A

SKETCH OF MADEIRA.

LONDON:
GEORGE WOODFALL AND SON,
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FRONTISPIECE.

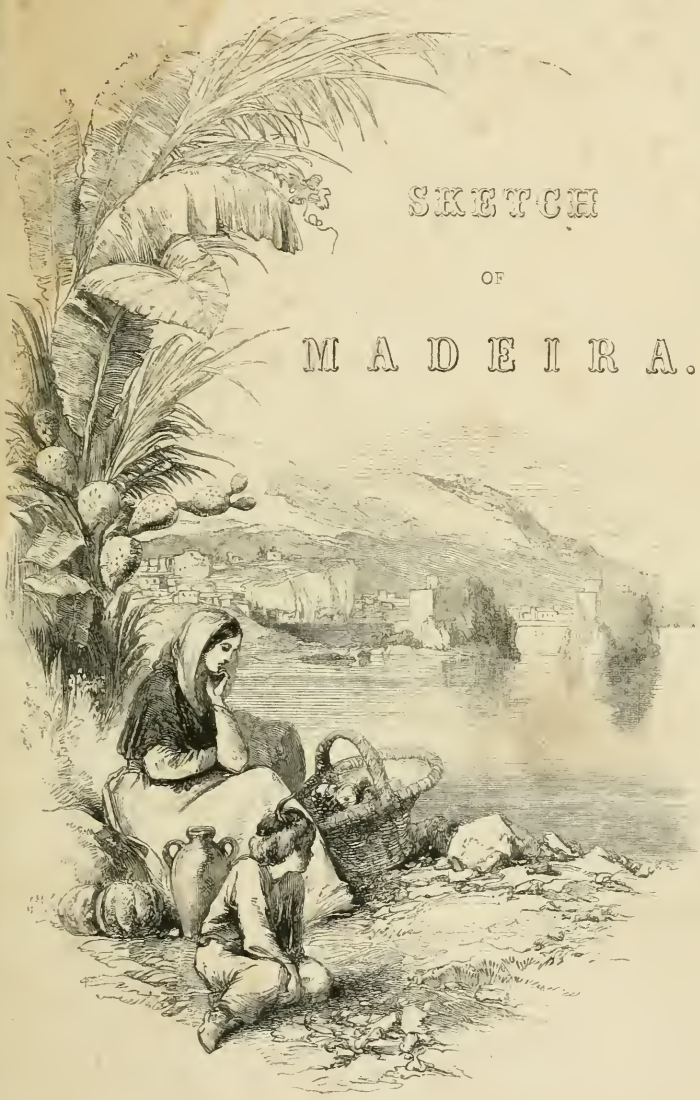
From a Sketch by Lady Susan Vernon Harcourt.

Funchal from the Sea.

SKETCH

OF

MADEIRA.



From a Sketch by Lady Susan Vernon Harcourt.

LONDON:
JOHN MURRAY, ALBEMARLE STREET.
1851.

A SKETCH

OF

MADEIRA;

CONTAINING

INFORMATION FOR THE TRAVELLER, OR INVALID VISITOR.

By EDWARD VERNON HARCOURT, Esq.

"Oh! had we some bright little isle of our own,
In a blue summer ocean, far off and alone,
Where a leaf never dies in the still-blooming bowers,
And the bee bauquets on through a whole year of flowers;
Where the sun loves to pause
With so fond a delay,
That night only draws
A thin veil o'er the day;
Where simply to feel that we breathe, that we live,
Is worth the best joy that life elsewhere can give.
. . . . . .
Our life should resemble a long day of light,
And our death come on holy and calm as the night."

MOORE.

WITH MAPS AND VIEWS.

LONDON:
JOHN MURRAY, ALBEMARLE STREET.
1851.

TO

HARRIET COUNTESS OF SHEFFIELD,

THIS MEMORIAL

OF THE BEAUTIFUL ISLAND VISITED BY HER IN 1848,

IS INSCRIBED BY

HER AFFECTIONATE SON-IN-LAW.

INTRODUCTION.

In presenting to the public the following pages, the compilation of which has afforded me amusement during many leisure hours, I am encouraged to hope they may be acceptable, rather from the general lack of available information concerning an island becoming daily of more importance as a place of sanatory resort, than from any merit of their own.

In rendering my best thanks to the friends who have given me their assistance, I would more especially acknowledge the valuable help I have received from Henry Temple, Esq., of Madeira.

To my father, who has furnished me with a geological account of the island, as well as with a notice of its ancient history, I am much indebted.

My thanks are also due to W. Yarrell, Esq., for his kindness in enabling me to compare the birds of Madeira with English specimens.

The Civil Governor of Madeira, His Excellency S^nr. José Silvestre Ribeiro, has, in a most obliging manner, afforded me

authentic statistical information. To him Funchal owes its Asylo de Mendicidade, the lighting of the principal streets of the town, the bridge in the Ribeiro Secco, the new road along the sea-coast to the westward, the extension of schools over the island, as well as many other benevolent and useful works. His activity in suggesting and carrying out measures for the relief of the sufferers during the dearth of 1847 was beyond praise. He has also greatly promoted the industry of the inhabitants by establishing exhibitions of the fabrics and manufactures of the island, and instituting an annual fair in Funchal.

Should these pages prove useful to any that are intending to visit Madeira, or are otherwise interested in it, the object of their publication will be accomplished.

E. V. H.

London, 1851.

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SKETCH OF MADEIRA.

CHAPTER I.

A DESCRIPTION OF MADEIRA.

"The wanderer's eye could barely view
The summer heaven's delicious blue;
So wondrous wild, the whole might seem
The scenery of a fairy dream."

WALTER SCOTT.

Approach to Madeira.—Mount Church.—Visit boat.—Beach.—Funchal.—Prazas.—Buildings.—Turrets.—Scenery.—Daguerreotype.—Conveyances.—Burroqueros.—Rides.—Pic-nics.—The Estreito.—Jardim.—Curral das Freiras.—Pico Grande.—Short road to the Curral.—Expedition to Cape Girão.—Camera de Lobos.—Campanario.—Expedition to Machico.—Sancta Cruz.—Machico.—Portella.—Serra de Santo Antonio.—Camacha.—Palheiro.—Afternoon rides.—Boating excursions.—Expedition to Sᵃᵒ Vincente.—Rabaçal.—Calheta.—Expedition to Santa Anna.—Boa Ventura.—Entroza Pass.—Sᵃᵒ Jorge.—Santa Anna.—Pico Ruivo.—Vista of Faial.—Metade Valley.—Ribeiro Frio.—Lamuceiras.—Summary.

MADEIRA is situated between the thirty-second and thirty-third parallels of north latitude, and between the sixteenth and eighteenth meridians of west longitude; its extreme length is about thirty-three miles, and its greatest breadth about fourteen.

APPROACH TO MADEIRA.

Perhaps no spot on earth is first seen with emotions more various than this island, according to the different conditions of feeling under which it is approached. To one, its glowing

hills and genial air seem to promise prolonged life and restored health; to another, the colours of hope have faded from a mind filled with thoughts of the many, cut off in their prime, that already rest within the bosom of those iron rocks; but to persons who view this favoured land without any such peculiar associations either to cheer or sadden the scene, it presents, simply as an object to the sight and senses, a landscape of surpassing beauty.

MOUNT CHURCH.

One of the most conspicuous objects on your first approaching Madeira is the church of Nossa Senhora do Monte, the Lady of the Mount. This church serves as a land-mark to the heretic sailor, and is far more dear to the Roman Catholic for other reasons. As he approaches he sees the church of the saint who has protected him across the angry wave; as he departs he looks to the mount, and offers a vow to the Lady in whose help he trusts during his perilous voyage *.

ANCHORAGE.

The anchorage is not good, and woe betide you if the sea comes swelling in from the south when you are in the roads. This sometimes happens without any wind, and you have the extraordinary phenomenon of shipwrecks in a calm, from the mere swell and roll of the Atlantic.

* Offerings are frequently made to our Lady before a voyage; the inhabitants relate a miracle that was performed by this Saint when the island was once threatened with famine. A pilgrimage was made to the mount by the principal inhabitants to propitiate *Nossa Senhora*, and in the morning a vessel laden with corn arrived from Lisbon. On examination, the clothes of the Saint proved to be saturated with sea-water. The sailors also related that during a calm a white figure had risen from the ocean and dragged them into the bay!

On the 31st of December, 1848, I saw four vessels come on shore one after the other, and Her Majesty's corvette Daphne had a narrow escape. The wind was blowing dead into the bay at this time. One ship, finding she had no chance of holding her ground, set all her canvas, and ran herself high and dry upon the beach. Every vessel was a wreck a very short time after she touched the shore, yet but two lives were lost. The Loo Rock gun fired as each fresh ship was driven from her anchorage. A large barque broke away; again the gun fired, and as she gradually neared the strand, in spite of all her efforts, her fate seemed sealed, when suddenly the wind veered round a point to the west, and she sailed out amid the shouts of rejoicing of hundreds of spectators on the beach.

VISIT BOAT.

As soon as the visit boat returns from you, if it goes with flag unfurled, the sign that you are admitted to *pratique*, the vessel is surrounded by innumerable boats, painted green, white, blue, and yellow, and manned by mahogany-coloured boatmen, jabbering very inharmonious Portuguese, one louder than the other.

The beach is perhaps a mile from the anchorage. When you think you have but two strokes more to pull before you jump on shore, the boat is suddenly twisted round stern first, the men tuck up their trousers, jump into the water, and, waiting for a wave, run you up high and dry on the beach.

FUNCHAL.

The principal town in Madeira is Funchal. The name means, in Portuguese, a place set with fennel, and it is said to have been so called on account of the quantity of that

herb found growing there at the time of the discovery of the island. It is seen to much advantage from the sea, so white and bright, with its suburbs of *Quintas* and their groves of orange and coffee spread far and wide up the hills, fifteen hundred feet above it.

In your first walk into the town you are struck by the clean fresh look of everything about you. This cleanness is owing, partly to the entire absence of dust, and partly to the constant supply of running water, which is conducted in covered gutters through every street*. The streets are well paved with plates of whinstone, set edgewise; their narrowness shelters them from the sun without excluding the air.

PRAZAS.

The Prazas, which answer to the Spanish Alamedas and French Boulevards, are planted with planes and oak trees; they afford a grateful shade for those whose health debars them from taking much exercise, and yet are benefited by breathing sea-air.

BUILDINGS.

In a country without brick, and having but little command of freestone, no great excellence of architecture can be expected. The Cathedral, which is capable of holding about two thousand four hundred persons, is a mixture of indefinite styles; nor are any of the other ecclesiastical buildings more to be commended. The court-houses, custom-houses, and prisons, are on a small scale.

In the market-place, as in the East, there are men always standing to be hired. At night a solemn stillness reigns in

* There is, moreover, a police regulation which compels householders to sweep clean the space in front of their premises every Saturday.

the streets, save where palanquin-bearers convey the reveller to or from some party, or the glare of the flambeau precedes pedestrians bound on a similar errand. The town is partially lighted with oil, when there is no moon.

Almost every house is possessed of a turret, from which a view is obtained over the town and harbour. This look-out place is of use to the merchant, by enabling him early to discern from it the approach of his vessels, which he recognises by his private signals. In the town the ground-floor of the merchants' houses is always occupied by wine, and you have to ascend to reach the inhabited parts. There is a great passion for building in Funchal; as soon as a man has accumulated a little money he frequently engages in erecting a house, and finds himself obliged to borrow at an exorbitant rate to complete what he has begun. One cause of this, is the difficulty of investing money satisfactorily, where there is no confidence in public securities. Amongst the lower classes, gold ornaments and sometimes precious stones are a favourite kind of investment. These are sold as their wants call for the money, and bought again when they have anything to spare.

SCENERY.

No artist's pencil has ever done full justice to the scenery of Madeira; what, then, can be expected from a bare description? There is an aërial magic in it which you must go thither duly to appreciate. The various colours of the soil, with mingled hues—black, yellow, red, and white—the vivid verdure, and the everchanging shadows of the sky, give a warmth of tint, and a diversity of effect, which is characteristic and striking. Here is not the unintermitting blaze and eternal

blueness of a tropical, nor the cold haze of a northern atmosphere, but the sunshine is broken and mellowed by flitting clouds, and a series of dissolving lights and shades surrounds you on every side, which must awaken pleasure and admiration in the breast of the most insensible.

SKETCHING *.

The great difficulty of sketching in Madeira consists in the grandeur of the scenery and the quickness with which the lights disappear. In the ravines about the town there are many exquisite little pieces to be found. There is an endless fund of amusement for the lover of the pencil; sit down where you will, you get a good subject, as far as rocks, water, and sky are concerned. Fine trees are a great desideratum to the artist on the south side of the island; on the north he has them to his heart's content. The production of drawing utensils always excites curiosity amongst the natives. The artist is immediately surrounded by a motley group of people, who seem as if they had nothing to do but watch his motions. There they will stay for hours. It is true, they inflict no greater inconvenience than belongs to the propinquity of a mass of unwashen humanity, unless you quarrel with them.

DAGUERREOTYPE.

It might have been supposed that, in an atmosphere so pre-eminently clear, the Talbotype and Daguerreotype would have been peculiarly successful. This does not, however, appear to be the case. I am told that the chemical re-agents employed here in these arts have the usual amount of sensi-

* An enormous duty is imposed at the Custom-house on drawings, which pay at the rate of 6*s.* 8*d.* per pound of their weight!

bility, and no more. As the effect of the solar ray is known to differ at different times of the day, it may probably differ also in the various atmospheres of different climates, and may not always be in proportion to their clearness.

CONVEYANCES.

The scenery of the island is best seen on foot or on horseback. The use of carriages is impracticable, owing to the steepness of the roads. An English gentleman has lately had a sledge carriage constructed, capable of containing four people, and drawn by a pair of oxen. It is a very good conveyance for the town, where the streets are smoothly paved, but it would not answer in the rough roads of the country. For the delicate or the lazy another mode of travelling in the mountains is in a hammock, *rêde*, as the natives call it. This consists of a net of fine texture, slung to a single pole, which is carried on men's shoulders. A good supply of cushions makes it a luxurious conveyance. Nearly as good a view of the scenery is obtained from the hammock as you have on horseback. For a long journey each hammock has its relay of bearers, who go at an amazing pace. These conveyances are seldom seen in the town, excepting when used by invalids, who find them easier than palanquins. The palanquins, which are the usual town vehicles, are likewise suspended from a single pole, and carried by two men. They are more commodious for general use than hammocks, as admitting of an upright posture; but the framework being made of iron, they are heavy to carry, and ill adapted for long distances. A hammock enables the invalid without fatigue to take a share in those pic-nic excursions, friendly to health, to which the beautiful climate and country invite, and which are the favourite social recreation of visitors to Madeira.

BURROQUEROS.

The person who gets up one of these parties sends round invitations to his friends to join him on a certain day to ride to a given point. A rendezvous is assigned, at which the riders assemble, each followed by his faithful *burroquero*. The *burroqueros* are a fine set of fellows, whose duty it is to look after you and your horse, to carry the coats you take to fortify yourself against the mountain mists, an umbrella to shield you from the sun, a *rábo*, as they call it, or cow's tail fastened on to the end of a stick, to brush the venomous flies off your horse, shoes and nails for the same animal in case he should require them: add to all this a basket containing a cold chicken, sandwiches, fruit, pies, liquors, as the case may be, and it is wonderful the poor fellows get on at all; but if you are told that not only do they go the whole nine hours, more or less, without complaining, but often keep pace with you on the worst of roads, or rather tracks, at a good round gallop, holding on by your horse's tail as you fly up the most precipitous hills, you may be disposed to disbelief. So it is, however, and you could no more persuade one of them to stay behind, go home, or forsake his charge, than you could separate a shepherd from his flock.

RIDES.

