island, upon which the *Manicere* (as called by our people) preyed. The southern district of the island, where the pair escaped, was first nearly cleared of crapauds; but as the opossums multiplied they gradually extended over the whole island, with the exception of a part of the northern district, and as they spread, the frogs for most part were destroyed, and it was feared might be finally exterminated; but lately it would seem that their numbers have somewhat increased, and the opossums are probably not so numerous.

Fortunately our peasantry eat the opossum with great satisfaction, and set traps in the woods to catch them and hunt them on all occasions.

The large frog, or crapaud, of this island, *Cystignothus ocellatus*, I believe, is a part of the dietary of the people of all classes in the colony. It is very wholesome and much relished. Its extensive destruction by the mischievous opossum has been a great evil to the country, but its extermination would be a serious loss. Happily, however, it appears to be gaining ground of late, though it can never abound as formerly while the "*Manicere*" exists in our woods.

JOHN IMRAY

Dominica, January 10

Intellect in Brutea.

I SEND the following notes on the habits of the red or agricultural and the small black ant, which may be of interest to the readers of NATURE:—

I have been stationed for several years where the red or agricultural as well as the small black ant are common, and have observed with much interest their habits. The burrows of the red ant are said to be very deep, always extending to water, and it is stated that one has been followed for a depth of twenty feet.

I have never seen any evidences of the sowing of seeds, but have frequently seen them carrying leaves of grasses and grass-seeds into their burrows.

The mounds are usually from two to three feet in diameter at base and one foot in height, are made of gravel, and frequently ornamented with bits of crockery, beads, or pins, as opportunity may offer. The warriors are very bold, attacking anything which

may trespass upon their grounds; I have often placed a centipede or scorpion upon the mound, and observed them attack and destroy it.

The fighting is all done by the warriors, who, on being called upon by the sentries, sally out in great numbers, and rush to the attack; some seize and hold the victim, while others attack it on every side; as soon as it ceases struggling, the warriors return to their burrows, leaving to the workers the labour of cutting up and carrying in.

Hospital-Steward Smith, U.S. Army, states that in Arizona and Idaho he has observed that these ants render much service by freeing houses of that insect pest so common in warm climates, *Cimex lectularius*.

One day last autumn, while halting for lunch on the banks of the Cinnamon River, I.T., a forager belonging to a party of black ants was observed to discover some sugar which had been dropped upon the ground; the ant immediately ran off, and soon returned, followed by a long line of its fellows. The first to arrive did not carry away any of the treasure, but seemed to resolve themselves into guides for the approaching column; they ran back upon the trail, and every now and then an ant in the advancing column seeming to be in doubt as to the correctness of its course, would run out of the line and approaching a guide, would confer a moment with him, then, reassured, would hasten back to the line and continue on its course.

Post Hospital, U.S. Army, T. E. WILCOX
Boise Barracks, Idaho Terr., Dec. 23, 1879

Stags' Horns

A FEW weeks ago I was staying with a friend in Sussex, in whose park are about sixty red deer, and upon my asking him whether he had ever picked up any cast-off antlers, he replied that he had not only picked up some that were gnawed, but had actually himself seen them gnawing them. He has promised to send me some specimens after this year's shedding.

G. J. R.

THE VOLCANIC ERUPTION IN DOMINICA

ON Sunday, January 4, shortly after eleven o'clock in the morning, a volcanic eruption occurred in the Grande Soufrière district of Dominica. This district is situated near to the centre of the southern third of the island; and before the late eruption its volcanic energy was manifested by the action of four solfataras and by the Boiling Lake. During the morning of January 4, the weather in the town of Roseau—the capital of the island, was cool and showery; but shortly before eleven o'clock the sky became overcast and heavy rain began to fall, accompanied with thunder and lightning. Soon afterwards the sky darkened, the rain poured in torrents; a powerful odour of sulphuretted hydrogen pervaded the atmosphere; the lightning increased in vividness; and thunder of a peculiar sound, and without the usual reverberation, crashed for several minutes with intermissions of so short a duration as to be scarcely recognisable. After the lapse of about five minutes the darkness began to lift, and it was then seen that the rain was bringing down volcanic ash of a light greyish colour and metallic lustre. The ash fell for about nine minutes, covering the ground to the extent of a quarter of an inch, and during the time everything had a dull leaden aspect, whilst the mud rolled off the houses and the leaves of the trees like big globules of partially oxidised mercury. During the time the ash was falling I noted that the barometer indicated a pressure of 30.10 inches, and a few hours afterwards the mercury fell to 29.96 inches. The Roseau River, which rises near to the volcanic district, became a raging torrent, flooding the land through which it passed and creating great destruction; its water became of an opaque white colour, and even now, more than three weeks after the eruption, the white colour remains, though in a lesser degree. It is worthy of notice that the greater body of water came from the vicinity of the eruption, for the

lower tributaries of the Roseau River were very little swollen.

The scene of the eruption is about eight miles east from Roseau, and the volcanic ash was blown to the west, by the trade wind, in a narrow belt about one and a half miles wide. There is, unfortunately, no means of ascertaining the extreme limit of this belt; but a small vessel, which was about four miles out at sea at the time of the eruption, experienced a shower of ash similar in every respect to that which fell in Roseau. The area, then, over which the ash fell must have been at least twenty square miles.

