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X.—*Communications on the Island of Ascension.* 1. Notes communicated by Captain H. R. Brandreth, R.E. 2. Extracts from a Private Letter by Mrs. Colonel Power. Communicated by Joseph Sabine, Esq. Read 8th June, 1835.

1. THE Island of Ascension is situated in $7^{\circ} 55' 56''$ south latitude, and $14^{\circ} 23' 50''$ west longitude. It is about eight miles in length and six in breadth; and lies within the immediate influence of the south-east trade-wind.

The whole character of the island is volcanic, and its surface is broken into mountains, hills, and ravines. The mountain-district extends principally over the south-east portion of the island; and the "Peak," or greatest elevation, is 2870 feet above the level of the sea. The plains or table-land surrounding the "Peak" vary in height from 1200 to 2000 feet. On the north side they sweep gradually down towards the shore; but on the south they terminate in high and bold precipices. Steep and rugged ravines intersect these plains, which, commencing from the highest lands, open into small bays or coves on the shore, fenced on each side with masses of compact and cellular lava. The sides of these ravines disclose extensive beds of cinder and ashes. Volcanic tufa occurs in the form of rocks, but is in general distinctly stratified. Red iron-clay, tufa, blue clay (resembling marl), and decomposed trachyte, alternate with the strata of cinders and ashes, and, wherever recent sections occur, present the most distinct arrangement. Pumice is found on the plains and corresponding parts of the mountain-district, and occasionally on the shore. It is found in detached pieces or mixed up with cinders and clay, and occasionally with a conglomerate of red iron-clay, cinders, ashes, scoriæ, and nodules of lava. Trachyte rock appears to extend all round and throughout the mountain-district; in several parts resembling the arrangement of basaltic columns, and in others the structure of chalk cliffs. Masses of this rock disclose themselves near the mountain-ridge; and it passes from the compactness and hardness of sandstone to entire decomposition.

The hills dispersed over the island vary in height from 100 to 1500 feet above the sea; and offer, with few exceptions, no evidence whatever of having undergone any change since their volcanic origin. They abound with cinder, scoriæ, and ashes; and are surrounded at their bases with compact and cellular lava, and occasionally obsidian. They in general possess vestiges of an original conical form, having the surface smooth and regular towards the north; but on the south they are broken, hollow, and precipitous, with here and there the appearance of a lateral discharge of lava, which may be traced in its course towards the shore.



Capt. Everest's R.S. 461.

ASCENT OF ISLAND

From the Mountain Road.

Published for the Journal of the Royal Geographical Society, by John Murray, Albemarle Street, 1855.

Plains of cinders, ashes, and scoriæ, and finely-pulverized earth, spread over that portion of the island which lies to the north-west of the mountain-district, interrupted with water-courses of fine gravel and pebbles of lava and silex. Masses of lava and scoriæ also occur on these plains, twenty or thirty feet high, heaped together as if by art, and for the express purpose of clearing the land.

Extensive beds of lava and scoriæ surround the whole island, indenting the line of coast with small bays, coves, and inlets. From North-east Bay, south to South-west Bay, the coast is singularly bold and precipitous. On the opposite coast the beds of lava spread out into the sea, and assume a variety of forms, columnar, arched, or cavernous; and their surfaces are remarkably rugged, splintery, and difficult, or even dangerous, for the stranger to traverse. These formations are locally termed climpers; and the denizens of their districts are the wild cat and rat. Stalactites of sulphate of lime are found in the coves on the shore. Limestone occurs in great abundance in some of the small bays or coves. It is a beautiful specimen of calcareous tufa, consisting of small particles of shell rounded by attrition, and united by heat and pressure. Excellent lime is obtained from it, which, when mixed with three and even four parts of the volcanic earth, forms the best mortar.

The beaches of these bays are composed of precisely similar particles of shells; and in South-west Bay and Crystal Bay they are mixed with small pebbles of lava, quartz, and topaz. It is in these bays that the turtle land at night to deposit their eggs in the sand, and on their retreat to the sea are intercepted by the turtle-catchers and turned on their backs; the following day they are usually carted to ponds or crawls near the town. I think in one year 2500 were turned, averaging each four hundred weight, and the largest weighing eight hundred weight.

The dark and rugged beds of lava—the deep red colour of the hills—the wild and capricious forms of the mountains and precipices, and the prevailing *apparently* recent indications of volcanic action, impart to the aspect of the island a character of total sterility and desolation that does not really belong to it. On approaching it, under a particular state of the atmosphere, when dark masses of clouds are congregated round the High Peak and bosom of the Green Mountain, and their black shadows are projected far down the plains, so that the only evidence of verdure—the solitary oasis amidst the surrounding desolation—is shut out from the view, it is scarcely possible that the imagination should conceive a picture more wildly sublime. It would have assuredly suggested to Milton a juster simile for his “great arch-angel ruined” than Teneriffe.

It is important thus to notice the impression made on the

transient visiter, because to it are to be attributed the conflicting accounts of the island. The opinion of those who have only made a passing observation is to the last degree unfavourable; while a detailed examination of the features of the country is calculated to remove in some degree this impression.

In the year 1829 I received instructions from the Admiralty to proceed to Ascension, to make a report and survey of the island, previous to the adoption of certain measures recommended by Captain Bate, which would have the effect (if sanctioned) of confirming the final establishment of the island as a permanent station. And my attention was principally directed to three points:—1st. The defence of the island, and the necessary means of accommodation for the troops. 2d. The means of procuring water, and of conducting the supplies from the mountain-district to the town. 3d. The state of cultivation, and the encouragement necessary to raise stock and vegetables for his Majesty's ships of war, and merchant-ships of any nation, touching at the island.