The first ride in every new place is always the most striking, but perhaps not the most pleasing, for I believe more pleasure is derived from the study of what we know than from the transient though more glowing charm of novelty. With Madeira this is particularly the case. There, you are put on a horse shod in such a way as you never saw before; you ride on such roads as, I may safely say, you have never had any

experience of; and you pass at every step precipitous rocks, strange trees, and beautiful plants, with a mind half occupied in admiring what you see, half anxious lest one mistake on your horse's part should end at once your pleasures and your pains. On the other hand, there is no place where you are less wearied by having the same prospect always before you; it is constantly varied by ever-flying clouds, and the warm red colouring of the hills gives a tone that would not be believed if seen on paper.

The horses to be procured in Madeira are good for their work, and very sure-footed. Accidents seldom happen, notwithstanding the bad roads and steep precipices; indeed it is astonishing to see the places these animals will traverse without making a false step, picking their own way much better than their rider can guide them.

PIC-NICS.

Let us suppose ourselves about to join one of these pic-nic riding parties. Here we are all together, fifteen of us, on a lovely day in February, with the thermometer standing at 69 degrees Fahrenheit in the shade at nine o'clock in the morning. Our destination is the Curral das Freiras. At first starting the roads are broad and good, as far as paved roads may be called good. About Funchal the roads are lined on either side with walls, which are generally covered with heliotropes, roses, geraniums, fuchsias, &c., in wild profusion. Some of the most picturesque views of the town are to be found between these walls, which, with their odorous clothing, form delicious foregrounds. They are sometimes almost closed over above your head by a treillage of vines which project from the vineyards on both sides. One of the great amusements of the Portuguese who have *Quintas*, and gardens,

by the roadsides, consists in sitting in the *Mirántes*, or look-out seats, and gazing on the passers-by. This seems quite a national taste, from the laughing black eyes that quiz the *estrangéiros* in their queer costumes, to the old *Morgado* in his flowered dressing-gown. There they sit all day, whilst their dogs come barking at you along the tops of the walls, cracking the drums of your ears by their mongrel yelps.

But to return to our party. We leave the road to Camera de Lobos on our left, and begin to ascend in good earnest. The road grows narrower and steeper; still there is no intermission of the gallop for horse or burroquero; at last we reach the church of

THE ESTREITO.

Here the gentlemen of the advance guard dismount, to rest their horses, and give time to those behind with timid nerves, slow animals, or merciful hearts, to catch them up. But who is that respectable individual in a gay robe, and cap worked by some fair fingers? It is the Padre of the Estreito. He bows and smiles, and invites you, by signs, if you don't understand Portuguese, to see the fine prospect from the top of his church. But the rest of the party have assembled; and, receiving the Padre's blessing in a friendly nod, perhaps contributing some trifle for the poor, you mount your horses and make the best of your way to

THE JARDIM.

You are now three thousand feet above the sea. This beautiful place belongs to the late Consul, Mr. Veitch. He has built his house in the Italian style, and surrounded it with woods of Spanish chestnut. In the grounds near

the house are cultivated the chief varieties of tea grown in China, with many other rare and curious plants. A visit to the Jardim, with the owner's permission, would well repay you. Another halt is called to collect the party, and then, it may be through a slight mist or cloud, you ride on to the Curral.

CURRAL DAS FREIRAS.

You dismount, and are surrounded by a troop of girls begging, and ragged boys and men offering you sticks to assist in your ascent. Advance a few steps on the inclined green sward; what a prospect bursts upon your sight! for a second or two you are puzzled by the grandeur of the view that presents itself; you see with your unaccustomed eyes, mountains, trees, sky, at first in unarranged proportions: by degrees things begin to take their places, and you tremble on the brink of an abyss that yawns below you, and points with jagged fingers, uplifted six thousand feet, to a clear blue heaven that seems to smile at your puny wonder. Thin fleeting clouds pass away below, and disclose new beauties. The church of Libramento looks like an atom at the bottom of a vast basin, though it stands two thousand feet above the sea. But our point is Pico Grande, and we must linger no longer. The road now assumes a different character: heretofore we have ascended and descended hills, steep enough, surely, and trodden roads that seemed slippery and hard enough: but now we long for such again; large loose stones and solid rocks have taken their place; a perpendicular cliff is above you on one side, a precipice below you on the other: one start of your horse would be fatal. Walking is out of the question, unless you are equal to much

fatigue; so in single file we wind round and round again by tortuous paths, repaid each step by new appearing wonders. Another hour of such riding brings us to the foot of

PICO GRANDE.

The baskets are assembled, and the provisions emptied out; gentlemen vie with each other in attentions to the wants of their fair companions; the best seat is recommended, the umbrella carefully arranged to save the trouble of holding it, and the plate filled with the choicest of the feast. To food and rest, and pure invigorating air, what a zest is added, if you have any soul for nature, by looking out on the one side on the Pico Ruivo, on the embattled Torrinhas, on the rugged Sidrão and Arriero, and on the other on the long unbroken Paül, with the Serra d'Agoa clothed in forest verdure ever green below it.

The journey back is generally performed rapidly, the horses know they are going home, and their riders do not stop so much to look about them. If you get back at seven o'clock, I will venture to say you will be quite ready for bed at nine, to dream of the Curral and hair-breadth escapes, and to wake at daylight to the consideration of what shall be your next expedition.

SHORT ROAD TO THE CURRAL.

There is a shorter way to the Curral than the one that has just been described, approaching it from the other side. A zigzag road leads down to the bottom, where the scene is varied by cottages, gardens, and plantations; these enable you to appreciate the loftier features of the scene by comparison. If you wish to make a long day of it, you may

ascend a winding path which runs down the east flank of Pico Grande, and so return home by the Jardim.

EXPEDITION TO CAPE GIRAO.

There are numerous other points which are frequently selected as the objects of these excursions. Cape Girão is less distant than Pico Grande, the road is good the whole way, and you get over the ground much faster. Riding along the sea-side, at the expiration of an hour and a half you find yourself at the picturesque little village of

CAMERA DE LOBOS.

The inhabitants are all fishermen, and supply the Funchal market. The village is curiously situated, built on and excavated into a rock that stands prominently out in the bay.

Ascending the hill on the other side of the village, you pass through a country which grows some of the best wine in the island. With the sun on your back, you toil up this hill, and are thankful when you at last reach the *venda* of Cape Girão, after a ride of about two hours and a half: here most people prefer to get off and trust to their own legs rather than their horses'; the party now proceeds to look down the precipice. The first sensation on looking straight down a height of two thousand feet, is a slight quiver through your frame; the sea looks so small dashing against the rocks below, and you cannot help rejoicing when you have got safely away.

Groups of peasants soon collect together, and hurl fragments of rock down the cliff to show you how long they are in reaching the bottom. There are patches of cultivated ground by the sea-side below, and one cannot but fancy that this practice of stone-rolling might be attended with results

beneath, of a different nature from what the students of the laws of attraction above might desire. At the bottom of the cliff, stones are quarried at some peril, for building purposes. Frail ladders are the only means by which the quarry can be reached. All the "*cantaria molle*,"* both red and gray, is quarried here; the "*cantaria riga*" comes from the parish of the Estreito of Camera de Lobos.

Beyond Cape Girão the ride is sometimes extended to the Campanário; here grows a Spanish chestnut of immense size, which has been hollowed out, and the interior has been converted into a small room. It is 36 feet in circumference, and continues to bear a vigorous foliage.

EXPEDITION TO MACHICO.

Another long day's excursion is to Machico. Starting at eight o'clock in the morning, and riding along a road possessing but little interest, you come, at the end of two hours and a half, upon the town of

SANCTA CRUZ†.

A fine specimen of the date-bearing palm is here an object of some curiosity. It is not till you open out the fertile valley of Machico ‡ that you are repaid, as regards scenery, for your long ride.

MACHICO.

At the village of Machico you are taken to see Machim's chapel§, and are shown the remains of the cedar cross. Your route now lies up the ravine, which is closed in on the

* "*Cantaria molle*" is a soft stone, or freestone, used in building, and "*Cantaria riga*" is a harder material.

† See "Sketches in Madeira," by Lady S. V. Harcourt.

‡ Ibid. § See chap. iv. page 64.

north and east by high hills, and is covered with a profusion of vineyards, white *quintas*, and straw-thatched cottages.

PORTELLA.

Mounting to the Portella, which is a sort of natural gateway hewn in the ridge of rocks, you obtain a glorious view on all sides: the high peaks of Ruivo; the Valley of Faial, with the grand insulated rock of the Penha d'Aguia in its bosom; the Point S^to^ Lourenço; and beyond it the Island of Porto Santo in the distance.

SERRA DE SANTO ANTONIO.

Your ride home continues across the Serra of Santo Antonio; the word *serra* means a *saw*, and has been originally applied to a *serrated* mountain range; in Madeira the term is used to express an elevated plain. This *serra* is a place of summer resort; it is famous for the fine *urze* * trees which grow in the vicar's garden. There is a building erected near the church for the accommodation of tourists, which bears the name of the pilgrims' house.

CAMACHA.

Next you come to Camacha, another place of summer residence, preferred by many from its being nearer to the town. At last you reach the Palheiro, and thence descending on Funchal, finish a long day's work of nine or ten hours' duration.

PALHEIRO.

The Palheiro was the chief country residence of the wealthy Count Carvalhal, who formerly owned nearly one-

* *Tree heath.*

third of the island: the present possessor is a minor: the grounds are laid out after the manner of an English park: the gardens show signs of former care and magnificence, and are famous for their lofty camellias, and for Portugal laurels as large as timber trees.

AFTERNOON RIDES.

Amongst the most favourite afternoon rides is one by Fort S^{ta} Gonçalo, on the Sancta Cruz road, returning home by the Palheiro; another to the *little Curral*, as it is called, going by the Mount Church, and returning either by the Caminho de Meio or the Palheiro; a third along the new road to Praia Formosa, passing the Forja de Ferreiro and the Gorgulho; a fourth, the road round by S^{to} Roque, Santo Antonio, and S^{ta} Martinho; a fifth by the Alegria*, &c.

BOATING EXCURSIONS.

For those who are fond of boating, there are many very pleasant excursions. To Cape Girão, for instance, at the base of which you form almost a grander conception of the gigantic cliff than even by looking down from its summit. A further expedition along this coast is to Ponta do Sol, a pretty little town about three hours' pull from Funchal; here you may perhaps procure ponies, or walk back to Ribeira Brava†, sending your boat there to meet you, and then take ship again home. On the other side, Sancta Cruz, Machico, and Caniçal afford objects for a cruise. From the chapel of N. S. da Piedade, above Caniçal, you have a magnificent view of the north coast of the island as far as Santa Anna. Its black frowning cliffs stand in strong contrast with the smiles

* The country residence of Mrs. Penfold.

† See "Sketches in Madeira," by Lady S. V. Harcourt.

of the southern coast, which lies extended before you on the left. Some people prefer making the expeditions to Machico and the fossil beds of Caniçal from Sancta Cruz, where there is good accommodation; a sojourn there of a few days affords an agreeable change from Funchal.

EXPEDITION TO S^AO VINCENTE.

If any one desires, however, not to leave Madeira without having seen the most striking features and grandest development of its scenery, he must not satisfy himself with a distant glimpse only of the northern side of the island. Let us, then, make an expedition to the north, and consider what is most worthy of notice there. We will set off early, and go to S^ao Vincente by the Jardim and the Curral; as far as Pico Grande is old ground to us, but it does not lose by a second visit: passing on, we come to a road cut in the face of a lofty cliff, being the base of the Pico Grande, from which the water is rilling down, and splashes you as you pass: below is a basin of forests, broken here and there by mountain torrents; presently you reach the Encumeado* of S^ao Vincente, where the magnificent woods present a rich feast to the eye, and you look down upon the beautiful Serra d'Agoa opening to the sea at Ribeira Brava. There has been a swollen torrent here lately, and part of the bridge is washed away: enough of the fabric remains for a man to walk upon, but the horses cannot pass; your *burroquero* does not help you, he looks on in helpless terror. What is to be done? See, there are some planks below that have been stayed by that mass of rock in the bed of the torrent; with the assistance of your boys you at length get them up, and

* "Encumeado" is a spot *no cume*, "on a high place," or summit of a mountain.

construct a rickety pathway for the animals, which with some coaxing you persuade them to pass, and proceed on your journey exulting in your success. The first view of S.ao Vincente is very striking as you look down upon it from the heights. The town is composed of several huts and a few better houses, amongst which may be distinguished that of S.nr Manoel Joaquim da Costa Andrade, whose hospitable door has been so often opened to the English traveller *. These are built on a *ribeiro* that assumes a fork-like shape as it approaches the sea. At the extremity of this fork is situated a small rock which has been hollowed out and turned into a chapel; mass is celebrated in it once a year. From this point you obtain a good view of the coast as far as Porto Moniz; the north here outdoes itself in rugged steepness. From S.ao Vincente you can either proceed to the east or west; if you take the western side, you ascend first the Paül da Serra by a very steep road, covered with loose stones.

RABAÇAL.

We next come to that great work, the *levada* of the Rabaçal. The difficulties to be overcome in constructing this watercourse were enormous. There is here a vast perpendicular rock, 1000 feet high, the water from the summit of which fell over the slightly-projecting edge, and was lost in the ravine below. The object of the proposer of the work was to catch this stream in its descent, where it struck upon the face of the rock, and, carrying it off by a *levada*, to apply it to the irrigation and fertilizing of a comparatively barren tract. To effect this it was necessary to make a course in the hard and high rock, mid-way betwixt the top and the base. The engineer had a *crate* constructed, in which the

* An inn has lately been established at S.ao Vincente.

workmen were placed, and let down by means of ropes to the point required. In this way they worked, subject to the drippings of the cold stream above, and often with great difficulty getting out of the way of the explosions from the blasting of the rock. When this operation was finished, a tunnel was to be bored through the end of the Paül da Serra, and a *levada* six miles long constructed. The work was commenced in 1836, and carried on for some years; the course along the face of the rock was actually completed to a length of 700 feet, and connected with a *levada* extending six miles; but, alas! as far as the tunnel was concerned, want of funds interfered, and half the project only was executed. The water, consequently, still loses itself in the Ribeira Janella, and the thirsty vines of the south still want what if bestowed upon them would double their fertility *. The views of the Rabaçal are certainly amongst the finest in Madeira.

CALHETA.

Your road now continues to Calheta, where you find a very good inn to rest at after your fatigues. The next day you can either return to Funchal by water, if the wind and weather suits, or make a land voyage of it, which, however, is less pleasant, as the road is long and bad.

EXPEDITION TO SANTA ANNA.

Let us now start again from S^{ao} Vincente, and take the eastward route to Santa Anna along the sea-coast. The road leads by the shore across a stream, which at high water is sometimes dangerous to pass, to Ponta Delgada, a pretty

* The tunnel is now finished, and there are good hopes of the whole work being completed.

village with a good church. Here you have none of the gradual sloping of tufa plains towards the sea that you find on the south side, but a lofty iron front is everywhere presented to the angry waves. A narrow horse-road, bold, but safe, skirts the midway of these high cliffs, which tower 1000 feet above you, so perpendicularly as to hide from your sight, in some places, an almost vertical sun, whilst the sea is nearly as far below your feet. Here and there, where some ravine gives an outlet to a torrent that perhaps originally formed it, you come upon a lovely village which is a garden of vines and chestnuts.

BOA VENTURA.

After passing the Ponta Delgada, you leave the shore and ascend a winding road up a steep hill, to descend again into the ravine of the Boa Ventura. You can return to Funchal up the valley, passing through the Curral. The road is very bad, and the journey fatiguing, but you are rewarded for it by the grandeur of the views.

ENTROZA PASS.

Next you come to the Entroza Pass, where the steadiness of your own head and your horse's hoofs are put to a severe trial; the road is narrow, and covered with loose stones; a precipice below you overhangs the sea, and a cliff above you presents a smooth high side which it makes you giddy to look up to. This steep pathway is said to be constructed on timbers projecting out of the bare rock. There is more danger in appearance, however, than reality, and accidents seldom happen; many, however, prefer their own legs to those of their horses, in passing this point.

S^AO JORGE.