On the 12th of January, I visited the Soufrière district, and found that a volcano had opened up about a mile to the south-west of the Boiling Lake. The Grande Soufrière lies in the depth of the primeval forest which covers the greater part of Dominica, so that no loss of life occurred; but for a considerable distance beyond the crater the trees have been destroyed, and the earth is covered several feet deep in some places, with volcanic *débris*. Here and there, stumps of blasted trees sticking up a few inches or a few feet from the gray ash give a striking evidence of the force of the explosion. Most of these stumps have been quite shattered by the ejecta, and in many were found embedded large pieces of trachytic rock. I did not observe any traces of fire, but on scraping away the ash from the ground at some distance from the lip of the crater, large splinters of wood and a few bleached leaves were discovered. Beyond this zone of desolation, the forest has been destroyed to a great extent by a whirlwind which appears to have occurred just before the eruption. Branches of trees, broken and twisted off from the parent stem, have fallen to the ground, and by their weight have crushed down all the forest undergrowth. In spite of the heavy rains, which had been almost continuous since the time of the eruption, I found the ash still tenaciously clinging to the leaves and the trunks and the branches of the trees. The swollen streams which run through the ravines radiating from the volcanic district, were in many places dammed up with large pieces of sulphur and pumice, and with splinters of wood. On reaching the lip of the crater, which was a work of some difficulty on account of the depth of the ash, the bottom was seen about 600 feet below. This appeared to be cooling down, for although commotions were observed in several places there was no flame or glow visible. Here and there, columns of aqueous vapour ascended and widened out into clouds before reaching the lip, so that the bottom of the crater could only be seen at intervals. The crater is ovoid, with its long axis running in a direction from west-south-west to east-north-east and the lowest part of the lip, as measured by the aneroid barometer, is 2,615 feet above the level of the sea. At the north-eastern extremity there is a break in the side of the crater, and through this a quantity of volcanic mud poured into the Point Mulatre river, which flows towards the eastern side of the island; it would appear that an enormous quantity of the gray mud was thrown out, for it is stated that at one time the bed of the river was nearly filled up, but since the eruption most of the mud has been carried out to sea.

Large masses of pumice and sulphur are seen in the vicinity of the crater; and I picked up, near to the lip, pieces of felspar and porphyry. Rocks containing augite are found in abundance, and the solid ejecta lying about in all directions are composed for the most part of grey trachyte, containing a large proportion of iron pyrites. Were these trachytic rocks pulverised they would form, with the addition of sulphur, a sand similar in appearance to that which fell in Roseau at the time of the eruption.

Strictly speaking, a new crater has not formed, for the eruption was only the breaking into activity of an old volcano. The Grande Soufrière district formerly included four solfataras and the Boiling Lake, and the most active of

these solfataras was situated in the crater of the volcano which has again become active. With the exception of a part of the bottom and southern side occupied by the soufrière—as a solfatara is called in the West Indies—the crater was clothed with trees, many of which were of large size and considerable age; and a stream of strongly ferruginous water rising at its south-western extremity, ran through the ovoid basin and found an exit at the break in the north-eastern side. The path to the Boiling Lake passed through the crater, and the north bank of the chalybeate stream—which has now entirely disappeared—was the usual place selected for an encampment by those visiting the lake. No earthquake was experienced at the time of the eruption; and beyond the peculiar thunder there were no sounds, similar to the booming of cannon, which are usually mentioned as concomitants of all manifestations of volcanic energy. It is also to be noticed that there was no flow of lava, and on my visit to the volcano, I found no trace of this usual educt of an eruption. It may be that the resistance to the volcanic force, was too small to cause much tremulation except in the immediate vicinity; and the surrounding country is of so rugged and broken a nature—dislocated rocks, and sharp ridges alternating with deep ravines—that a seismic wave would be propagated with difficulty.

The ash and sand which fell in Roseau, was similar in many respects to that ejected from Tomboro in April, 1815, for on that occasion the Commander of the H. E. I. C. cruiser *Benares*, reported concerning the ash which fell at Macassar, "though an impalpable powder or dust when it fell, it was, when compressed, of considerable weight; a pint measure of it weighed twelve ounces and three-quarters, it was perfectly tasteless, and did not affect the eyes with painful sensation, had a faint burnt smell, but nothing like sulphur; when mixed with water it formed a tenacious mud, difficult to be washed off." The ash which fell in Roseau was heavier, for a pint measure of it without compression weighed twenty-one ounces and fifteen drachms; this heaviness may however, be accounted for by the large proportion of iron pyrites, and the presence of this mineral was the cause of the metallic glistening first noticed when the ash fell.

M. Bert, a resident in Roseau, has made a qualitative analysis of the ash, and he informs me that he found the following bodies:—ferric sulphide, magnesia, potash, soda, silicon, sulphur, carbon, oxides of iron, lead, and alumina. M. Bert also found traces of other bodies, but their proportion was so small that he was unable to determine their exact nature with the means at his disposal.

H. A. ALFORD NICHOLLS

JUNGLE LIFE IN INDIA²

OF the many volumes published about the British possessions in Asia not one of them appears to us to go over the same ground as Mr. Ball's "Jungle Life in India." For nearly fifteen years the author, as one of the staff of the Geological Survey of India, was engaged in the work of the survey in parts of the Central Provinces and of Western Bengal far out of the ordinary tracks. Fond of sport, an excellent ornithologist, and a good botanist, there was much to engage his attention outside the ordinary routine of his daily duties—duties indeed which by their very nature brought him into everyday contact with all sorts of natural objects, both great and small. A specialist, it is true, has the proud satisfaction of knowing the subject he works at perhaps better than any one else, but he too often acquires the knowledge by the sacrifice, dismal to contemplate, of his love for almost all other subjects, and he can look for sympathy with his

¹ Memoir of Sir Thomas Stamford Raffles, F.R.S. London, 1830, p. 246.

² "Jungle Life in India; or, The Journeys and Journals of an Indian Geologist," by Valentine Ball, M.A., of the Geological Survey of India. London: Thos. De la Rue and Co., 1880.