The population at the period of my arrival consisted of about 140 Europeans, principally of the Marine Corps, and 76 Africans; making a total of about 220 persons: among whom were 5 military officers, 1 civil officer, 14 white women (the wives of the non-commissioned officers and privates of the marines), and 14 black women, with their children.

The island was first occupied as a post by Sir George Cockburn, on the arrival of Napoleon Buonaparte at St. Helena, to aid in the surveillance of the illustrious prisoner; and was placed on the establishment of a sloop-of-war. A small town, or rather village, thus grew up near the roadstead: which, on my arrival, consisted of a collection of miserable tenements, with walls put together without lime, and harbouring vermin, roofs of canvass or shingles, and floors of sandstone or tarras. The hospital, which occasionally received the sick of the African squadron, was placed in a hollow, and consisted of four rooms, each about 16 feet by 11; and the Africans occupied a congeries of wretched hovels, dark and filthy. A victualling store, a tank, and a small stone tenement for the officers, were the only buildings that redeemed the establishment from the appearance of an African village. In the country or mountain-district the accommodations were somewhat better for the officers, but the establishment generally was similar to that of the town.

The open roadstead or anchorage, near which the town was situated, was defended by a few guns, on a projecting slip of land about seventy feet above the sea, but without any breast-work or other cover; and in the rear, on a higher elevation, a building, with a canvass roof, was occupied as a powder-magazine. Nearly parallel to this position was a second slip of land, of lower eleva-

tion, which had been formed into a good pier or landing-place, well protected at the head with masonry, and with a convenient flight of steps to the water. A main road extended from the town to the country or mountain-district; and other roads and paths had been formed communicating with several parts of the island.

The supply of water at this time was scanty and precarious. It depended on springs or drips in the precipitous banks, and the rains that could be collected in casks and a few old iron tanks. A stone tank at George Town, calculated to hold about eighty tons, was supplied with water from the mountains, a distance of six miles. Three carts, six oxen, and three drivers were employed daily in the transport of about three hundred and sixty gallons of this water. The supply from the whole of the drips was estimated at somewhere about four hundred and eighty gallons per day; but even this quantity was liable to considerable diminution after long droughts. It does not appear that there had been at any time one hundred tons of fresh water in store on the island. Several attempts had been made to procure a further supply by boring. The auger had been introduced nearly horizontally, or in the direction of the sub-stratum, along which it was supposed the water passed and formed a drip on the face of the precipice. The object, I presume, was to cause the stream to flow more freely—certainly not to arrive at the source of the spring. But besides this, Captain Bate, acting on the advice of an eminent foreign naturalist who visited the island, sought for water by the usual process of boring. The spot was selected near high-water mark, on account of the neighbourhood of calcareous tufa, in the formation of which fresh water was considered an indispensable agent. The experiments were attended with great labour, and were unsuccessful. Those concerned in them were probably not aware that, according to experiments, the vapour from salt water intensely heated under pressure will, by passing through loose sand, agglutinate the particles and form the solid sandstone of Ascension, without the agency of fresh water; consequently, that this would not necessarily be found in its neighbourhood. A second trial for water in the low lands was decided on by Captain Bate and myself; and in the event of its failure, I recommended others to be made in the mountain-district.

In reference to agricultural productions, the island might at this time have been divided into four parts. The first consisted of about two hundred acres, situated in and about the highest lands. In most mountainous countries cultivation commences from the shore and ascends to a certain height, beyond which the efforts of man are unprofitable, and nature is usually left unmolested and untamed. In Ascension, precisely the reverse occurs: decomposition commences from the apex of the mountain, spreads down

its side, and is limited at certain stages, where the state of the atmosphere ceases to aid in altering the original volcanic condition of the soil. The first or highest portion of land is therefore the richest, the vegetable soil being here occasionally from two to three feet in depth; and in ravines and hollows, an alluvial deposit of even much greater depth is found, the substrata being cinders, ashes, and clay.

About forty-five acres of this, then, were in cultivation at the time alluded to; producing the sweet and English potato, peppers, tomatos, cassava, calaloo (or West-Indian spinach), carrots, turnips, cabbages, pompions, French beans, and a few pines, bananas, and water-melons. The Cape gooseberry (*Physalis edulis*), a very grateful fruit for a tropical climate, was also found wild over this district. The sweet potatoes were as good in quality as any I had seen in the West Indies. The English potatoes did not thrive equally well, as is usually the case within the tropics.

Of the several wild plants that I found scarcely any were useful: they were for the most part tropical, and of the worst kind, being important only as forming a basis by their decay for the improvement of the soil.

On my return, accordingly, I submitted these plants and portions of the soil in which they grew, together with sections of the ground, and the meteorological observations I had made with Daniel's hygrometer, to Mr. Lindley, Secretary to the Horticultural Society, who expressed an opinion that the soil and climate of the mountain-district were highly favourable to cultivation. To this gentleman I was thus much indebted for the assistance he afforded me in framing my report on the agriculture of the island. The *Palma christi* (castor oil tree) also grew abundantly on the mountain-lands; and was raised, but requiring some care, in the low lands.

The second division of the island consisted of about eight hundred acres, lying around the High Peak, from about 1400 to 2200 feet above the sea. The soil here varied in depth from six to eighteen inches, lying on beds of cinders, ashes, scoriæ, and trachyte. The cattle and other stock grazed over this portion; and Captain Bate had planted a part in turnips. The temperature was steadier than that of the higher land, but less moist.