The next place of importance you reach is S^ao Jorge; thence to Santa Anna is about an hour's ride. At S^ao Jorge Dr. Oliviera has built a large house for himself, as a summer residence, and is doing a public service by setting an example of improved cultivation.

SANTA ANNA.

At Santa Anna you dismount at the house of S^nr Luiz Acciaioli, who unites to the attention of the host the manners of the gentleman, and provides good accommodation on reasonable terms. From Santa Anna there are excursions sufficient to detain you there two or three days.

PICO RUIVO.

The ride from Santa Anna up Pico Ruivo is beautiful. Passing through beds of furze, bilberry, and heather, you have some of the most magnificent views in the island, and look down on all sides on a grand variety. Many, however, are the parties that have been disappointed in their visits to the heights of Madeira. Starting perhaps with an unclouded sky, you barely reach the summit before light mists have begun to ascend from the valleys beneath you; these quickly gather, and enshroud you in an impenetrable veil. Woe betide those who are separated at such times from their guides: to find your way, without knowing the land-marks, is impossible. Perhaps a goat-path presents itself to you in your distress; you follow it along the edge of some frightful chasm till it becomes undistinguishable; you proceed, forcing your way through the underwood with which the banks are clad hanging on where the descent is almost

perpendicular, till at last you are stopped abruptly by a precipice. A glimpse between the passing clouds shows you that you are in an entirely wrong direction. You wearily retrace your steps, by good fortune reach the spot where you left your horse and guide, but find them there no more. The only remaining course is to walk home, perhaps an operation of four or five hours. To make the picture perfect, we may imagine a heavy tropical rain to come on towards evening.

VISTA OF FAIAL.

Riding from Santa Anna to the Vista of Faial, you have a beautiful view of the detached mass of rock of the Penha d'Aguia*, backed by Point Sᵃᵒ Lourenço, jutting into the sea far eastward, and the intervening capes. If you have time, you can visit Faial and Porto da Cruz beyond it; some return thus to Funchal, going by way of Sancta Cruz.

METADE VALLEY.

However, the direct way is the best, if it were only to see the Metade Valley. This ravine is one of the deepest in the island; the mountains at its head are often capped with clouds, and seem invested with a kind of mysterious grandeur. On the road you get a very good broadside view of the Penha d'Aguia † through a frame of chestnuts covered with vines. At the time of pruning it is a curious sight to see the groves of chestnuts, each tree with its man on it, the whole forest of them chattering, singing, and working away most merrily. The chestnut trees of the north are all lopped at the top to stunt their growth, and make them better trainers for the vines.

* See "Sketches in Madeira," by Lady S. V. Harcourt. † Ibid.

RIBEIRO FRIO.

At length you reach the Ribeiro Frio. The scene here presents a softer aspect, and forms a pleasing contrast to the wild majesty of what you have just seen. If you have not been there before, take your luncheon up to the *levada;* there you look down the road you have come up, and see your old friend the Penha d'Aguia at the bottom of the Metade Valley. Passing along the same *levada,* round a projecting cliff, you come upon all the peaks, in full grandeur arrayed before you.

Leaving the Ribeiro Frio, and riding through woods of til and vinhatico, you mount to a *Serra,* where there is turf for a gallop, a great rarity in Madeira. Again you ascend, and when you presently descend, the shipping opens out, and now Funchal smiles brightly upon you with its white sunny look, as though it would welcome you back after your northern tour.

LAMUCEIRAS.

On the whole, I think if I had to recommend an excursion to a person who was only going to make a single one in the island, I should be inclined to choose the Lamuceiras. Take a cloudless day, start at eight o'clock, and go by the Caminho de Meio. The hill is certainly steep, but you are rewarded by a fine fresh air when you get to the top. The riding is all very pleasant, first over turf, and presently amongst the bilberry bushes, through which you pass for some miles; then Point S^{a}^{o} Lourenço comes in sight, and at last, through groves of laurels, you reach the Pico d'Assoma. Here, on a bank of violets, you may open the luncheon basket. Your foreground is formed of evergreens; the grand peaks of Ruivo, Arriero, and Torrinhas are before you; below them the

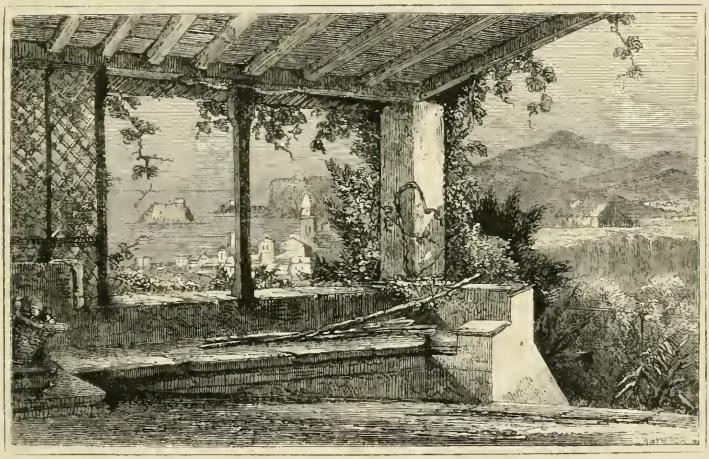
Metade Valley, the Ribeiro Frio, and Santa Anna; to your right are the Penha d'Aguia, Faial, and Porto da Cruz; behind you the Portella, Machico, S^ao Lourenço, Caniçal, and the Serra de Santo Antonio. In fact, you have in sight almost the whole of the east of the island. You may return by Santo Antonio da Serra, passing through a country beautified with fuchsias, geraniums, oaks, broom, gorse, corn, vines, &c.

SUMMARY.

To give a general summary of the appearance of the island we may describe it thus :—It consists of a mass of mountains, whose highest points rise to a central ridge. The whole coast is composed of cliffs, varying in height from one hundred to two thousand feet; abrupt and lofty in their general character on the north side of the island, and of a lower smoother aspect on the south. The central mountains branch down to the sea in ridges or chines, which are parted by precipitous chasms, called here ravines, and which constitute the grandest features of the Madeira scenery. In some parts the ravines are full of dark forests, reflecting a solemn shade on the precipices that support them. The towns are for the most part planted in the bosoms of these ravines, which certainly resemble one another, yet in each there is sufficient individuality to relieve any feeling of monotony. From the tops of the mountains you discover the sea on all sides of you, but far from detracting from the grandeur of the prospect, the limited extent of land rather adds to a feeling of awe, when you consider that you are perched on a point, as it were, in the midst of the vast Atlantic.

CHAPTER II.

MISCELLANEOUS INFORMATION.



From a Sketch by Lady Susan Vernon Harcourt.

View of Funchal from Hollway's Cottage.

See page 27.

CHAPTER II.

MISCELLANEOUS INFORMATION.

"Each little addeth to the general store,
Who follows learns from him that went before."
PEN'S POEMS.

Passports.—Means of conveyance.—Lodgings.—Servants.—Money.—Provisions.—Markets.—Clothing.—Horses.—Boats.—Oxen.—British places of worship.—English burial grounds.—Shrove Tuesday.—Public amusements.—Parties.

PASSPORTS.

PASSPORTS for Madeira may be obtained without any payment from the Portuguese Minister in London; otherwise you are presented on your arrival with a permit of residence, for which you *do* pay. On leaving Madeira you are required to take a passport.

MEANS OF CONVEYANCE.

The trading brigs which ply between London, Portsmouth, Southampton, and Madeira are very commodious; the captains are attentive to their passengers, and the fare is excellent. Two or three of them generally sail in the course of a month: they make the passage, on an average, in twelve or fourteen days. There are no fixed days for sailing, but they always advertise themselves in the *Times*. The passage-

money is £17: for this sum you are provided with every requisite for lodging and for board.

It is usual for these traders, during the winter, to make at least one trip to Teneriffe, thus affording an opportunity of visiting that far-famed island, besides the benefit to the invalid of a sea-voyage.

The new line of steamers to the Brazils offers another means of conveyance to Madeira*. The passage-money by these boats is £20. Return fares have been established, at the rate of £33 out and home. An abatement of one-sixth of the established rates is made in favour of families.

It is not safe for persons in delicate health, after having spent the winter in a warm climate, to face the uncertain weather of England much before June. In the month of April some of the sailing brigs are in the habit of conveying passengers to Cadiz, and a month spent in Spain or Portugal on the way home makes a pleasing variety. The fare to Cadiz, by the brigs, is £8 6*s.* 8*d.*, and to Lisbon, by the steamers, £7 5*s.* 10*d.* The Portuguese traders take you to Lisbon for £5 4*s.* 2*d.*

LODGINGS.

Lodgings in Madeira are plentiful and good. For a family, the most comfortable plan is to take a *Quinta*, that is

* These boats leave Southampton at 6 P.M. on the 9th of each month, and arrive at Lisbon on the 14th, at 6 A.M.; stop one day; leave Lisbon on the 15th, at 6 A.M., and arrive at Madeira on the 18th, at 1 A.M. Thence they proceed to the Brazils, *viâ* Teneriffe and De Verd Islands, and on their return arrive at Madeira on the 3rd of the following month, at 3 P.M.; they leave Madeira on the 4th, at 3 A.M., and arrive at Lisbon on the 6th, at 10 P.M.; leave Lisbon on the 7th, at 10 P.M., and arrive at Southampton on the 12th, at 10 A.M.

to say, a house with a garden, standing in the suburbs of the town. The price asked for the season of six months varies according to their size, from £50 to £200. In such cases the tenant is supplied with everything but plate* and house linen. For single persons the boarding-houses are least troublesome, as well as most economical: a bed-room, sitting-room, attendance, and board are obtained there for fifty dollars, or £10 8*s.* 4*d.* a month. These houses are conducted on a liberal scale, and every English comfort is provided. If a *Quinta* is taken, a supply of servants, board, plate, and linen, may be procured at a given rate†. It is inconceivable what annoyances you are saved by such an arrangement; besides the endless impositions practised upon the ignorance of foreigners by servants and tradesmen, it is no small luxury to be able to pay a given sum down monthly, instead of the interminable daily payments which the ready money system of Madeira requires.

SERVANTS.

Portuguese servants may be hired for house and kitchen work at the rate of about from four to six dollars per month for the former, and from six to eight dollars for the latter service. Those who are content with a plain table, average honesty, and moderate attention, have no reason to be dissatisfied.

* Plate, furniture, pianofortes, saddles, guns, and, in fact, any things that are brought out as *luggage*, are allowed to pass through the Custom House free of charge, on the bond of some resident householder being given that the owner of the property will export it in eighteen months.

† Mr. William Wilkinson was the first to undertake arrangements of this description, and Mr. Reid is also willing to supply families visiting Madeira for the winter in the same manner.

MONEY.

The Mexican dollar, the American half-dollar, and smaller Spanish silver coins, are most commonly used in Madeira. The money is all reckoned by an imaginary standard called a *ree*, which is equal to about the one-twentieth part of a penny. *Cem reis*, which the Portuguese call a *tostaô*, and the English a *bit*, equal fivepence; two of these coins, equivalent to a French *franc*, the English call a *pistareen;* they are represented respectively, as far as currency is concerned, by the *peséta* and *half peséta* of Spain. Two *pesétas* the Portuguese call a *crusado*. The *pesétas* are sometimes of ancient date and in excellent preservation, looking as if they had been long hoarded, and accordingly many are the legends of secreted treasures, and many the fruitless searches which have been made under old floors for them. *Mil reis*, or *patáca*, is the name applied to dollars, whether they be the pillared dollars of Spain, the Mexican, Bolivian, or Peruvian, and all are reduced to the same value of four shillings and twopence. The weight, indeed, and intrinsic value of all the different dollars is nearly the same. The pillared dollars of Spain have obtained a general preference, due either to the silver being less alloyed, or, as some say, to their being the only dollar accepted by the Moors, who will take no coin to which they have been unaccustomed. In China, where the value of silver is of serious commercial consequence, there has been lately published a curious official paper, setting forth the relative worth to shopkeepers of the various coins. "It has already been proved by assay," this document says, "that the quality of the *fowl* money (Mexican dollar), compared with the *foreign face* money (Spanish dollar) is inferior in value one *candareen*, 43–10 and decimals of a *cash;* that of the *tree*

money (Bolivian Republic dollar) is superior 6–10 and decimals of a *cash;* that of the *staff* dollar (Peruvian Republic dollar) is superior 44–10 and decimals of a *cash.*" English gold and silver coin is current for its full value: the sovereign always passes for four thousand eight hundred reis. United States gold and silver coin, the dollars of Mexico and the South American Republics, together with their decimal parts, and Spanish doubloons, are likewise current in Madeira. South American doubloons, and the silver coins of Portugal and the Brazils, are not received in payments. Copper is the only Portuguese money used in the island. Hard cash is the best resource for a visitor to be provided with, as from one to five per cent. is lost on letters of credit.

PROVISIONS.

Provisions of all sorts are cheap. English bread, which is sold at $2\frac{1}{2}d.$ the pound, is the dearest article of food; the quality of it, however, is excellent. Mutton, which is an indifferent meat, fetches from $3\frac{1}{2}d.$ to $4d.$ a pound; beef, which is good, from $3\frac{1}{2}d.$ to $4d.$; and veal from $4d.$ to $5d.$ Fowls may be purchased at from $10d.$ to $1s.$ $3d.$ a couple.

MARKETS.

The markets are held at daybreak, and all the meat, the best fish, and best fruits are bought at that time. Tea, soap, and tobacco are contraband, but the Custom House is not inexorable.

CLOTHING.

A common English wardrobe, with the addition of a few lighter articles and a waterproof covering for the mountains, suffices for clothing.

HORSES.

The horse is an almost indispensable part of the establish-

ment of visitors to Madeira. The prices, whether for sale or hire, are apparently high; but it must be considered that the freightage of horses from England, which is the ordinary source of the supply, amounts to £15, and that they are on hand for half the year. The price at present charged for horse hire is thirty dollars (£6 5*s.*) per month. The most economical plan is to buy your horse on first arriving. His keep will cost you £1 1*s.* 4*d.* per month of twenty-eight days, his shoeing 4*s.* 2*d.*, his bedding 3*s.* 4*d.*, and his groom £1 5*s.*—total, £2 3*s.* 10*d.* per month; making a difference between the cost of keeping and hiring (when 8*s.* 4*d.* per month to a groom is added to the latter) of £3 19*s.* 6*d.* in favour of the former. Of course into the opposite balance you must put the loss on the sale of your horse at the end of the season, as well as the interest on your purchase-money meanwhile; but all this leaves you with a clear gain in favour of purchase. Say you give £25 for a horse on arriving, keep it for six months at a cost of £16 3*s.*, and sell it when you go for £15, allow the purchase-money a value of four per cent., or 10*s.*, then your horse will stand you in £26 13*s.*; whereas, the cost of hiring for the same period of six months would be £40. Where more horses than one are kept the difference is more than proportionably greater. As one groom does for all, £7 10*s.* is to be deducted for wages and keep for six months from the expenses of every additional horse; moreover, the groom does other things for you besides attending to your horse. You are generally advised to take out saddles with you to Madeira; but in most instances, where you buy, the saddle is sold with the pony, and where you hire, the saddles furnished by the stable-keepers are quite good enough, being almost all English. Those, however, who take saddles find a ready sale for them on leaving the island.

The horses in Madeira are fed chiefly on *milho* (Indian corn). *Milho* may be bought for 1*s.* 5½*d.* the *alqueire* (two-fifths of a bushel), retail price. An *alqueire* lasts four days if the horse is allowed a quarter a day, and he works very well on that. When the milho is crushed it is more nourishing, and goes much further. Add one *alqueire* of bran, which will cost you 10*d.*, to every four *alqueires* of crushed milho, and it will make a good mash for your horse, besides preventing your groom from appropriating the corn to his own use. The fodder given to horses, which they call *herva*, is a compound of sugar-cane leaves, vine leaves when in season, and other similar materials: 5*d.* a day of this is amply sufficient. In going to the north of the island it is advisable to take corn for the horses, as everything of that sort is dear there. A race-course exists near Funchal, supported by subscription; not that there are often races upon it, but it is almost the only place where you can get a gallop. A ticket taken for the season enables a gentleman to admit ladies.