The third part or division of the island included those tracts of cinders and ashes that lie about all the lower lands. The only change that takes place in these hot and arid regions is after heavy rains: the thirsty soil rapidly absorbs the moisture; and the purslane springs up, and singularly contrasts its bright green and succulent leaf with the parched and arid surface. The only other evidences of vegetation are patches of hard wiry grasses. If, however, this district were visited with a degree of moisture like that

in the mountain-lands, the soil would be decomposed, and rendered capable of cultivation.

The fourth and last division of the island consists of extensive beds of lava that will not undergo any change for an indefinitely long period.

After five weeks residence in the island I returned to England, and submitted certain propositions to the Admiralty for the future improvement and establishment of this little colony; which met with the approval of the Lords Commissioners, and were ordered to be adopted forthwith. They regarded,—1st, the occupation of certain points with sea-batteries, for the defence of the coast; 2d, accommodations for officers and privates, a hospital, storehouse, &c.; 3d, a line of iron pipes from the mountain-district to the town, being a difference of elevation of 2000 feet; and, 4th, certain measures for the cultivation of the ground. I had previously consulted with Captain Bate, the commandant, regarding these propositions; many of which, indeed, originated with him, and were merely referred to me as professional points for the decision of an officer of engineers. In all essential matters our views were in accordance.

Some extensive improvements being thus sanctioned—particularly in the means of conducting water from the mountain-district to the town—I returned to Ascension in 1830, to commence the principal works, and fully explain my views to the commandant. In the mean time a quantity of iron pipes had been sent out, and Captain Bate had commenced preparations for laying them down from a tank he had constructed at Dampier's spring, five miles distant from the town, about one thousand feet above its level, and the same depth below the mountain-district; where the water from the springs or drips was to be collected in a smaller tank, and passed to the larger one by a second line of pipes. I had expected on my arrival the satisfaction of finding a supply of water in the mountain-tanks; but, unfortunately, during the twelve or fourteen months of my absence the island had been afflicted with a severe drought, and I found barely forty tons in store. The search for it in the low lands had failed; the springs or water-drips, instead of gushing out plentifully, were scantily trickling; and the skies were glorious, but unproductive in their unclouded splendour. Under these circumstances, I pressed for further experiments in boring, and fixed on a spot high up in the mountain-district, on the windward side of the island, and at the bottom of a steep ravine, the sides of which were eighty feet in height, and where the section showed the arrangement of the strata to consist of volcanic matter lying on beds of retentive clay. The clouds and mists, and constant evaporation from the sea, were evidently arrested by the high land, and their moisture deposited

here ; and the experiment fully succeeded. At a depth of twenty-five feet from the surface we found a spring, that for the last five years has yielded from four to seven tons daily, and has probably averaged about five tons a day throughout the year. The question of a supply of water was thus set at rest ; and when, in March last, after a lapse of five years, I revisited the island on my way home from St. Helena, I found abundance of water in it, and learnt that the average amount in the tanks throughout the year was *one thousand tons*.

It may be readily imagined that the natural productions of Ascension are few and of no great value. The island for a long time was chiefly celebrated in the ‘*Almanac des Gourmands*,’ and owed its distinction to the abundance of turtle found on it. The number of these amphibious creatures that have been caught year after year, and their enormous size, have frequently staggered belief. I have already stated, that in one year upwards of 2500 were turned on the beaches, among which were several that weighed from six hundred to eight hundred pounds each. The supply in general is so abundant as to be issued to the ships and troops as fresh meat ; and this transcendent delicacy is cooked after the ordinary fashion of beef or mutton. I have witnessed, indeed, the fins of a splendid turtle cast away as offal : let me add, however, that the offence was committed by a negro, and not by a more civilized being.

The turtle are usually collected in two large ponds or crawls, and the only precaution adopted to ensure their living and flourishing for the shambles is the occasional change of water with the tide. In quality the turtle of Ascension, when scientifically served up, is esteemed of high and undoubted merit ; but it is in general too large to reach England. On my return from my first visit to the island, the commandant freighted the transport with sixty of the finest flappers that the season had produced. They were destined for some of the most distinguished individuals in England ; and the largest and finest was set apart for his late Majesty, with instructions, that if but one survived it should be considered as so appropriated—the commandant acting, as nearly as possible, upon the principle that the king never dies. And the precaution was by no means unnecessary, as in fact only one did survive. To prevent intrigues in favour of particular patrons or friends, each turtle was marked on his fair white belly-shell with the name of the owner ; and the sailor in charge of the party duly reported each morning their state and condition, as thus,—“ Please your honour, the Duke of Wellington died last night ;” or, “ I don’t like the looks of Lord Melville this morning, sir.” Then followed certain interesting questions,—“ How is the Lord Chancellor ?” “ Why he looks pretty lively, sir ;” and so forth.

The coast of Ascension abounds with a variety of fish, and almost all are of excellent quality; perhaps the conger-eel may be considered the most approved. The egg of the tropical swallow, or "wide-awake," as it is locally termed, must be also esteemed as an indigenous delicacy. These birds roost among the climpers, or beds of splintery lava; they are about the size of a pigeon, but less round in shape; and the egg is nearly as large as that of the hen—the shell being green, with dark spots. It is said that in one week the garrison collected from the "wide-awake fair" (the name given to their retreat) 120,000 eggs. The season for obtaining them lasts between two and three months.

The wild Guinea-fowl is also in great abundance on the island. These birds find cover in the mountain district, and among the lava rocks in the lower lands. They are protected from indiscriminate slaughter by a sort of game-law; and a season is set apart for shooting them. They were first introduced from one of his Majesty's cruisers, and have rapidly multiplied over the island. I believe the attempt to propagate the pheasant and partridge has not been equally successful.