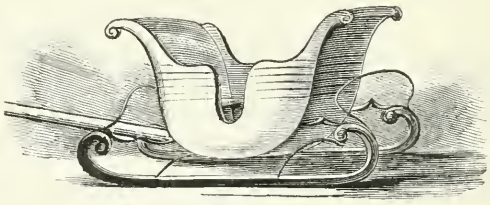
BOATS.

The boats in Madeira are excellent. They are protected against the danger of being stove in when hauled up on so steep a shore by the contrivance of two false keels at the sides. The boatman's charge is 1*s.* 3*d.* an hour. The dexterity displayed by these men in launching their passengers and landing them on the beach is very great. In the former process they wait till a wave rises to the proper height, then instantly shove the boat down to meet it, and the passenger, seated within, finds himself drawn away on the crest of the receding water. The least clumsiness would be fatal. If the boat were run down before the wave broke, it would probably break into it, and if too late, the boat would be

dragged broadside on, presenting its side for the next wave to wash over. On landing, after being accustomed to demure English ways, you are scared at the hideous yells which seem requisite whenever Portuguese strength is exerted. However, all is cleverly managed.

OXEN.

Where the boats are heavy, oxen are often employed to drag them on shore. These animals convey all heavy goods. They are harnessed to sledges, which are, in fact, nothing but flat pieces of wood attached to a yoke. The oxen are preceded by a man, who acts as their leader, and whom they follow wherever he goes; and driven by another, who holds in one hand a goad, consisting of a long stick with an iron point about an inch in length, and in the other a rag, which he wets from time to time, and puts under the sledge to make it run more smoothly on the stones and prevent its taking fire. These men make most unearthly noises and screams, which are intended to encourage the team. "Ca para Mem Boi" is a familiar sound to all who have visited Madeira. The work is severe for the oxen, and they are only employed three days a week. They have lately been made fashionable animals by the introduction of oxen-cars, or sledges, for human conveyance*.



OXEN-CAR.

* Captain C. Bulkeley, late of the 2nd Life Guards, first introduced these useful vehicles into Madeira, in the year 1848.

BRITISH PLACES OF WORSHIP.

There are three British places of worship at present in Madeira; two Church of England, and one Presbyterian.

ENGLISH BURIAL GROUNDS.

In former days, before the power of the Inquisition was broken in Portugal, the bodies of all whom the Holy Office termed heretics were forbidden the rites of Christian burial. Ovington* relates a barbarous instance of their bigotry: "An English merchant dying, all the other merchants of the same nation, willing to inter the body decently, and yet to avoid the rigorous impositions of the Inquisition, determined to have it carried in the night over the rocks into the mountains; however, their design was discovered by that jealous tribunal, and they were watched to the place of interment. Scarce had the corpse been laid in the dust when they were surrounded by the corregidors and officers of justice, assisted by a large body of armed men, who immediately dug up the body, exposed it to public insults, and then threw it into the sea, with all possible marks of infamy and disgrace." Religious toleration, which always accompanies the progress of a more healthy policy, has now granted to the English in Madeira two places of burial for their dead: the one is used by those constantly resident in the island; the other contains the bodies of those who, seeking for health in a foreign land, have there found rest for ever. The cypress droops over the stranger's grave, and many a flower decks his lonely tomb.

* Voyage to Suratt, 1689, p. 28.

SHROVE TUESDAY.

The ceremonial customs of the Romish Church in Madeira are not observed in a manner to attract much of the attention of strangers, unless it be in the grotesque observance of Shrove Tuesday. Bad eggs, water, and blacking are stored in preparation for that day. Some bridge or corner of a street is selected by the different parties of mummers. The operators are dressed in their worst clothes, and their hands and faces covered with their own blacking. The passers-by run the gauntlet of these worthies, with a customary exception of well-dressed people and carriers of parcels and letters, whose claims to immunity, however, are sometimes forgotten. Resentment is vain, always ending in two blows to one, a black face, yellow trowsers, &c., from the rabble.

PUBLIC AMUSEMENTS.

Public amusement is scantily provided for in Funchal. When you have mentioned the Portuguese club, in which a ball is held once a month, and to which a billiard-room is attached, you have almost come to an end of the list of places of resort. The English have established a subscription library, where many popular and standard works are to be found, together with the common periodicals and newspapers of the day. The subscription is high, but the luxury you pay for is great. A subscriber is allowed to take books home with him to read. The Portuguese Commercial Rooms, to which English are admitted to subscribe, are likewise provided with newspapers.

Theatricals have sometimes been attempted in the Funchal theatre house, but they have always proved failures. In the Portuguese language there are few good plays; good play writing, and good acting, as well as a favourable reception of

both by the public, are rarely met with in Portugal or her colonies.

PARTIES.

The hospitality of Madeira merchants is proverbial. They give many pleasant parties and balls for the entertainment of their friends, and all is done that kindness and consideration can do to make people forget the distance at which they are from their homes. Funchal parties are not generally infected with the contagion of the late hours of London. It is practicable to unite sociability with prudence, and retire to rest at a moderate hour. For those who are seeking health, however, the wisest course is to go out as little as possible at night. The English and Portuguese do not mix often together in society, and there is consequently very little to remind you that you are living amongst foreigners. Such intercourse, however, as you hold with the Portuguese is agreeable, from their civility, good-nature, and absence of pride.

CHAPTER III.

ON THE CLIMATE AND VITAL STATISTICS OF MADEIRA.

> "Ah! what avail the largest gifts of Heaven,
> When drooping health and spirits go amiss?
> How tasteless then whatever can be given!
> Health is the vital principle of bliss."
>
> THOMSON.

Climate.—Tables of Temperature—of Rain.—Deluges.—Rainy season.—L'Esté.—Clouds.—Sunset.—Snow.—Dampness.—Summer.—Longevity.—Population.—Emigration.

THE mean temperature of Funchal throughout the year may be stated at 66 degrees of Fahrenheit, February and March being the coldest, August and September the hottest months. Even between these months there is not a greater mean difference of temperature than 12 degrees*. It is this uniformity in which the excellence of the climate consists. The causes which are instrumental in forming such a climate in Funchal are threefold: firstly, the lofty hills which immediately surround it on the north completely shelter it from the weather at all the points of the compass, except from south-east to south-west; secondly, the absence of wood, whilst it impairs its beauty, improves its climate; and, thirdly, the regularity of the alternations of the land and sea breezes tends to preserve a delicious equability of temperature.

* It is not fair to estimate the climate of a country merely by its mean annual temperature; we should look rather to the distribution of heat through the different months of the year: Humboldt has shown that the *isochimenals* and *isotherals* (lines of equal winter and summer temperature) are by no means parallel with the *isothermals* (lines of equal annual temperature).

This tabular view of Observations taken in various favoured localities shows the superior uniformity of the Madeiran temperature in a very striking manner :—

TABLES extracted from PROFESSOR DOVE'S "Meteorology," published in the Report of the British Association, 1847.

	Lat. N.	Long. W.	Elevation.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Winter.	Spring.	Summer.	Autumn.	Year.	Diff. H. & C. months.	Difference S. and W.	No. of Years.	Hour of Observation.
	° ′	° ′	Feet.	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°		
Funchal (Madeira)	32 38	16 56	80	63·50	63·14	64·22	64·40	64·76	69·72	72·50	73·58	73·94	71·06	67·64	63·86	63·50	64·46	71·60	70·88	67·61	10·80	8·10	1	Daily extr.
St. Michael .... (Azores)	37 45	25 15	..	59·	59·	59·5	61·	63·	67·	68·	70·	68·	63·	56·	55·6	57·87	61·17	68·33	62·33	62·43	14·40	10·46	1	Red.
Santa Cruz (Teneriffe)	28 49	16 14	..	63·84	64·29	67·17	67·32	72·12	73·89	77·29	78·89	77·43	74·66	70·43	66·42	64·85	68·87	76·63	74·17	71·15	15·05	11·83	$2\frac{1}{2}$	Sunr., 12.
Bermuda.....	32 20	64 50	..	56·84	58·82	59·36	62·78	69·08	73·22	75·74	76·64	76·82	73·04	65·84	60·62	58·76	63·74	75·20	71·90	67·40	19·98	16·44	1	
St. Christopher (West Indies)	17 44	64 49	..	78·02	78·13	80·09	80·32	81·46	83·28	84·19	83·89	83·48	82·40	81·27	78·73	78·29	80·62	85·79	82·38	81·27	6·17	5·50	$1\frac{1}{3}$	Daily extr.
Cape of Good Hope	34 11	18 26	..	67·58	67·91	65·76	62·62	57·61	54·14	54·41	54·63	56·77	59·97	62·46	65·35	66·95	62·00	54·39	59·73	60·77	13·77	12·56	5	1 yr. 2-hrly. 4 yrs. hrly.
Pau	43 18	0 23	..	41·20	43·60	48·80	51·80	61·60	68·20	68·60	73·40	68·50	58·50	47·00	42·80	42·53	54·06	70·06	58·00	56·17	32·20	27·53	5	
Toulon	43 7	5 55	76	46·40	47·75	52·48	61·03	69·13	72·05	77·	76·55	71·60	66·20	55·85	51·35	48·50	60·88	75·20	64·55	62·23	30·60	26·70	2	3 times.
Nice	43 41	7 6	60	44·47	47·55	50·65	54·84	62·29	69·56	73·00	73·92	69·19	61·59	53·78	46·96	46·23	55·92	71·83	61·52	58·90	29·45	25·50	18	8·8.
Naples.....	40 52	14 15	..	46·24	47·59	51·15	56·68	64·85	70·77	76·10	76·26	69·35	61·93	53·11	49 12	47·65	57·56	74·38	61·46	60·26	30·02	26·73	13	Sunr., 2.
Rome	41 54	12 25	160	45·03	47·35	51·67	57·81	65·26	71·11	75·97	75·65	70·07	64·81	53·38	47·80	46·73	58·25	74·24	62·75	60·49	30·94	27·51	20	7, $2\frac{1}{2}$, 9.
Palermo	38 7	13 22	..	51·42	51·33	54·01	58·35	64·81	71·15	75·72	76·35	72·64	67·01	59·14	54·73	52·50	59·05	74·41	66·36	63·08	25·02	21·91	39	Red.
Malta	35 54	14 34	..	57·10	59·07	..	63·50	69·73	70·36	78·00	..	75·74	70·05	61·34	58·00	58·06	..	..	69·04	..	20·90	..	1	12.
Cadiz	36 32	6 18	..	51·40	53·73	55·21	59·64	63·75	68·16	70·27	72·86	70·17	67·10	58·80	53·58	52·90	59·53	70·43	65·35	62·06	21·46	17·53	$2\frac{3}{4}$	12·6, red.
Lisbon.....	38 42	9 9	..	52·52	53·60	56·30	59·00	63·68	69·44	72·14	71·24	69·44	62·60	55·40	51·44	52·52	59·66	70·94	62·48	61·40	20·70	18·42	5	
Cairo	30 2	31 15	..	58·10	56·12	64·58	77·90	78·26	83·66	85·82	85·82	79·16	72·32	62·06	61·34	58·52	73·58	85·10	71·48	72·17	29·70	26·58	1	
Jersey	49 11	2 6	..	43·83	41·67	42·93	49·90	52·10	62·10	62·87	61·53	61·17	54·17	48·30	42·25	42·58	48·31	62·17	54·55	51·90	21·20	19·59	$3\frac{1}{2}$	9,2,5,8,11,12
Isle of Wight ..	50 45	1 15	..	37·	41·	44·	46·	56·	62·	65·	62·	58·	51·	44·	39·	39·	48·67	63·	51·	50·42	28·	24·	10	9.
Penzance	50 7	5 33	..	42·62	44·90	45·32	48·07	54·54	59·52	62·10	61·11	57·11	53·36	47·54	45·16	44·23	49·31	60·91	52·67	51·78	19·48	16·68	21	8·2, red.

Dr. Heberden's account of monthly maxima and minima of temperature in Madeira, as observed a century ago, shows an amount of variation similarly small.

	Anno 1749.						Anno 1750.					
	Barometer.			Thermometer.			Barometer.			Thermometer.		
	M. H.	G. H.	L. H.	M. H.	G.H.	L.H.	M. H.	G. H.	L.H.	M. H.	G.H.	L. H.
January ..							29·195	29·8	29·4	64·	68·	62·
February .							29·692	29·75	29·5	63·8	67·	61·
March	29·81	30·2	29·8	64·66	70·	61·	29·12	29·65	29·3	66·5	71·	61·
April	30·075	30·2	29·8	60·7	63·	64·	29·285	29·4	29·1	66·45	68·	65·
May	29·55	30·1	29·6	66·53	69·	65·	29·775	29·9	29·5	66·25	68·	65·
June.....	30·017	30·15	29·75	68·75	72·	64·	29·875	30·1	29·5	69·06	72·	65·
July	30·027	30·1	29·95	74·58	75·	72·	29·887	29·95	29·8	73·	75·	71·
August ...	30·013	30·1	29·95	75·07	77·	74·	29·386	30·1	29·75	75·4	78·	72·
September	30·054	30·15	29·85	76·53	79·	72·	29·915	30·05	29·7	74·93	77·	72·
October ..	29·841	30·	29·7	72·2	77·	68·	29·797	29·9	29·5	73·87	77·	70·
November	29·68	30·	29·55	68·6	73·	67·	29·875	30·05	29·55	70·825	76·	67·
December	29·675	29·9	29·4	64·9	68·	62·	29·843	30·2	29·7	66·27	74·	64·

Dr. Heberden's Tables. Phil. Trans., x. abr., 1751, 232.

"Dr. Heberden goes on to give the mean height of the barometer and thermometer at Funchal for each month of the years 1751, 1752, 1753, which have but very small differences and changes.

"By collecting the respective sums of the daily heights of the instruments throughout the year, and extracting the mean altitude, it is found that the mean altitude of the barometer for each day is 29·915 inches, and of the thermometer 68°·918. The greatest thermometrical variation during the said time has been 20°, viz., from 60° to 80°; but it may be observed that it never rose so high but once, occasioned by a very strong L'Esté, or Levant wind, the extreme height, without such an accident, being never more than 78°."

Dr. Mason's work furnishes the following *data* for the years 1834–1835 :—

1834 and 1835.	Mean.	Mean maximum.	Mean minimum.	Mean monthly range.	Maximum.	Minimum.	Extreme range.
	°	°	°	°	°	°	°
January ...	60·24	63·23	57·26	5·97	65·	55·	10·
February ..	61·12	64·75	57·50	7·25	69·	55·	14·
March.....	63·43	68·39	58·48	9·81	71·	53·5	17·5
April	65·39	70·46	60·33	10·13	75·	58·	17·
May	67·97	72·60	63·35	9·25	77·5	61·	16·5
June	69·44	73·16	65·73	7·43	80·	63·	17·
July	71·68	75·06	68·28	6·77	80·	66·	14·
August ...	72·78	76·93	68·64	8·29	80·	66·	14·
September.	72·16	76·00	68·32	7·68	79·	66·	13·
October ...	69·49	73·06	65·93	7·13	77·	62·	15·
November .	65·45	68·70	62·20	6·50	73·	57·	16·
December..	64·25	66·80	61·71	5·09	72·	55·	17·

Mean daily and nightly range throughout the year.