Wild goats also formerly afforded excellent sport, as well as good food; but it required bold and wary crags-men to track this game over the precipitous and treacherous country where it was usually found. Captain Payne and Mr. Barnes, of the Royal Marines, will long be remembered in the island for their perilous achievements in search of the wild goat, and the unwonted labour they endured in securing their game, and afterwards returning loaded with it to the mountain-house by the Devil's Rock or Break-neck Pass—names given to indicate the peculiar difficulties of those tracks. The number of wild goats has since greatly diminished; and indeed their extermination has been finally decided on, as essential to the rearing of sheep and cattle.

The cat, the rat, and the land-crab are among the wild inhabitants of these regions; and the two former afford no mean sport to the inhabitants—the dogs being specially trained to hunt the crabs, which are similar to those in the West Indies, and burrow high up in the mountain district. They are found crossing the tracks from hole to hole, with their claws bristling with defiance: the dog, when set on them, makes a spring, gives one crunch, and then tosses the mangled carcass away; but an occasional sharp howl indicates an unsuccessful attack, and that the crab has pinned his opponent by the nose. The land-crab in the West Indies, after being penned up, physicked, fattened, and dressed with divers condiments, is considered a delicacy. I endeavoured to persuade my friends at Ascension to introduce it among their island delicacies, but in vain.

Notwithstanding the general aspect of desolation—the scanty

productions of nature—the remote and isolated position of the island between the two shores of Africa and America—the infrequency of any direct communication with England—and the merely casual relief to the solitude of the little community by the arrival of a ship—the sojourners on this wild spot, amidst the waste of waters, rarely complain of their lot, or affect *ennui* arising from the absence of the many amusements and stirring incidents that minister to the wants of idle or impatient spirits elsewhere. The secret is to be found in constant occupation—in the brilliancy and elasticity of the atmosphere—in the remarkable salubrity of the island—and in the good sense, tact, judgment, and temper with which the commandant superintends the whole establishment, and exercises his civil, military, and patriarchal sway. Under the firm and benign influence of Captain Bate, the island has on several occasions appeared to me to present an undeniable sample of a happy and contented community, with only such small leaven of discontent as is perhaps unavoidable in any circumstances.

The officers and privates of the Royal Marines are employed from sunrise to sunset in the cultivation of the mountain district, and the usual business of a farm—in improving or forming new roads—in erecting forts and batteries, barracks, stores, and tanks—in completing the means for conveying water from the mountain to the town—in boating and turtling: besides which, and other occupations appertaining to a community of civilians, the officers and soldiers perform the usual duties of a garrison.

The discipline of this little band, under the peculiar circumstances in which it is placed, has been a subject of admiration to officers of high rank (both in the naval and military service), who have had opportunities of personally witnessing it; and the history of the island, for several years, is an evidence of the good sense and intelligence of the commandant, and of the union in the officers and privates of the Marines of many of the best qualities of the civilian, with the steady discipline of the soldier. I have, on several occasions, also witnessed instances of their ready resource and good-humoured contest with unexpected difficulties.

On my first visit, a party was stationed at Dampier's Springs, and engaged in building Captain Bate's tank. The men had contrived to form habitations out of the extensive and compact bed of cinders and ashes in the neighbourhood. A little Devonshire woman inhabited one of these caves: her husband had scooped out a parlour and a bed-room, each about eight feet square, plastered the roof and sides, floored it with canvass, and given the whole a coat of white-wash; so that, while all in front and around the cave was black with ashes and other volcanic matter, all within was of unrivalled cleanliness and neatness. This little Devonshire

dame was called Cinderella; and others, with more or less care and neatness, but with similar ingenuity, improved their accommodations in the same way.

A merchant-vessel, of about 360 tons, also touched on a rock on the north-east coast of the island, and when she anchored in the roadstead was in imminent danger. Captain Bate immediately despatched an officer and party of Marines to the assistance of the crew; and, after great toil and exertion, the garrison succeeded in unloading the vessel, and in preserving the greater portion of her cargo. The ship was then hove down to rafts in the open roadstead, under the superintendence of Lieutenant M'Arthur, of the Royal Marine Artillery, and thoroughly examined, repaired, and enabled to complete her voyage home in perfect order. I witnessed the judgment and science displayed by Mr. M'Arthur on the occasion, and the ready cheerfulness with which the privates of the Marines worked at the pumps, and discharged the cargo; and I returned home in the ship.

A line of iron pipes of nearly six miles in length, from the mountain to the town, has been now completed. On my arrival in the island, to commence this work, I found that I could obtain perfectly efficient workmen from the corps of the Marines. That portion of the duct that extends from the mountain tank to Bate's tank was the most laborious: the length did not much exceed 3000 feet, but the perpendicular height was about 1000. Mr. Barnes, of the Royal Marines, superintended this portion of the work, and by his exertion and resource overcame all difficulties. But perhaps the most extraordinary evidence of the industry and ingenuity of the garrison is furnished in the mountain district. The spring of water that was found by boring, with the other principal springs or drips, lies on the windward side of the island; and between them and the mountain tank, whence the line of pipes to the town commences, high land interposes. A tunnel, upwards of 600 feet in length, has been driven through this land, and a pipe laid down communicating with the tank. The tunnel is sufficiently wide and broad to admit of a person of middle size walking through with ease; it is worked out of compact beds of cinders and ashes, and occasionally of clay and trachyte: it was executed in a surprisingly short time, and, doubtless, with much labour, but with very trifling cost.

To these evidences of the ingenuity, ready resource, and industry of the garrison, I may add, that, under the direction of Captain Bate and Lieutenant M'Arthur, Fort Cockburn, and a small enclosed work for the defence of the roadstead, have been completed. Commodious and handsome buildings for the accommodation of the officers, privates, and sick, together with workshops, a victualling-store, and tanks—principally constructed

of the stone and mortar of the island, have superseded the miserable buildings this officer found on his arrival; while, in the mountain lands, the farming and cultivation generally, under the immediate superintendence of Captain Payne, are extending and improving, and yielding promise of future success. The improvements in the mountain communications are also worthy of record; and Break-neck Pass, in particular, which the stranger once attempted with a nervous shiver, is now only a traditional name, being traversed by a carriage-road.

The usual routine of duty and labour is sometimes interrupted and relieved by excursions to different parts of the island. The residents in the town thus exchange their sultry climate for the more moderate temperature of the mountain. The thermometer varies 10° or 15° between the two points. After the eye has long dwelt on the parched and barren plains, it is gratefully relieved by patches of vegetation, which gain in appearance by the force of contrast. From the summit of the Green Mountain a scene of singular and impressive character is unfolded: the elevation is about 2800 feet above the level of the sea, and from this spot nearly all the wild and varied surface of the island is seen. The apex of the mountain, with the ground immediately surrounding it, is clothed with vegetation; beyond is seen the faint verdure of the uplands—then the plains of cinders and ashes—the numerous hills of every form and dimension—the deep and winding ravines, with their dark, precipitous sides—the extensive beds of lava terminating on the shore—the bays and coves with glittering beaches of shells, in strong relief from the surrounding black lava—and the mighty expanse of waters, bounded only by a far horizon.

I had the good fortune on one occasion to witness a very striking, and I believe unusual, spectacle from this elevation. The sun was setting from a clear and unclouded sky, and as I stood with my back to the west I saw the gigantic shadow of the mountain slowly projected across the ocean, and when it reached the horizon, rise up and present the distinct shadow of the cone against the eastern sky.*

The arrival of a ship is of course an event with this little community; and the kindness and hospitality with which passengers or other visitors are received and treated will probably be gratefully remembered by many.

On my first visit the island was not graced with the presence of

* In Mr. John Barrow's interesting work on Iceland (Chap. viii. p. 270) a similar effect is mentioned, and is thus described:—"To the north-east an inlet of the sea bounded the horizon, above which the sun had now risen in all his glory, and threw the shadow of our mountain so defined over the surface of the sea to the south-west, and above its horizon in the air, that it was some time before we could be thoroughly satisfied that it was not another mountain before concealed from us by a fog."

any of the officers' families ; but afterwards several ladies arrived, and on my last visit I heard the history of many a joyous excursion, undertaken by the female passengers of several ships, over the wild tracts, and of many a merry dance also in the new mess-room. Nor are such notices of a little community thus singularly placed unworthy of record ; they are alike creditable to the individuals whose duties have stationed them in this remote spot, to the distinguished corps of which they are members, and to the country of which they constitute a sample. A trite moral on the inestimable advantages of patient industry, good sense, and temper is also practically and admirably illustrated on this occasion.

I believe most vessels pass in sight of this island on their homeward voyage ; and such as do not touch at the Cape and St. Helena usually call here, and obtain water and fresh provisions. The roadstead offers secure anchorage, and the island is not known to have been visited by any of the severe tropical gales. The rollers or heavy swells are the most formidable obstacles which ships here encounter. I am not aware of their having occasioned any damage to vessels ; but all intercourse with the shore during their action is difficult, and even dangerous. At Tristan d'Acuña the same phenomenon occurs ; and there, I believe, a vessel was on one occasion cast on shore by the violence of the rollers. I have never myself witnessed a similar action of the sea elsewhere ; but I know that, in a greater or less degree, it is by no means very uncommon. The rollers set in from the leeward, rising suddenly from a perfectly smooth surface, moving in long vast ridges towards the shore, and breaking over it with considerable violence, abraiding the line of coast. The most remarkable circumstance attending the phenomenon is, that the waves rise without any apparent, or hitherto detected, warning ; and subside as suddenly and entirely. A space of ten minutes only has elapsed from the first moment of their appearing to that of their final and complete cessation. Various conjectures have been hazarded as to their cause : they differ essentially in their motion from the long swell that precedes or succeeds a storm ; and, from observations in the mountain, it would appear that they act only in the immediate neighbourhood of the island.

Ascension, like St. Helena, is made with facility round the north-east point ; and ships can leave the anchorage at all times of the day and night—the south-east trade blowing with scarcely any intermission throughout the year. It is desirable, however, not to approach too near the north-east coast, as some sunken rocks extend out from the shore, on one of which the merchant-ship before alluded to touched. On the north-west, the passage is indicated by buoys.

I have elsewhere mentioned that the soil of the mountain dis-

tract is excellent. It is the rich decomposed volcanic matter, known for its peculiar fertility in all countries where it is found; and in the present instance requiring only sufficient moisture and manure to yield abundant returns. It has appeared to me that the progress of decomposition, and consequent improvement, of the soil in the high lands would be greatly aided by procuring young trees and shrubs from corresponding high lands in Fernando Po, and by planting them in the mountain district, where they would speedily take root and thrive. The clouds and vapours constantly passing over the island would be thus arrested, and deposit abundance of moisture. I am of opinion also, that further supplies of water for cattle and stock might be obtained by boring, provided the experiments were perseveringly conducted, and the parties were not discouraged by occasional failures. It is desirable that reservoirs of water should be established near the lands over which the cattle graze: their condition is certainly not improved by the rough mountainous country they have to traverse to obtain water. The neighbouring island of St. Helena is of volcanic origin, and possesses many features similar to those of Ascension: in it are 166 principal springs; and a very large portion of the high lands is decomposed and under cultivation, though even there the farmers complain that the cattle suffer from occasional drought, and from the irregular surface of the country over which they graze. The stock of Ascension, three or four years ago, consisted of 50 head of cattle, 165 sheep, 666 goats, 16 horses, and 19 asses; the whole public property. I have no memorandum of the present amount, but I presume it has somewhat increased.