1834 and 1835.	Mean maximum in the day.	Mean minimum in the day.	Mean range.	Mean maximum in the night.	Mean minimum in the night.	Mean range.	Range of the 24 hours.
	°	°	°	°	°	°	°
Winter	68·66	61·00	7·66	62 66	55·00	7·66	13·66
Spring	74·50	65·00	9·50	63·66	57·50	6·16	17·00
Summer	80·00	71·33	8·67	71·16	65·00	6·16	15·00
Autumn	76·33	68·00	8·33	69·16	61·66	7·50	14·67
Year	74·87	66·33	8·54	66·66	59·79	6·87	15·08

In the winter of 1847–8 the Rev. W. V. Harcourt made a series of observations at a house near the *Pontinha*, about eighty feet above the sea, which may be very advantageously compared with a parallel series for the same period at Pau observed by Professor Donkin. The following are the deduc-

tions from these series, as corrected by Ford from the *data* which Mr. Glaisher has supplied:—

Deductions from Memoranda of the Temperature of Madeira, made by the Rev. W. V. Harcourt.

	Average maximum.	Average minimum.	Mean temperature.	Mean temperature corrected.	Highest temperature.	Lowest temperature.	Greatest difference.	Least difference.	Mean difference.	Range in the month.
1847.										
November ...	69·3	58·7	64·0	63·6	72	56	11	8	10	14
December ...	66·0	57·2	61·5	61·5	72	54	13	5	9	18
1848.										
January	63·3	54·0	58·6	58·4	67	48	13	5	9	19
February ...	64·4	55·2	59·8	59·4	68	51	15	5	9	17
March.....	65·3	53·4	59·3	58·3	70	49	16	7	12	21
April	66·3	54·0	60·2	58·7	70	51	19	6	12	19

Deductions from Memoranda of Temperature made at Pau by Professor Donkin.

		Mean temp.	Mean afternoon temp.	Highest named.	Lowest named.
1847.	November ...	47·2	53·3	62	33
„	December ...	41·1	48·0	59	27
1848.	January.....	33·3	38·0	57	23
„	February ...	43·1	50·9	70	29
„	March	43·9	50·9	60	38
„	April.....	53·7	59·4	65	45

From these tables we find that the mean of the six months at Madeira is 59·9, and the mean of the six months at Pau is 43·7.

RAIN.

According to the authors of the "Physical Atlas," the mean annual quantity of rain that falls at Funchal is 29·82 inches, of which 48 per cent. falls in the winter, 17 per cent. in the spring, 4 per cent. in the summer, and 31 per cent. in the autumn. The rain that falls in the mountainous parts of England, which is nearly double of what falls in the plains, stands thus, by comparison :—40·59 inches fall annually, of which 26 per cent. falls in the winter, 19 per cent. in the spring, 25 per cent. in the summer, and 30 per cent. in the autumn.

The following Table of Observations by Dr. Heberden shows the quantity of rain which fell at Funchal in the years 1747, 1748, 1749, 1750:—

	An. 1747.	1748.	1749.	1750.
	Inch. Dec.	Inch. Dec.	Inch. Dec.	Inch. Dec.
January	20·525	8·600	2·097	7·150
February ...	·485	10·958	1·203	1·771
March.....	4·339	5·241	·932	1·123
April	·528	·722	·777	·039
May	·353	...	5·290	1·087
June	1·321	·420	·113	·226
July	·200	...	...	·176
August	·018	2·700	...	·003
September ...	·540	·810	·855	1·682
October	·010	3·303	1·512	6·601
November ...	5·181	2·654	3·059	5·611
December ...	7·351	1·500	6·527	1·882
Total	40·851	37·508	22·365	27·351

Dr. Heberden's Table.

Dr. Heberden says, "The years 1749 and 1750 were such dry years that the corn was destroyed, and the fruit trees suffered much, particularly the peach trees; the fruit either falling to the ground whilst green, or, if it remained longer

on the tree, being full of white worms. The quantity of rain which fell in the seven years from 1747 to 1753 inclusive, amounts to 214·346 inches. Therefore the mean quantity for each year is 30·62."

Dr. Mason's Observations give the following quantities for 1834, 1835:—

1834 and 1835.	Day.		Night.		Days on which thunder occurred.
	Days' rain.	Hours' rain.	Nights' rain.	Hours' rain.	
January	14	74	6	45	2
February	9	21	1	12	...
March	8	32	5	46	...
April	10	63	5	39	...
May	2	24	2	22	...
June	6	40	2	21	...
July	7	6	0	0	...
August	3	5	1	2	...
September	5	25	4	42	...
October	10	103	7	93	3
November	18	79	13	108	3
December	10	56	10	111	1

	1834–1835.	Winter.	Spring.	Summer.	Autumn.	Year.
Days.	Days rainy ..	33	19	16	33	101
	Hours rainy..	151 = 12·7	119 = 9·11	51 = 4·3	207 = 17·3	528 = 44·0
Nights.	Nights rainy .	17	11	3	24	55
	Hours rainy..	163 = 14·0	107 = 8·11	23 = 1·11	243 = 20·3	541 = 45·1

Great inequalities, however, subsist between one year and another at Madeira in the distribution of the rain through the seasons, though the general average does not much differ. The amount of that which falls in the mountains is unknown. In comparing the climate with those of more northern latitudes it must be remembered that the *frequency* of the rain here bears no proportion to its amount; Dr. Macaulay has computed that whilst it rains in London 178 days in the

year, in Funchal it rains but 73 days *. The seasons in which the least rain falls in winter are not those that are considered the most healthy; such winters are often followed by wet springs; the earth having been thoroughly baked and heated by the previous drought yields a copious evaporation when the rain comes, and this is presumed to render the atmosphere more trying to delicate subjects.

DELUGES.

About once in every twenty-five years the island is subject to deluges, which do great damage to the country. In 1803 there was a flood of this nature: the water came down with so much violence as to give rise to the conjecture that a water-spout had broken over the mountains. Whole houses were washed into the sea with their inmates, and upwards of five hundred souls were said to have perished in Funchal alone. The church of N. S. do Calhao was swept away, and the damage done to property was very great. Those who were in the mountains fled to the city, and those in the city fled to the mountains: dismay was on every countenance, and the inhabitants thought the end of the world was surely come. On such occasions the water rolls down the ravines in torrents, carrying in its course vast masses of rock that no other power could move, short of an earthquake; the noise is so tremendous, that, standing near these rapids, you cannot hear your neighbour speak, even if he puts his mouth to your ear.

RAINY SEASON.

What is called the rainy season occurs generally in the autumn and early spring, and lasts about three weeks; even

* Edinburgh New Philosophical Journal, Oct., 1840.

then you can always get out of doors for some part of the day. When the wind is in the north and east there is seldom much rain; if the wind goes round to the west by the south, a continuance of wet may be expected, but if by the north, it soon veers round again, and there is not much rain.

L'ESTE.

Madeira has its Sirocco, called by the natives *L'Esté*, a term expressive of the quarter from which the wind blows. It bears so near a resemblance to the easterly wind known on the opposite coast by the name of *Harmattan*, in its chief peculiarities, that we may conclude it owes them to a similar origin: like it, hot and dry, it is yet not insalubrious*. Invalids find relief from its influence, though it is felt oppressive by persons in health. It produces a parching of the skin, and even curls up paper and the binding of books. If you try to escape it by ascending the hills, you find it unmitigated, and of the same hot, dry, relaxing quality. Meat and milk will not keep whilst it lasts. Even in the hills, in winter, and at an early hour of the morning, the thermometer often stands at upwards of 70 degrees Fahrenheit in the shade. In the summer of 1850 Dr. Lund observed the thermometer stand at 91° F., at Santo Antonio da Serra,

* A curious example of the benign influence of the *L'Esté* is given in an account of the awful visitation of cholera during this year (1851) in the Grand Canary, communicated by Mr. Houghton, H.B.M. Vice-Consul, and which appeared in the "Times" of July 16. Mr. Houghton writes, "The deaths during the night have materially declined in number, and it is said that many of those who were in a desperate state overnight show symptoms of improvement. I must here mention, that since the middle of the night the weather has changed. We have now what is called here '*a levante*,' being a hot dry wind."

in the shade. Dr. Heberden's observations on the *L'Esté*, Oct. 20, 1750, are as follows:—

Hours 10, 12, 4. Thermometer within doors, 73, 76, 77.
Do. exposed to the air, 81, 82, 77.

In the *L'Esté* of 1850, on the 28th of February, Mason's hygrometer showed 18 degrees of dryness. It is invariably accompanied by a haze, though less dense than that which is said to characterize the Harmattan*. The cause of this haze is not known, though it may probably be due to the minute particles of red sand, which, when this wind blows strong, may be seen plentifully deposited. Many curious birds are blown over from the African coast by the *L'Esté*, of which the ordinary direction is, by the compass, E.S.E. It generally lasts about three, six, or nine days. After the wind ceases rain almost invariably follows.

CLOUDS.

The clouds are so regular in their movements that it seems as if these might be reduced to rule. Early in the morning, the tops of the hills are generally clear; later in the day, light clouds make their appearance, which presently unite, generally to separate again, and break into those varied shapes and masses which enhance so greatly the beauty of the scenery. At nightfall the bank of clouds usually forms again,

* The nature of the *Harmattan*, of the *Simoom*, and of the *Sirocco*, is sufficiently well known; Josephus Acosta, lib. iii., cap. 9, mentions a wind which he experienced in India in these words:—"The iron gates were so rusted and consumed by a peculiar wind, that pressing the metal between your fingers, it would be dissolved and crumbled, as if it had been hay or parched straw."

to be again gradually cleared away, leaving the nights bright and lucid.

SUNSET.

An opinion prevails that exposure to the air at sunset is dangerous to those who are in delicate health. The thermometer shows no sudden change of temperature at that time; but it is possible that the loss of the direct rays of the sun may induce a chill on sensitive frames, and justify a medical caution.

The stars seem to have an unusual clearness in Madeira: over the sea not many are distinctly visible, owing to the mist which always at night hangs over the horizon. That beautiful phenomenon the lunar rainbow is often seen to great perfection.

SNOW.

In the months of December, January, February, or March, the hills, as low down as three thousand feet from their summits, are sometimes visited by snow, though it rarely lies on the ground above two, or, at most, ten days at a time. There is a large pit dug and covered over at the top of one of the peaks, which has derived its name of the ice-house peak from the use it is put to. Here the snow or hail is collected, and hence the luxury of an ice is to be obtained in the pastry-cook's shops at any time of the year. In Funchal, however, frost is unknown: a fire is seldom requisite to guard against either cold or damp.

DAMPNESS.

Whatever may be the moisture of the air, it is not sensible as *dampness* to the feelings, and is certainly not unfavourable

to the healthy action of the lungs. The fault, in this respect, found with many hot climates is a searching and irritating dryness, and in England it has been found necessary to temper the dry air of rooms, artificially warmed, by the introduction of vapour. There may be spots in Madeira, either near yam grounds where much irrigation is carried on, or where the soil or rock, usually very porous, is so close as to retain the wet, which may be too humid for some constitutions; but, for the greater part, in the neighbourhood of Funchal, there is no visible excess of moisture: there is no fog, and there is comparatively but little dew. If dampness has ever been alleged as an objection to the salubrity of this island, it must be regarded as a complaint due to the unlucky choice of some dwelling-house unfavourably placed, or to the common fastidiousness of ill-health.

> "The verdant rising and the flowery hill,
> The vale enamell'd, and the crystal rill,
> The ocean rolling, and the shelly shore,
> Beautiful objects, shall delight no more,
> When the lax'd sinews of the weaken'd eye
> In watery damps or dim suffusion lie."

No one now, I believe, thinks that climate can heal a deep-rooted complaint; it may arrest incipient disease; it may, and does, assuage the sufferings of many whom it cannot cure. In extreme cases, it would, indeed, often be but useless cruelty to bring the invalid to die at a distance from his natural home; yet there are instances in which, beyond expectation, patients have been kept alive by so benignant a climate after they had been all but given over by the faculty for many years. The dying invalid has here all that climate can do; the patient can be carried out in his hammock, and draw the pure air of heaven with his last

breath. The cases in which Madeira does real good are those in which a person whose lungs are threatened, or incipiently diseased, repairs thither immediately, and follows out rationally the mode of life prescribed by his doctor, is at home by sunset, abstains from going out to parties at night, does not expose himself to the alternations of weather, to excitement, or fatigue: then, with God's blessing, the hand of death is often stayed, the constitution is invigorated, and care and time work out what climate had begun. It is marvellous to see how some people will go to Madeira, as if for their health. and live there in a way which must make the best climate in the world useless.

SUMMER.

The summer in Madeira is said to do the invalid even more good than the winter. No one thinks of remaining in Funchal during this season. The residents generally move up to the high lands in the beginning of June, and go down again to the town, for the winter, in the beginning of October. Certain it is, that the benefit of a winter in Madeira is often neutralized by the subsequent summer spent in England. This of course must depend in some degree upon the season. Perhaps our changeable climate, even at its best, is irritating to a system spoilt for it by one so much its superior, till the recovery of health is confirmed by a residence in Madeira of sufficient duration to have rendered it proof against sudden changes. There is perhaps no country in the world, enjoying so much warmth in the winter as Madeira, which is also blest by the absence of oppressive heat in the summer *.

* Prosper Alpinus, lib. i., cap. 6, in his treatise *De Medicina Ægyptiorum*, tells us that at Grand Cairo, where he practised medicine, though that city is six degrees distant from the tropics, the air in summer is almost insupportably hot, and in winter sometimes very cold.

LONGEVITY.

Judging from the registrar's return of deaths in Madeira, one would say the people are comparatively short lived. There are reasons for this peculiar to the native population, and not leading to any just inference against the healthiness of the climate when fairly tested. The inhabitants are poorly fed, poorly clothed, and hard-worked. At the age when most nourishment is required, least is often obtained. The growing child frequently lives on *cabbage broth*. The natives are also subject, from their habits, to very sudden alternations of temperature, and to exposure to wet and cold, from which the kind of garments that they wear is a poor protection. Men, women, and children, having been employed from sunrise in collecting fuel, amid soaking mists and piercing blasts in the mountains, carry down their burdens, under the heat of a mid-day sun, into the warm town for sale, and then return to their cold mountain dwellings. What constitution could stand this long? and, when insufficient feeding is added, is it to be wondered at, that few attain to an advanced age? By studying the returns it will be found that there is less longevity, in proportion, in the northern and colder parts of the island; and the parish of Santa Anna, which is remarkable for mist and rain, is remarkable also for a shorter average of life. The clothing, too, is of the scantiest nature; it is never varied in proportion to heat, cold, or damp, and the wretched huts in which the people live are ill calculated to keep out the weather *.

* Hear the words of the Governor of Madeira, speaking of the labouring classes:—"At the age of sixty the constitution generally breaks down, few are able to work at seventy, and many, in the country districts, are entirely incapacitated for labour at fifty. In the city and villages it is rare to see the physical and intellectual powers impaired by premature hard work; in the country, however, you meet with many examples of mis-shapen people,

Put out of the question *that* disease over which no climate has any control, namely, want, and Madeira is very healthy. It is free from most of the distempers which scourge hot countries, and those which are virulent in more northern latitudes only appear there in the mildest forms. Diseases imported from other countries, such as small pox, scarlet fever, measles, &c., have at various times had their run here, but never remained long. Quarantine regulations are sometimes very strictly, and to visitors somewhat vexatiously, carried out *. The cholera has not as yet reached this island.

POPULATION.

The population, according to the census of 1835, was 115,446. In one made in 1743 the number of persons returned as seven years old and upwards was 48,234, from which it was inferred by Dr. Heberden that the total number

whose growth premature bodily labour has either stunted or distorted, extending its fatal effects through the whole of their, generally, short existence."