Ascension, like St. Helena, lying, as already noticed, in the immediate track of ships on their passage home from the East, might, if occupied by an enemy, furnish the means of considerable annoyance to our commerce; while the peculiar qualities of the climate render it a desirable place of resort for our African squadron, and for the preservation of government stores for that station. Of however little intrinsic value, therefore, the island may appear, these are objects of importance in its favour. The hot months in the years 1818 and 1823 are recorded, it is true, as having been sickly; an unusually wet season being supposed to have affected the former, and imported contagion the latter. But no particular local ailments have been noticed; and the ordinary tropical diseases occur under a mild type, and give way to the usual treatment. The fact that Europeans work without injury seven or eight hours in the day, throughout the year, is important; and I observed, on my first as well as on each subsequent visit to the island, that the general appearance of the troops was healthy, and little characterised by the usual effects of a tropical climate.

The year is divided into two seasons; the hot months commencing in December and ending in May—the cool season extending through the remaining months. The thermometer ranges throughout the year in the low lands from 70° to 88° (it has been as high as 90°), and averages 83°; in the high lands it ranges from 62° to 80°, and averages 70°. The island, I apprehend, is not subject to a regular rainy season.

The difference in the degree of humidity between the atmosphere of the mountain and the town, as ascertained by the experiments I made with Daniel's hygrometer, is very considerable. The mountaineers, like the Children of the Mist, inhabit a region of clouds for many months in the year, and clothe themselves in woollen garments; while the lowlanders are frequently perspiring at every pore, though clad in linen.

The ships that have lately touched at the island have, I believe, been readily furnished not only with water but fresh meat and vegetables, to the extent of their demand. Some expense has necessarily been incurred to draw forth the resources of the island, and make them available for these purposes; but it is proposed, on the completion of the few works still remaining unfinished, to reduce the establishment to the lowest scale consistent with efficiency.

When the first adventurer to this wild spot explored his way over a wide plain of cinders and ashes, where no drop of water, and scarce one evidence of vegetative principle could be discovered—when he laboured up the steep and rugged mountain, and looked on the withered aspect of the scene spread in solitude around him—he must have considered the spot condemned to hopeless sterility, and regarded the sea-fowl, that settled over the dark red hills near the coast, as likely to remain the sole and undisputed inhabitants of these wild regions. There are doubtless many living who have visited the island when in this its primitive condition, and among the number the distinguished officer (Sir George Cockburn) who gave the first impulse to the measures which have been detailed; and if any such should chance to revisit the island now, they must be sensibly impressed with the change it has undergone, and the evidences that everywhere prevail of the industry and energy of its first and present inhabitants.

Ascension, Nov. 22, 1834.

2. MY DEAR UNCLE,—We made this island on this 7th of November, the day week on which we had crossed the line, and anchored about four in the afternoon. We approached on the eastern side. The dark black cliffs did not strike me as particularly barren on the first view, as they are boldly formed and preci-

pitous, and a little imagination might lead one to suppose them covered with verdure. Great numbers of the bird called man-of-war bird, or sea-eagle, came off from the rocks and hovered about the masts and rigging of the vessel, but without alighting. As we advanced along the north to the western side of the island, where the roadstead is situated, the dreariness of its aspect became manifest. Dark low rocks called *climpers*, which reach from the shore to sometimes a mile inland, border the shore, and are the remains of the calcined rocks after the active volcano has been extinguished: on a nearer inspection they have the appearance of cinder or refuse of bad-burning coal. Occasionally these climpers are interrupted by masses of sand, on which the turtles deposit their eggs; and farther inland the view opens on a most curious mass of conical hills, of a reddish brick-dust colour, tossed about in every direction, and backed by a beautifully formed mountain, called the *Green Mountain*, which is covered with grass, and forms a remarkable contrast to the arid, burnt appearance elsewhere observable. We anchored just opposite to the fort, which has been lately erected, and is indeed not yet completed, from the plan of Captain Brandreth, of the Engineers, but executed under the direction of Captain Bate, of the Royal Marines, who commands here. The island is peopled only by marines and one or two civilians connected with the stores. The privates are selected for craftsmen, and work at their respective trades; and all the buildings and works on the island have been performed by them, under the superintendence of the officers, who are obliged themselves to become masters of the several employments of stone-hewers, masons, carpenters, &c. &c., that they may direct the men.

Captain Bate, accompanied by his second in command, waited on us the morning after we anchored, and invited us to his cottage during the stay of our vessel, which had freight on government account to discharge, and ballast to embark in its place. We have been accordingly in possession of his pretty residence for nearly a fortnight, and feel extremely indebted to his great kindness and hospitality in receiving us for so long a time, and for making us so perfectly at home as we feel here; and we only hope to have an opportunity some time or other of returning such kindness as he and indeed all here have shown us: for we should have been most uncomfortable on board ship whilst the cargo was discharging; and of course being, as it were, but a garrison, there is no inn or lodging on the island. We are situated halfway, or, properly speaking, about a third of the way up one of those steep conical mounds or hills with which the island abounds. A red gravelly dust, which covers the surface, renders walking very disagreeable; but the absence of verdure, in other respects, has its