* Experience in the Canary Islands seems to justify such caution. Mr. Houghton says, in his letter, " You are aware that during the prevalence of this epidemic in Europe, even when it reached Cadiz, these islands, as well as Madeira, were preserved intact. The usual course of the winds is from that direction; there has been no change noted in this respect within these last months. The cholera has latterly been making great ravages in the West Indies, a position diametrically opposed to the current of the air. It appears, therefore, almost impossible that we should have received the germ of this destroyer simply through the atmosphere. The credited reports here tend to a contrary opinion. About the 8th or 9th of May a vessel arrived from Havannah with a clean bill of health, and was consequently admitted to pratique without any preliminary fumigation. It is said that the first house in San Jose (a suburb principally inhabited by poor people) in which this disease made its appearance was that of a washerwoman who had taken the mattress and foul clothes of one of the poorer passengers to wash, and that her children slept upon them during the night. Death soon followed; one neighbour after another was attacked; the seed had found its appropriate soil, and slowly, but too surely, germinated, and when the air was sufficiently contaminated its fatal effects were generalized."

in that year was 53,057. The people, therefore, have little more than doubled themselves in a century. When we consider that in our own country the population has doubled itself in about half that period, and that our increase is considerably slower not only than that of the New World, but of many of the anciently-peopled countries of Europe, and when we consider also the general healthiness of the climate of Madeira, and the small amount of emigration which, till the year 1835, has occurred there, this must appear an extraordinary circumstance *.

Dr. Heberden, in 1767, reasoning from the census of that year as compared with the returns of 1743, conceived that the duplicate proportion would have been reached in eighty-four years †; but it appears that in the following year the population, instead of increasing, diminished from 64,614 to 63,913. In that year it is stated ‡ that 2198 children were born, and that 5243 persons died. In 1835, 4102 births were registered, and 2751 deaths, making an increase in the population of 1351 souls. In 1839, 4671 were born and 3962 died; the increase therefore was 709. In 1843, 4627 were born and 2883 died; the increase was 1744. In 1847, 3452 were born and 3252 died; the increase was 200. In 1849, 3988 were born and 2293 died; the increase was 1695 §.

* Malthus, writing in 1803, (book iii. chap. xi. p. 476,) says, "If we could obtain accurate bills of mortality in those southern countries, where very few women remain unmarried, and all marry young, the proportion of annual deaths would be 1 in 17, 18, or 20, instead of 1 in 34, 36, or 40, as in European states."

† Phil. Trans., xii. abr. 1767, 475.

‡ *Forster's Voyage round the World, under Capt. Cook,* 1792, vol. i. p. 16.

§ CENSUS TAKEN IN 1767.

Christened in 8 years .	17,611	Medium for each year	2,201⅜
Buried „ .	10,351	„ „ .	1,293⅞
Octennial increase	7,260	Annual increase	907½

It should seem from these particulars that there are periods of excessive mortality, which, amongst other causes, have

Proportion of the yearly births to the number of persons,	as 1 to 29·35
„ „ burials	as 1 to 49·89
„ births to burials	as 100 to 58·77
„ males born to females	as 100 to 96·39
„ females buried to males	as 108·33 to 100
Weddings each year at a medium	470⅝
Proportion of weddings to births	as 1 to 4·68
„ „ burials	as 1 to 2·75
The mortality of spring and summer to that of autumn and winter	as 115 to 100

Census taken in 1835.

Population of Madeira	113,828
„ Porto Santo	1,618
Total	115,446
Births	4,102
Deaths	2,751
Increase of Population	1,351

Census taken in 1839.

Population of Madeira	114,147
„ Porto Santo	1,614
Total	115,761
Births	4,671
Deaths	3,962
Increase of Population	709

Census taken in 1843.

Population of Madeira	117,372
„ Porto Santo	1,669
Total	119,041
Births	4,627
Deaths	2,883
Increase of Population	1,744

kept down the population. What may have been the cause, in 1768, of the decrease of population, is not recorded; but in 1839 the greater mortality is to be attributed to small pox, and in 1847 to the famine which then visited the island.

Under these circumstances, the policy of the Government appears to have been rather to repress than encourage emigration; and the fees exacted before a licence to emigrate can be obtained are very large. When the great demand for labour in Demerara occasioned the offer of a considerable premium to volunteers from Madeira, many of the young men were tempted to leave their families, and were surreptitiously smuggled on board the emigrant ships. These emigrants are reported to have made excellent labourers; but it is said also, that, overworking themselves under a tropical sun, they contracted the diseases of a climate in which the negro alone is capable of enduring much labour, and died by

CENSUS TAKEN IN 1847.

Population of Madeira . . .	104,747
„ Porto Santo . .	1,739
Total . . .	106,486
Births	3,452
Deaths	3,252
Increase of Population	200

CENSUS TAKEN IN 1849.

Population of Madeira . . .	108,274
„ Porto Santo . .	1,810
Total . . .	110,084
Births	3,988
Deaths	2,293
Increase of Population	1,695

hundreds. Of the survivors, some went to America, some returned to their own country, and some, withdrawing themselves from the fields, proved very serviceable in other works about the town and wharfs. The first emigration, as has been before observed, took place in the year 1835, during which year about 1200 persons left Madeira. Emigration then ceased for a time, till the year 1840, when it was vigorously resumed. At the end of the year 1847 it again ceased. Government returns state that up to this time 5435 persons had emigrated, that is to say, that 5435 persons had paid the heavy emigration fees; perhaps three or four times that number actually left the country. During the years 1848 and 1849 there was scarcely any emigration; but in June, 1850, a premium, though a lower one, was again offered, and emigration recommenced actively. The Madeira Government, finding it could not stop the evil, as they supposed it to be, made a remission, though to a trifling extent, of the fees on emigration. It is estimated that, from 1835 to the present time, nearly 35,000 persons have gone from Madeira to Demerara, St. Vincent, Antigua, Trinidad, Grenada, Jamaica, and St. Kitt's.

CHAPTER IV.

THE HISTORY, GOVERNMENT, AND MANNERS OF MADEIRA.

From a Sketch by Lady Susan Vernon Harcourt.

Group of Peasants.

See page 90.

CHAPTER IV.

ON THE HISTORY, GOVERNMENT, AND MANNERS OF MADEIRA.

> " Th' historic Muse, from age to age,
> Through many a waste, heart-sickening page,
> Hath traced the works of man."
>
> KEBLE.

Ancient history.—Re-discovery of Madeira.—Cape Bojador.—Columbus.—History of Machim.—Governors appointed.—Allotment of land.—Original government.—Death of Zarco.—Funchal constituted a city.—Invasion by French privateers.—Madeira passes into the dominion of Spain.—English possession.—Dom Miguel.—Ecclesiastical affairs.—Bishop appointed.—Ecclesiastical courts.—Salary of the clergy.—Diocese of Funchal.—Monastic establishments.—Religious societies.—Places of education.—Public institutions.—Judicial division of Madeira.—Civil governor.—Judges.—Criminals.—Laws of inheritance.—Public revenues.—Government monopolies.—Military affairs.—Roads.—Elections.—Habitations of the poor.—Dress.—Beauty.—Manufactures.

ANCIENT HISTORY.

IT does not appear that any of the islands which lie on the western coast of Africa, at a distance from the Continent, were certainly known to the ancients till about the commencement of the Christian era. Strabo blamed the Alexandrian geographer, Eratosthenes, for having given credit to *fabulous tales* concerning an island named *Cerne*, supposed to have been discovered beyond the pillars of Hercules in an exploring expedition of the Carthaginians, conducted by Hanno *, and though there seems no reason to doubt that the

* The voyage of Hanno, according to Dodwell (Dissert. de Peripli Hannonis, tom. i. edit. Oxon.), took place at some time between the 92nd and 129th Olympiad.

African shores were explored far to the southward by that leader, who, on his return, as Pliny tells us, hung up in the temple of Saturn a register of his discoveries; and, moreover, in the temple of Juno, as evidence of their truth, two skins of female *Gorgons* covered with hair, which remained there till the destruction of Carthage; yet the Greek account of this voyage, which has come down to us is so mixed with fiction, and accords so ill with the known geography of the coast, that Strabo did but show the usual soundness of his judgment in rejecting its authority. After the fall of Carthage a survey of these seas was undertaken by the Roman general, historian, and geographer, Polybius, who likewise found an island, to which he assigned the name of *Cerne;* but it was one which lay not more than a mile from the shore.

By the time, however, that Augustus Cæsar ruled the Roman Empire, when that literary sovereign governed the kingdoms of Mauritania, of whom it was said that he was "still more memorable for the renown of his studies than for the extent of his dominions," the fragments which remain of his geographical delineations prove that both the Canary and the Madeira Islands were then distinctly known.

"Juba," says Pliny, "has given this as the result of his investigations concerning *the Fortunate* Islands, that they are situate in the south, towards the west, 320 miles from *the Purple Islands*, so as that the navigation lies for 250 miles *above the sunset* (*i. e.* south-west); then for 70 miles the course is eastward. The first island, called *Ombrion*, has no traces of buildings. On its hills is a piece of standing water. It bears trees resembling a *ferula*, from which is expressed a water, bitter from the black species, but from those of a whiter colour pleasant to drink. Another island is called *Junonia*, and on it there is one little building of stone.

Near this is a smaller island of the same name. Then *Capraria*, full of great lizards. In sight of them is *Nivaria*, taking its name from perpetual snow, and covered with clouds. Next to that, *Canaria*, so called from a multitude of dogs of great size, two of which were brought to Juba; and traces of habitations appear there. As they all abound in plenty of apples, and birds of every kind, so this abounds in *date-bearing palms*, and in *the nut of the pine tree*."

No one who is acquainted with the *snow-capped and cloudy* peak of Teneriffe, the *date-palms*, and the *pine trees with edible nuts*, still growing in that island, and who remembers that at the time of the Spanish invasion flocks of *goats* formed the chief possessions of the *Guanches*, and that the dwelling of that people, according to the Spanish authors, was, in general, not in houses, but in the rocks, can fail to recognise the Canaries in this description. But if we are certain that *the Fortunate Islands* of Juba are the same with our *Canaries*, in that case it is impossible not to identify also his *Purple Islands* with our *Madeiras*. For the course and distance here stated of 250 miles south westerly, would bring a vessel to the most western of the Canaries, whilst the 70 miles from Madeira, easterly course, would sweep a great part of the remainder of the group.

We are further informed by Pliny that these *Purple* Islands, also called by him the *Mauritanian Islands*, were "over against the *Autotoles*," opposite, that is, to the western coast of Morocco, that they were "few in number," that they were "discovered by Juba," and that he had projected the carrying on in them a manufacture for dying the Goetulian *purple:* hence, doubtless, the name of the *Purple* Islands. Whether any of the various shell-fish from which the much-prized Goetulian purple was extracted frequent the shores of

the Madeiras it might be worth while to inquire*; but in the meanwhile, supposing such materials for dyeing not to exist there, it might not be improbable that Juba's traders had found on the rocks of the *Dezertas* the plant which furnishes us at this day with the most beautiful purples, the Orchil, or *Lachmus tinctorius*. That learned king, we know, was a curious inquirer into the properties of plants, for it is mentioned by Pliny that it was he who discovered the *Euphorbium* in the vicinity of Mount Atlas, and recommended it as a collyrium for the eyes, and it seems likely enough that he may have speculated on substituting the fine violet dye of the vegetable Orchil for that of the animal Purpura.

It is probable that the "*Erythia*," or *Red* Island of Ptolemy, may have owed its name to the same circumstance which gave their denomination to the "*Purple* Islands" of Pliny, and may have been regarded as one of them. The latitude of 29 degrees, assigned by Ptolemy to this island, agrees best with that of the *Salvages;* whilst the latitude of 32 degrees, which his tables give for the island "*Paina*" (to be read, perhaps, Poina, *i. e.* Punica), corresponds perfectly with that of Madeira; and this ancient geographer seems, therefore, only to have misplaced these islands, so far as their longitude is concerned, in assigning to Erythia that of 7 degrees, and to Poena of 5 degrees, an error apparently due to his having fixed his first meridian, though the most westerly of the *Fortunate* Isles, a few degrees too far to the westward.

* If any species of Manx or Buccinum can be found on these shores, it should be carefully examined for the green juice described by ancient authors, which, on exposure to air, turns first to *lilac*, and then to a *red purple*.

RE-DISCOVERY OF MADEIRA.

Under the Roman rule, after the fall of Carthage, all communication with the Atlantic Islands ceased, and it was reserved for the great Dom Henry* to re-establish the communication of Europe with the Madeiras. Cordeyro, in his *Historia Insulana*†, says that some attribute the discovery of Porto Santo to certain Frenchmen and Spaniards, but he gives no credit to the tale.

Prince Henry, fourth‡ son of King John (of Portugal), in trying his fortune against the Moors, having made acquaintance with Morocco, was led to push his enterprises still further. In the year 1419§ he sent an expedition to attempt the doubling of Cape Bojador‖. João Gonçalves Zarco and Tristão Vaz Teixeira, who were in command of the expedition, were driven so far off shore that all reckoning was lost, when at daybreak they saw an island before them, which they called Porto *Santo*, to commemorate their deliverance. On their return Prince Henry sent out Zarco, Vaz, and Pestrello to plant a colony on the new island. It was not long before a dark spot was observed on the western horizon of Porto Santo. This was regarded by some with superstitious awe; but Zarco concluded it to be clouds attracted by high land¶, and shaping his course in that direction, in spite of the endeavours of his crew, by menaces and supplications, to prevent him, he discovered, in the year

* Faria y Sousa, tom. i. c. 1.

† Lib. iii., Das Ilhas de Porto Santo & Madeyra, p. 62. Lisb. 1717.

‡ Mariana (edit. 1592), Hist. de reb. Hisp., b. 18, chap. ix.

§ Barros, Dec. I., l. i. cap. 2.

‖ So called from the Spanish, *bojàr*, to compass or go about.

¶ Alcaforado.

1420 *, the island to which, from the trees that covered it, he gave the name of *Madeira* †.

From these events we may date the commencement of that great epoch of maritime adventure which raised Portugal to the rank of one of the chief nations of Europe, and paved the way to the discovery of the New World.

CAPE BOJADOR.

It was not till twelve years ‡ after the discovery of Madeira that the doubling of Cape Bojador was accomplished. It is not a little remarkable, as Rennell observes, that the Portuguese, the best mariners at that day, should have found so much difficulty in accomplishing a task which had been often performed by ancient navigators.

COLUMBUS.

Gomara and other Spanish writers affirm that Columbus was a resident in Madeira. Juan de Mariana relates "that a certain ship was driven from the coast of Africa by a tempest to unknown lands. The storm at length abated, and the ship was cast upon the island of Madeira. There was by chance on that island one Christopher Columbus, a Genoese by birth, who had married in Portugal, and was a very ac-

* Azur, cap. 83.

† "The word Madeira has the same signification as the Lat. *Materia*, from which it is only vernacularised, the Portuguese frequently substituting *d* for the Lat. *t*, and transposing the *r* from its situation with its connecting vowel; of which we need give no more familiar instances than *padre* and *fradre* for pater and frater, when used in a spiritual sense. That materia is the classical term for forest trees, we have the authority of Cæsar, in his Commentaries, who remarks of Britain, '*Materia* cujusque generis, ut in Gallia, est; præter fagum et abietem.'"—*Rees' Cyclopædia*, art. *Madeira*.

‡ Faria y Sousa.

complished navigator—a man of a great heart and lofty thoughts. The captain of the ship put Columbus in possession of the memorandums of his voyage, which first inspired him with a desire to visit those parts." Though we may doubt the truth of this tale, still the connection of Columbus with the Madeiras may very likely have sown the seed of his subsequent discoveries. His wife was a daughter of Pestrello, who had been engaged in discovering the islands of Porto Santo and Madeira. Columbus, it is said, got possession of the journals and charts of his father-in-law, and from them learned the course the Portuguese had held in their discoveries, as well as what they found to guide and encourage them in their attempts. Whilst he read the accounts of new countries and new people the flame of his favourite passion was fanned, and the wish to embark on adventures of his own became paramount in his mind. His first voyage was to Madeira*, and he continued for several years to trade with that island, with the Azores, the settlements in Guinea, and all the other places which the Portuguese had discovered on the continent of Africa.

The following romantic story of the first re-discovery of Madeira is said to have been told by Alcaforado, who flourished a few years after the colony was first settled here †.

* Robertson's Life of Columbus, ch. iv. v.