advantages, for it renders the air so delightfully dry and elastic, and there is such a constant breeze, that it is a most charming climate. Nothing can exceed the agreeable sensation of the early morning air—it is so invigorating, so very refreshing, that I never experienced anything like it; and I can hardly fancy it possible to be ill here. Indeed, sickness amongst the inhabitants of the island is rarely known; and in the grave-yard, which has been formed about four years, there have been but one or two interred belonging to the establishment on the island, and they were of worn-out constitutions when they arrived. The medical man here informs me, it is surprising with what rapidity the men belonging to the African squadron recover on their coming here; often they are so reduced by fever as to be obliged to be carried on shore to the hospital, and in a fortnight are able to walk as well and as far as any man in the island. In short, it seems to be a perfect Montpellier: and the vicinity to the African shore renders it particularly desirable for the refitment and recruit of the shipping employed on that station. The only drawback I receive to the very agreeable time we pass here, and which is common to all hot climates, are the flies and mosquitoes; but they have no other insects, and no reptiles. A most wonderful improvement has taken place in this island since Captain Sabine was here. Water was then a scarce article, it is now most abundant. On Captain Bate's arrival, six years ago, no arrangement was made for a supply of water; the only water on the island was collected at three several spots in the mountain, improperly termed springs, for it was nothing more than the rain-water, which, descending from the mountain, percolated through the sand or debris of volcano, and was conducted, as by a pipe, along a stratum of lava until it appeared at the edge of a ledge of rock, and fell in single drops into a cask. No pains had been taken to increase the quantity by clearing away the sand, and the only way in which it was conveyed to the town was by carrying it in buckets on the backs of donkeys, who had to ascend and descend most precipitous paths in performing their laborious daily task. Twice since Captain Bate arrived on the island was he on the point of reducing the allowance of water. His zeal, activity, and perseverance, however, with the assistance of Captain Brandreth, R. E., who planned the works, have enabled him to overcome the difficulty; and sufficient praise cannot be given to him, indeed, for the energy and judgment with which he has conducted the several works; while, by his mild and judicious manner, he has secured to himself the love and regard of every one, and both officers and men work with additional zeal from the desire of seconding the efforts of so good and excellent a man. In a ravine, on the south side of the island, a shaft has been sunk in a clay bottom, a spring of good

water met with, which daily produces several tons of water, and more could be raised if necessary, as the spring is observed to rise to the level immediately after the water is drawn off. At present it is obliged to be raised by buckets, but it is intended shortly to erect a sort of windmill to raise the water to the tank; which, as the wind always sets the same way up the ravine, may be easily effected. The next great work, however, was to avoid the labour of carrying the water in small buckets; for which purpose a tunnel was made through a very steep part of the mountain, of nearly one thousand feet in length, and six feet in height, which was commenced on the 19th of May, and completed on the 3d of October, 1832. Through this iron pipes are laid, and the water is received into a large tank; which again communicates with another at the foot of the Green Mountain, and thence, by a continuation of pipes and tanks, to the town, which is six miles off, or perhaps more; and received finally in a large tank on the shore, where ships can readily be supplied: five shillings a ton being paid by the vessel if the government boats are used, or three shillings a ton if their own boats are employed. There is now never less than 1500 tons of water in this tank, and often after rain considerably more, as every pains have been taken to collect the water which drops also from the former springs. And it is a curious fact, that in the last three years a considerable change in the climate has been perceived. For months together, I have been told by several who have been resident from three to seven years, as well as by Captain Bate, not a cloud would pass over the heavens, nor a drop of water fall; but since the land on the mountain has been so much cultivated, a gradual increase of rain has taken place—seldom more than a day passes over now without a shower or mist on the mountain; and during the first ten days we were here constant little showers fell.

Captain Bate was so kind as to furnish us with horses, and conducted us to the mountain, where indeed we were truly astonished at the scene—traversing, as we did, a most extraordinary route there, with the remains of extinct volcanoes on every side. Sometimes these appear in large heaps, as if piled by the hand of man; and on close inspection are found porous, and exactly resembling cinders, apparently lightly and carelessly thrown, as if the workmen had just left their employment. The ground is further strewn with small pointed rocks, which make it difficult for a horse to pick its way, excepting on the road which has been, with infinite labour, cleared; but, on going, we went by a less trodden path, that we might see more of this curious scene. Occasionally, even along this arid and parched ground, were little tufts of purselaine and castor-oil plant to be seen; which leads to the supposition, that if there was more moisture the whole island would

in time become covered with verdure; for the other islands of the Atlantic, as the Azores, Madeira, Canaries, &c., are equally volcanic, yet particularly fertile: and since the first discovery of this island, by the Portuguese, three hundred years since, no active volcano has been known here. As we ascended the Green Mountain the verdure increased, and was a charming relief to the eye after what we had passed. The ascent to the mountain is by a zigzag road, begun by the late commandant, but completed and improved by Captain Bate. A coarse sort of couch-grass was indigenous here; but the Bahama grass, which is propagated by shoots, has been introduced, and flourishes abundantly. The indigenous plants are the tomata, in great abundance, and the castor-oil, in considerable quantities; the ipecacuana; the Cape gooseberry, which produces a quantity of fruit, but is not now in season—it is principally used in tarts, is about the size of a cherry, of a yellow colour, and in flower like a pine-apple—it opens about Christmas: two or three sorts of fern are also found; with chickweed, dandelion, forget-me-not, and some few more wild flowers, and mosses of three or four kinds. Besides these, I was surprised to see the beautiful order in which the gardens are cultivated: a very fine sort of lettuce, carrots in great perfection, turnips, all the pot-herbs, celery, and French beans; which grow all the year round, a succession crop being continually kept up. Within a short time the sweet potato has been introduced, and thrives admirably; whole acres are planted with it, and it is a fine dry kind, of large size. Pumpkins thrive very well, as would melons, but they are destroyed by rats, which are a dreadful pest and hinderance to all agricultural labours; and the cats, which some years ago were turned loose to destroy them, have become almost as great a pest, and are now obliged to be hunted like wild beasts, or they would destroy all the poultry in the island. The English potato is cultivated, but does not thrive, speedily degenerating, and, after a year or two, the largest not being bigger or less waxy than the potato during the early season in England. They have a few strawberry plants, procured from St. Helena, which are well flavoured, and I have no doubt would do well here if plants were sent from England. We had very fine radishes, as well as watercresses: and progressively the gardens are enlarged, and more ground is brought under cultivation. We visited the ravine in which the principal water-spring is situated, and where also is the principal spring or drip from which the garrison was formerly supplied. The whole sides of this ravine are covered with nasturtium in full blow, which I omitted to say is indigenous also. The wildness of the spot, and its abrupt precipitous cliffs, render this a most picturesque scene. A few bananas have been planted, but do not thrive; they have been placed in nooks and recesses of