† Alcaforado's story was translated into French, and published in Paris in the year 1671, in a work called *Relation Historique de la Découverte de l'Isle de Madera, traduit du Portugais.* The translator says of his author, "Personne ne pouvait reussir mieux que lui dans sa narration de cette avanture, puis qu'il assista en personne à la découverte qui fut faite ensuite. Dom Francois Manuel en garde l'original manuscrit avec beaucoup de soin, c'est lui à qui nous avons l'obligation d'en avoir fait part au public en sa langue."

HISTORY OF MACHIM.

An Englishman, of obscure birth, named Robert Machim, who lived in the latter part of the reign of Edward III., fell in love with Anna D'Arfet, a beautiful damsel of a noble family. Her father, incensed with his presumption, obtained the imprisonment of the lover, and married his daughter to a more illustrious suitor. The bridegroom, however, having left his castle near Bristol to attend the king in his wars, Machim, when released, procured access to Anna, and persuaded her to escape with him to France. They sailed without a pilot for the coast of Bretagne, but, a storm arising, lost their reckoning, and after running for ten days before the gale, at length discovered in the horizon the coast of Madeira, and landed, in the year 1346, in a bay afterwards named Machico from him.

Another storm drove Machim's vessel from its anchorage, leaving those who had landed from it in such distress, that the lady died of grief, and Machim, refusing all food, did not long survive her, and was buried in the same grave. The rest, having ornamented the tomb with a large wooden cross, and placed near it an inscription which Machim had prepared, requesting the first Christians who might read it to raise a chapel on the spot, took to their boat, and being carried to the coast of Barbary, were made captives by the Moors. Whilst in captivity, they related their adventures and described the position of Madeira to a fellow-captive, who afterwards communicated the facts to a Spanish pilot called Morales, in the employ of Gonçalves Zarco.

This tale, it should appear, was not deemed worthy of notice by the Portuguese historian De Barros, who ascribes the

discovery of the island entirely to Gonçalves Zarco and Tristram Vaz; nor will it, I fear, go far to authenticate it, that a bit of the cedar cross is still shown in the chapel at Machico, which is said to have been built over the grave of the lovers, or that there was a Padre, till lately living at Caniçal, who said he remembered under the altar the roots of an old tree, the same, it is presumed, beneath which they died. Yet that some such story had reached the ears of Zarco is accredited by the fact, if it be one, that he* named the place of his first anchorage "*Porto dos Inglezes*," and on his second voyage changed it to that of "*Porto de Machico*." Antonio Galuano, in his chronicles of Portuguese discoveries up to 1550, gives a different version of this same story; he relates that Machim escaped after the death of Anna, in a boat which was picked up on the coast of Africa by the Moors, and was sent as a curiosity to Henry III., King of Castile.

GOVERNORS APPOINTED.

As soon as its discoverers had sobered down sufficiently from the first burst of joy, with which the announcement of her new acquisition was hailed in Portugal, to turn their minds to colonization and government, Joâo Gonçalves Zarco and Tristâo Vaz Teixeira were dispatched to Madeira, with a few nobles who volunteered to accompany them.

ALLOTMENT OF LAND.

To Zarco were committed the western and southern portions of the island, with Funchal for a capital; and to Vaz the eastern and northern half, where he established himself at Machico. The lands in the two captaincies were divided by option amongst the nobles and gentlemen who accompa-

* Encycl. Metrop., vol. viii. p. 643.

nied the expedition. From these lords of the soil the most distinguished families in Madeira are descended. The labouring class has been derived partly from their adherents, partly from the disowned of the mother country, and from Moorish captives; there have been also subsequent admixtures of African and Negro blood, which shows itself strongly in the features of some of the present inhabitants.

ORIGINAL GOVERNMENT.

To the two Governors was committed all jurisdiction, civil and military, within their respective captaincies; in cases of life and death only was there appeal to Lisbon. Absolute monopoly, and a tithe of all crown revenue, were also bestowed upon the captains and their heirs for ever, under the title of *donatorios*.

DEATH OF ZARCO.

The first Governor of Funchal enjoyed his rule for forty-seven years, executed many useful works, and left the name of Zarco universally respected. His remains are deposited in the convent of Santa Clara.

FUNCHAL CONSTITUTED A CITY.

In 1508 Funchal was invested with the dignities and privileges of a city. In 1540 the captaincy of Machico, in default of heirs, reverted to the crown; the king bestowed it on Antonio de Menezes.

INVASION BY FRENCH PRIVATEERS.

In 1566 (during the government of Simâo Gonçalves da Camera, the fifth captain) three French privateers made their appearance off Funchal. The marauders effected a

landing in the bay of Práya Formosa, and, after a short struggle on the part of the inhabitants, made themselves masters of the city. On the first alarm, a small *hiate** had succeeded in eluding the vigilance of the pirates, and making its way with the news to Lisbon. The inhabitants fled from the town, leaving it to be sacked by the invaders; much gold and silver and many jewels were collected together, and the three vessels sailed away at the end of fifteen days with their spoil, just before the long wished-for succour arrived from Lisbon.

MADEIRA PASSES INTO THE DOMINION OF SPAIN.

Dom Sabastião was killed in battle, in Africa, in the year 1578, and in the year 1580 the Philips began to govern in Portugal; Madeira fell, with the mother country, under the dominion of Spain: one governor was appointed by its new masters over the whole island, to whom sole authority was given in the administration of public affairs. The *donatorios* were not deprived of their rights in matters of revenue, and the governor was paid by the crown. The Spanish rule, however, bore heavily on commerce, and it was not till that yoke was shaken off under Dom Joâo IV. in 1640 that trade revived and the island recovered its prosperity.

ENGLISH POSSESSION.

From this time no political event of importance seems to have occurred in the history of the colony, till the English, in the year 1801, under Clinton, and again in 1807, under Beresford, to prevent the danger of French occupation, at a crisis when the rights of neutrals were little respected, took the island under their protection, and the Union Jack for a short time waved from its forts.

* A sort of "fore and aft" rigged vessel.

DOM MIGUEL.

In 1828 Dom Miguel having occupied the throne of Portugal, Madeira also came under the same rule, and on his expulsion in 1834, it acknowledged in like manner the title of Donna Maria Segundo. In 1847 a popular émeute in favour of the liberal constitution of 1820 displaced the government for a few weeks, but by the united intervention of England and France it was restored without bloodshed.

ECCLESIASTICAL AFFAIRS.

The spiritualities of the island are vested in the *Order of Christ* *, and the sovereign, as grand master of the order, presents to the bishopric, the cathedral offices, canonries, vicarages, and benefices; the church preferment is only *temporarily* filled up by the bishop of the diocese. By the law of the 26th of March, 1843, the benefices then vacant, or those which might thereafter become vacant, in the districts of the nine collegiate churches of the island, could not be filled up, their revenues being set aside by that law for the increase of poor livings, and the establishment of new curacies. This object has been in part carried out by a law of the 24th of June, 1848. The nine collegiate churches are the following:—Santa Maria Maior, S^to^ Pedro, Camera de Lobos, Ribeira Brava, Ponta do Sol, Calheta, Machico, Sancta Cruz, and Porto Santo.

* "L'ordre militaire de Christ, institué, comme on l'a dit, par Denis I., Roi de Portugal, l'an 1319, fut confirmé par le Pape Jean XXII., qui donna aux chevaliers la règle de S. Benoît. Mais Alexandre VI. leur permit de se marier. Ils sont vêtus de blanc, et portent sur la poitrine une croix patriarchale de gueules, chargée d'une autre croix d'argent. La Grande Maîtrise de l'ordre est réunie à la couronne de Portugal."—*L'Art de vérifier les Dates.* Paris, 1783, vol. i. p. 780.

The Ecclesiastical division of the island now comprehends 50, instead of 46 parishes; the bishop of the diocese having found it necessary to increase the number, in consequence of the large population and size of some of the old parishes.

The first church built in the island was that at Machico. After Zarco had removed to the government of Funchal, he erected another church, which he dedicated to N. S. de Calhâo; this was washed away by the flood of 1803. The next built was the chapel of Santa Catherina.

BISHOP APPOINTED.

In 1514 Funchal, which had hitherto been ruled by a *vigario*, was raised to a bishopric, and the cathedral was erected; in 1539 it was advanced still further to the rank of an archbishopric, but the archiepiscopal see was afterwards removed to Goa, and a bishop again appointed in 1547.

ECCLESIASTICAL COURTS.

Formerly the Church had a court of its own, in which all ecclesiastical causes, whether civil or criminal, were tried. A special prison for the clergy was attached to it. This court and prison were abolished by the constitution of 1822. In the Ecclesiastical Court, as at present existing, the bishop is only empowered to suspend a clergyman, convicted of any offence, from the exercise of his office; but he cannot deprive any one, canonically collated to a benefice, without the approval of the government of Lisbon, to whom the pleadings and sentence of the ordinary are forwarded. Where the case is one for which the legislature has provided a punishment, the pleadings are forwarded to the *Juiz de Direito*, who puts the law of the land into execution. A suit between

a clergyman and a citizen is carried on in the civil courts, and a clergyman committing any criminal act is, on conviction, imprisoned in the common gaol, like any other transgressor.

SALARY OF THE CLERGY.

The Bishop of Funchal receives an annual net stipend, free from government taxes on all salaries, of £412 10*s.*; the rest of the clergy receive their stipends principally in wine and wheat, with a small proportion in money. The government receives the large and small tithes of Madeira and Porto Santo, making distribution to the clergy.

DIOCESE OF FUNCHAL.

The diocese of Funchal comprises the islands of Madeira and Porto Santo; the islands of the Dezertas and Salvages, on which there are at present no permanent inhabitants; and the fortress of Argium on the African coast, of which the diocesan of Funchal is merely titular bishop. The ecclesiastical body of Madeira consists of the following clergy:—

1stly. The bishop, whose staff is composed of a *provisor*, who is one of the canons; a vicar-general, who is professor of dogmatic theology at the *seminario* or priests' college; a *promotor*, who is an honorary canon; an *escrivão*, of the Ecclesiastical Court; and a *murinho*, an under officer of the same court.

2ndly. The cathedral clergy*, composed of a dean; an archdeacon; three canonical dignitaries; twelve canons; four minor canons, having half stalls or prebends; two curates (*parochos*); ten chaplains (*cantores*); and one subchanter; besides which there are—six chorister boys; an

* Of this cathedral staff there are six canonries and two minor canonries vacant, which will probably never be filled up.

altaréiro; a master of the ceremonies; a *mestre da capella da musica;* a sacristan; a mace bearer; and a bell-ringer.

3rdly. There are 145 presbyters, including those in the cathedral; 1 deacon; 16 minor clergy (*clericos in minoribus*); 42 vicars; 38 curates; and 5 *beneficiados.*

MONASTIC ESTABLISHMENTS.

In 1835 there existed in Funchal three convents: one dedicated to Senhora das Mercés, called Capuchas, with 26 nuns in it; Santa Clara, with 46 nuns; Incarnaçâo, with 30 nuns and 4 pupils; the two latter of the Franciscan order; besides five monasteries. These establishments are in process of dissolution: the monks have all disappeared, and the monasteries are no more; the convents are still in existence, but the nuns are fast dying off. The suppression of such property, supposing no vested interests to be violated, and the revenues reserved for other spiritual purposes, may be for the public advantage. The poor, indeed, can be no longer relieved at the convent gate; but experience has shown that indiscriminate alms promote beggary as much as they relieve want, and if a public provision for the indigent, involving some test, were substituted, the people would profit by the change. Though we may be excused for admiring monasteries as things of yore, for the good which they did in their day, yet it would be a very different thing to wish them back again, and to shut one's eyes to all the abuses of the system.

RELIGIOUS SOCIETIES.

There are two brotherhoods, *Irmandades,* still existing in Funchal for religious purposes—one of the Carmelite, and the other of the Franciscan order. Either sex are admis-

sible, and each member pays a small sum towards the maintenance of the order. When any of the *Irmandade* die, a number of the order attend the funeral: they accompany the Host, attend religious processions, &c. The contributions to these brotherhoods, and the management of the revenues arising from properties left to them, are in the hands of twelve of the corporation. The funds are applied to the preservation and decoration of churches, the fulfilling of the pious obligations imposed by benefactors, and the maintenance of Divine worship. These treasurers are accountable for their stewardship to the civil governor of the island.

PLACES OF EDUCATION.

There is a *Seminario*, or Priests' College, intended for the education of all those who purpose entering holy orders, under the management of a *Reitor* and *Preféito*. It was established for twelve collegiates, preference being given to persons from the country. The College is in possession of considerable property in the parishes of Camera de Lobos, Estreito de Camera de Lobos, Machico, S.^{to} Pedro, and elsewhere. From these lands it receives wheat, wines, and other produce. Government contributes £303 13*s.* 4*d.* annually to its support. Commodious premises, capable of containing eighteen inmates, are connected with the establishment, where the students are domiciled, educated, and fed: two only of the students at present pay for their education. The course of study consists of Latin, dogmatic theology, morals, and music.

There is a medico-chirurgical school, under the direction of two professors. The first professor's chair comprises the study of anatomy, physiology, operating surgery, midwifery, and clinical surgery. In the years 1848 and 1849 eleven

students attended these lectures. The second professor's chair includes pathology, materia-medica, therapeutics, and clinical medicine. Eleven students attended this course in the years 1848 and 1849. The first professor has given lectures on midwifery, and diplomas to 50 females, who now practise in the district of Funchal.

There are several places of general education :—Firstly, a *Lyceum*, which forms part of a building erected by the Jesuits when they visited the island in 1566. For this establishment a law, passed on the 12th of June, 1849, appointed the following professors :—Chairs 1 and 2, under one professor, embrace Portuguese and Latin grammar, and the study of the Latin tongue.—Chair 3. Arithmetic and the elements of algebra and geometry.—Chair 4. Logic, moral philosophy, and the elements of *natural right*.—Chair 5. Rhetoric, poetry, and classical literature.—Chair 6. Commerce, geography, chronology, and history*. Secondly, there are forty-one schools of primary instruction ; four are paid by the treasury, of which one is a girls' school, and sixteen paid by the municipal corporation, of which eleven are girls' schools. The private schools are twenty-one in number. The number of scholars is 2203 ; of these 883 are boys, and 1320 are girls. There is an infant school, with an income of about £150 ; and there are two *Recolhimêntos*, or refuges : one for orphans, in connection with, and supported by, the hospital of Funchal ; and the other, the *Bom Jezus*, for widows and others, supported by its own revenues, but under the direction of the ordinary. The

* In the years 1848–49, the courses of the 1st and 2nd of these chairs were attended by twenty-four students ; on the 3rd chair there was no attendance ; the 4th was attended by seventeen ; and the 5th by eleven. On chair 6 there was no attendance. Of the French and English languages there were thirty-four students ; sixteen of the former, and eighteen of the latter.

orphan establishment maintains six orphans, a superintendent of the house, and a portress. There are eighteen inmates, but twelve of these are paid for by friends or relatives.

Beyond the limits of the *Concelho* of Funchal there are scattered over the island ten boys' schools, paid by the treasury, with 376 scholars; sixteen boys' schools, paid by the municipal corporations, with 428 scholars, and two girls' schools, with forty-two scholars; four private girls' schools, with twenty-two scholars; and two private boys' schools, with twenty-three scholars.

PUBLIC INSTITUTIONS.

In the capital of the district of Funchal there are the following public establishments:—a civil hospital, a military hospital, a lazar hospital, and an asylum for the poor. In each of the *Concelhos* of Sancta Cruz, Machico, Calheta, and Porto Santo, there is a hospital, so called.

The first hospital in Madeira was founded on the 25th of March, 1454, by João Gonçalves Zarco. It was erected at S^to^ Paulo. Subsequently the establishment was removed to the parish of Santa Maria Maior, and in 1685 it was again moved to its present position in the Praça da Constituçâo. This hospital, *Santa Caza da Mizericordia*, has been at various times liberally endowed by the Government, as well as by individuals. In ancient days the Crown granted it the privilege of a preference over all other creditors in the collection of its debts, a privilege which has, however, been annulled by recent enactment. The old law also obliged the trustees of the hospital to loan out at interest all superfluous funds, on the security of real estates, or pledges of value: the result has proved most unfortunate, as from many of the debtors the interest cannot now be

obtained, much less the principal, and the establishment having no longer the privilege of a preference creditor, its funds are not now sufficient to provide for half the number which the building is calculated to hold. In the parishes of Camera de Lobos, S^to^ Martinho, and Santo Antonio, the hospital has lands which produce some of the best wine in the island. It is also possessed of landed property in many other parishes, and a great number of houses in the city of Funchal pay *fôro*, or ground rent, to this establishment *.