the ravine, but the cold blasts which blow through the hollows prevent their attaining perfection. We ascended the very highest peak, which is just 2700 feet above the level of the sea, and is situated in nearly the centre of the island. Above fifty extinct craters of volcanoes can be counted from it—some very perfect circular basins. What a scene must this island have been when they were all active! Towards the windward (south) side, the verdure continues till within two miles of the sea. One fine plain of about twenty acres, covered with verdure, is very fine grazing-land, and the sheep and cattle were feeding luxuriously. They have a few Cape sheep; but their principal supply of mutton is goat mutton, rather dry and tasteless. They have a very fine breed of cattle from the Cape and the neighbouring African coast; and about nine milch cows in use are sufficient for the supply of the island. Poultry thrives well, for the most part, but at certain seasons the young chickens are difficult to rear, and die off in great numbers. Some few of the common fowls have become wild, having wandered away, and are shot when required, being finely flavoured. The Guinea-fowl overruns the island: they are quite wild, and so numerous that they are obliged to be shot in great numbers to keep them under; they are spared, however, during the pairing season, which is just commenced. They are so prolific that the hen has been frequently found with from thirty to forty eggs in her nest, and as many as sixty have been met with: 1500 head are usually shot in the season; and they are pursued as game, with dogs to recover them, or they would be irretrievably lost in the ravines. An officer, with about seventy men, is stationed on the mountain, to attend to the collecting of the water, the cattle, and agricultural pursuits; and the people work from daybreak to dark, with the exception of three hours during the heat of the day, the officer constantly standing by to superintend. The works at the town, which scarcely deserve the name, but is denominated George Town, have all been erected by Captain Bate, and consist of ranges of storehouses, an hospital, mess-room, and quarters for the officers, with a few private detached quarters for the marine officers, and a barrack for the men; forming (with the exception of the stores situated near the fort) a line of detached buildings, all of hewn stone, from a quarry hard by, the mortar formed of a calcareous rock composed of the debris of shells. The fort and a blockhouse are now in progress, for the defence of the landing-place, which was hitherto unprotected. These buildings have all been erected since Captain Bate arrived here: every part of the work, even the making of many of the tools, and the repair of all, is performed by the men, who work cheerfully and indefatigably. They have also cleared roads, levelled mounds where now the buildings stand—in short, done

everything themselves, costing Government little : but their numbers have been lately reduced, and there is not above 250 men now on the island, or more than 400 souls altogether.

The turtle season will shortly commence ; it lasts from December to May or June. During the height of the season, from forty to fifty are turned in a night ; they are taken when they come to deposit their eggs in the sand. There are three or four bays to leeward which they most commonly frequent, and two men are placed, during the season, to turn them at night ; they are then conveyed in carts to the ponds, where they are kept for provision. It is remarkable that no male turtle have been ever seen ; and that the young ones, after they are hatched about four or five months, and are about the size of one's hand, crawl away, and are never seen again until they are four hundred pounds weight. They are generally from four hundred to eight hundred pounds weight when taken in the season ; and are kept in two ponds. About four or five hundred is the number generally taken. The meat is sold at 2*d.* per pound ; but a whole turtle would cost about 50*s.*

Amongst the articles of food, the eggs of the wide-awake furnish an important item, *ten thousand dozen* being often taken in one week during the season : they resemble plover's eggs, and though the bird is small, the egg is nearly the size of that of the common fowl. The season is irregular, about three times in two years. The indigenous birds are nine in number : the beautiful man-of-war bird, black with white breast, and a stripe of white on each wing—the wings measuring seven feet from tip to tip ; two kinds of gannet, two booby tribe, the wide-awake, two petrel, and the boatswain-bird, with its long feathers depending from its tail. All these are in considerable numbers, and whiten the rocks where they haunt. The man-of-war bird feeds on fish, but not being able to take its food, it watches the booby returning with a fish, pounces upon it, and carries off the fish. The fish for food here are the rock-cod, the cavalha (rather coarse when large, but good eating when small), the conger-eel—their best fish ; the snipper or soldier (a beautiful fish, quite red and golden when first caught), and a quantity of a fish with dark skin and beautiful bright purple streaks abound, but are not good eating ; oysters also abound, but are rather coarse, and not much eaten. They have mullet, but I have not seen it. We have turtle in various ways—soup, broth, excellent cutlets like veal, and in pies, which are very good. I must now conclude with every good wish, &c.

(Signed)

Your affectionate

CAROLINE POWER.