From 800 to 1000 persons are annually received into the hospital, and about an equal number obtain medicine and medical treatment, as out-door patients. In the beginning of the year 1847 there were 79 persons in the wards; during that year 995 patients entered, of whom 539 were men, and 456 women: of these 735 were cured, 273 died, and 66 remained. In the year 1848, 754 persons entered, of whom 373 were men, and 381 women: of these 571 were cured, 164 died, and 85 remained. In the year 1849, 683 entered; 334 men, and 349 women: of whom 599 were cured, 111 died, and 58 remained.

The orphan establishment, before mentioned, is annexed to this hospital, and supported from its funds.

The affairs of the hospital are managed by a *Commissão Administrativa*, composed of a president, a treasurer, a secretary, and two other members. The attendants in the hos-

* The nominal funds of the hospital amount to £38,051 5*s.* 8½*d.*; viz.: capital lent at interest, £16,815 9*s.* 8*d.*; value of property paying ground rents, £6274 2*s.* 8½*d.*; properties in the country, £6028 6*s.* 8*d.*; properties in Funchal, £8933 6*s.* 8*d.* The money received in 1847 was £2302 3*s.* 7½*d.*; in 1848, it was £1881 14*s.* 11½*d.*; and in 1849, the receipts were £1548 2*s.* 7*d.*, leaving in the latter year arrears amounting to £8027 19*s.* 3*d.* due to the fabric.

pital are a physician, an operating surgeon, a house surgeon, a chemist, with an assistant, besides an inspector, who has two assistants and two nurses under him. The pupils from the medico-chirurgical school receive here practical instruction in the treatment of different diseases, in anatomy, and pharmacy.

A chapel is annexed to the hospital, which has its regular chaplain and sacristan, paid from the funds of the establishment.

During the last war, and for many years subsequently, the English had a ward in the hospital, superintended by their own physician and surgeon. The expenses were borne by the resident British merchants in Madeira. The salaries to these officers were stopped in the year 1828, when their services were no longer required, and the ward was altogether given up at the end of the year 1838. Sailors and distressed foreigners are now received into the hospital, where they are provided with food, lodging, medical treatment, and everything but drugs, at the moderate rate of 2*s.* 1*d.* per diem.

The troops stationed on the island have always their own hospital, as well as their own medical officer.

The lazar hospital, for the reception of persons afflicted with elephantiasis, has an annual expenditure of from £200 to £300*. It is doubtful whether any one afflicted with this disease has ever recovered from it.

* The expenses in 1847 amounted to £264 7*s.* 6*d.*; in 1848, to £290 16*s.* 8*d.*; and in 1849, to £305 4*s.* 2*d.* In the beginning of the year 1847, there were 26 patients in this hospital, 19 men and 7 women; during the same year 14 entered, of whom 5 men died, and 22 men and 13 women remained; in 1848, 8 entered, 5 men and 3 women; in which year 5 men and 2 women died, leaving 22 men and 14 women: during the year 1849, 5 entered, 4 men and 1 woman; 7 men and 1 woman died this year, leaving 33 patients in the hospital, 19 men and 14 women.

There is no provision by law for the poor of the island. Some years ago, as may be seen in old accounts of Madeira, the visitor was shocked by swarms of beggars, thrusting their disfigured members or emaciated babes into the faces of the passers-by: but, of late years, the Camera has appointed a large building of its own erection as an *Asilo da Mendicidade* for these miserable creatures. Good food and work are provided at the *Asilo*, which is an institution well worthy the support of philanthropic visitors. A bazaar is held annually at the governor's house, in aid of its funds*.

Madeira had formerly a colonial government. Within a few years it has been put on the footing of a province; and now, though it has some local peculiarities in its administration, it is treated as an integral part of the kingdom of Portugal. In the year 1841, the new judicial reform divided all Portugal into 21 administrative and 10 military districts. Portugal proper contains 17 administrative and 8 military districts;—the Azores, three administrative and one military;—and the Madeiras, one administrative and one military.

The islands of Madeira and Porto Santo are divided distinctively into judicial and administrative districts. The judicial divisions into *comarcas* and *julgados;* and the administrative into *concelhos* (municipalities) and *freguezias* (parishes). They are as follows:—

* In 1849 this bazaar produced £347 0*s.* 4½*d.*; in 1850, £229 7*s.* 11½*d.* was obtained by it. The receipts of the asylum from various sources were, in 1847, £548 18*s.* 9½*d.*; in 1848, they were £755 13*s.* 10½*d.*, and in 1849 the institution received £528 15*s.* 8½*d.* Of these sums English visitors to Madeira were contributors, in 1847, of £120; in 1848, of £100; and in 1849, of £80.

In the beginning of the year 1847, there were 310 persons in the asylum: 214 entered in that year, of whom 34 died, 331 were sent away, and 159 remained; in the year 1848, 211 persons entered, 28 died, 256 were sent away, and 186 remained; in 1849, 228 new inmates were received, 15 died, 224 were sent away, and 175 were left in the asilo.

Divisão Judicial.		Divisão Administrativa.	
Comarcas.	Julgados.	Concelhos.	Freguezias.
Occidental . .	S. Pedro .		Sᵃᵒ Martinho.
			Santo Antonio.
			Sᵃᵒ Roque.
			Sᵃᵒ Pedro.
		Funchal .	Sé.
			Santa Luzia.
	Sé . . .		Nᵒˢ Snʳᵃ do Monte.
			Santa Maria Maior.
			Sᵃᵒ Gonçalo.
			Caniço.
		Sancta Cruz	Camacha.
			Gaula.
Oriental . .			Sancta Cruz.
	S. Cruz . .		Agoa de Pena.
		Machico .	Santo Antonio da Serra.
			Machico.
			Caniçal.
			Porto da Cruz.
			Faial.
	S. Anna .	S. Anna .	Santa Anna.
			Sᵃᵒ Jorge.
			Arco de S. Jorge.
			Ponta Delgada.
			Sᵃᵒ Vincente.
	S. Vincente	S. Vincente	Seixal.
			Ribeira da Janella.
			Porto do Moniz.
			Ponta do Pargo.
			Fajâa da Ovelha.
			Paul do Mar.
	Calheta . .	Calheta . .	Jardim do Mar.
			Prazeres.
			Estreito da Calheta.
Occidental . .			Calheta.
			Arco da Calheta.
			Magdalena.
			Canhas.
	P. de Sol .	P. de Sol .	Ponta do Sol.
			Atabua.
			Ribeira Brava.
			Serra d'Agoa.
			Campanario.
			Estreito de Camera de
	C. de Lobos	C. de Lobos	Lobos.
			Curral das Freiras.
			Camera de Lobos.
Oriental . .	Porto Stº (Ilha)	Porto Stº .	Nossa Snʳᵃ da Piedade.

In each *concelho* there is a magistrate, entitled *administrador do concelho;* and a body called *camera municipal*, which is elected by the inhabitants of the municipal district every two years. The revenues of these corporations are derived from imposts levied on articles of food, and the rents of properties within their *concelhos*. The collection of revenue is entrusted to a treasurer, who receives a fixed salary. The parishes contained within the *concelhos* are subdivided into *cerculos,* in each of which there is a *junta da parrochia* (vestry) and a *regidor* (constable).

CIVIL GOVERNORS.

The civil governor of Madeira has under his supervision all the different branches of the public service. His principal duties are, to order and regulate all government expenses, according to the law in existence, or agreeably to any special enactment of the Lisbon cabinet; to secure from injury the properties and rights of the crown; to transmit all necessary instructions to his subalterns; and to promote the agricultural and industrial welfare of the people.

JUDGES.

There are four orders of judges:—1. The *juiz de paz.* 2. The *juiz eleito.* 3. The *juiz ordinario.* 4. The *juiz de direito.*

1. The *juiz de paz,* as his name denotes, is a magistrate of peace. His office is, to use all the means which prudence and equity suggest, to bring the parties to an understanding, so as to avoid a law-suit. No cause involving property, the value of which exceeds six dollars, can be proceeded in, with-

out being first submitted to the *juiz de paz*. This officer is elected by the people, to serve for two years; his services are gratuitous, and one or more parishes form his district.

2. The *juiz eleito*, like the *juiz de paz*, is elected by the people; like him he serves gratuitously, and has one or two parishes joined under his jurisdiction. He decides, *finally*, all causes not exceeding in value one dollar two hundred and fifty reis, whether in personal property, money, or cases of injury done by persons or cattle in wheat-fields, vineyards, gardens, orchards, pastures, and plantations, where the injury does not amount to a criminal act. Lastly, he decides cases of fines imposed for transgressions against the regulations of the municipal authorities: where the amount of fine exceeds his jurisdiction, there is appeal to the *juiz ordinario*.

3. The *juiz ordinario* is, in common with the *juiz eleito* and the *juiz de paz*, elected by the people, and like them serves for two years; he has no salary but what he receives in fees from suitors, which, however, is very little. There is a *juiz ordinario* over each julgado of the island; he decides, *finally*, all causes, within his district, which do not involve an amount of more than four dollars real, or six dollars personal property; and in criminal cases where the punishment does not exceed three days' imprisonment or a fine of two dollars. He judges, subject to an appeal to the *juiz de direito*, causes, which do not involve an amount of more than twenty dollars real, or thirty dollars personal property; and criminal cases, in which the penalty does not exceed a fine of ten dollars, or one month's imprisonment: should the penalty, however, in criminal cases exceed such an amount, the appeal is transferred to the *tribunal da policia correccional*. It is, moreover, the office of the *juiz ordinario* to

prepare for the court of the *juiz de direito* all processes, whether civil or criminal, which come under the cognizance of that judge.

4. The *juiz de direito* is appointed by government, one over each *comarca;* his salary is paid by the crown, and he also receives a small fee from parties sueing in his court: he decides, *finally*, all appeals to him from the *juiz ordinario;* and, subject to appeal to the superior courts in Lisbon, all causes involving an amount of more than twenty dollars real, or thirty dollars personal property. He judges, also subject to appeal to Lisbon, with a jury, all criminal cases, where the penalty exceeds six months' imprisonment, banishment out of the *comarca*, or a fine of forty dollars: where the penalty, in criminal cases, is less than this, and yet exceeds his summary powers, he judges appeals from the *juiz ordinario* with the *tribunal da policia correccional.* This *tribunal* is composed of the *juiz de direito* and four other members named by the municipal corporation. To the *juiz de direito* is attached a *delegado do procurador regio*, or public prosecutor.

The jury are solely judges of the fact, and from their decision there is no appeal. A verdict is arrived at by a majority of two-thirds of the jury, which is composed of twelve, or, in small districts, of nine persons.

The law establishing the *reforma judicial* in Portugal in 1832 was carried into effect in Madeira in 1835; by it, the old judicial offices of *corregidor*, *juiz de fora*, *juiz dos orfãos*, *providor dos auzentes*, *reziduos*, and *capellas*, have been abolished, and their duties are now performed by the *juiz de direito.* A British judge, *conservator*, was formerly named by the consul and English residents, subject to the approval of the Portuguese government; he received a salary

from the former, and all suits with British subjects were generally tried by him. In conformity with the stipulations in the 17th Article of the treaty of the 29th of July, 1842, between England and Portugal, the *conservatorial* court was abolished, and all suits with British subjects are now tried in the same manner as between Portuguese.

CRIMINALS.

Criminals remain in prison from the time of their being apprehended till the month of May or November next ensuing, in which months the sessions are held. After condemnation, they remain a year or more in prison, till their sentences are confirmed or revoked by a superior tribunal in Lisbon. About 100 are tried yearly in the *Tribunal Correccional*, the greater part of whom are condemned; of 40 more tried in the *Tribunal do Jury*, rather more than half are condemned. The number of criminals in the district of Funchal was, in 1847, 153; in 1848, 76; and in 1849, 77.

The administration of justice must be allowed at least to be lenient, and, notwithstanding its mildness, the population cannot be considered as exhibiting an excess of crime against property or life. The character of the people on the whole, if not distinguished for the loftier virtues, is certainly gentle and courteous.

LAWS OF INHERITANCE.

The laws of inheritance assign property to direct heirs for two generations, forward and backward. By will, however, one-third may be alienated from these. In event of the failure of such heirs, the whole of an unentailed estate may be disposed of by will. The laws of entail are now much

modified. Formerly any one was competent to found *morgados*, or *vinculos*, and *capellas;* if the founder had direct heirs, he could only entail a third part of his property; otherwise, the whole; the institutor of an entail was at liberty to fix the order of succession.

The difference between a *morgado*, or *vinculo*, and a *capella* is, that the latter property was liable to contributions to religious purposes (*encargos pios*), such as providing certain masses or alms; so that, in fact, the life occupant only received a third or a fourth of the income, for his trouble in managing the property: *morgado* is a term employed to signify either an estate entailed for ever, or its life tenant. Neither *morgado* or *capella* property could be alienated.

In the time of the Marquis of Pombal, two important laws, with reference to this species of property, were passed. The first, dated September 9, 1769, prohibited the founding of *capellas* on real property, reducing the *encargos pios* to the tenth part of the income of all *capellas* then in existence; it further abrogated all those *capellas* which did not yield the life occupant a *net* income of £41 13*s*. 4*d*. per annum, in the province of Estremadura, or of £20 16*s*. 8*d*. in all other parts of the Portuguese dominions: in event of such properties lapsing to the crown, through failure of heirs, the *encargos pios* were entirely abolished by this law. The law justifies itself in these words: "The charges on properties for masses are already so many, that were all the persons, of one and the other sex, in these kingdoms, priests, they could not perform a third part of the masses required by deeds registered in the will-offices. In one of the smallest of these offices, for example, 12,000 *capellas* are instituted, and more than 500,000 masses annually required."

The law passed August 3, 1770, went further, and abo-

lished all entails (*morgados*) which did not yield to the life occupant a net income of £41 13*s.* 4*d.* in the provinces of Alem Tejo and Estremadura, or of £20 16*s.* 8*d.* in the rest of the Portuguese dominions; it annulled all irregular* successions which had been established by founders of entails; and regulated the form of making new entails, granting this privilege only to persons of rank, or to those who had distinguished themselves in some way or other. Thenceforth no entail could be instituted, without royal licence, and unless the property yielded an income of £500 per annum.

On the 4th of April, 1832, another law was enacted, by which *all* entails, not yielding the life occupant a net income of £41 13*s.* 4*d.*, were abolished; facilities were afforded for exchanging, leasing, and renting entailed properties; and the life occupant without a successor, was allowed to cut off the entail, even though the income of the estate should exceed £500 per annum; in which case previously the property would have lapsed to the crown.

In case of marriage, the nuptial contract is observed; if there is no nuptial contract, the half of all the goods belongs to the widower or widow, and the testator can only dispose of one-half freely; or if the testator has direct heirs, he has only power over one-third of this half. If there is no will, in the first place the direct descendants and ascendants, or, in failure of these, the nearest blood relations, inherit the portion of the deceased; in failure of relations to the tenth degree, the surviving spouse inherits, or, if there is none, the public treasury. This law applies to foreign as well as native residents in Madeira.

* What is called a regular succession is where preference is given to male over female, and to the elder over the younger branches.

PUBLIC REVENUES.

All public revenues are paid into the central chest of Funchal; this chest is under the guardianship of three keepers, the civil governor, the paymaster of the treasury, and the treasury delegate; each of these has a key of the chest. The treasury delegate presides over a department charged with the collection of public revenue, and the direction of public accounts; he is answerable directly to the Lisbon government, although under the supervision of the civil governor. The paymaster of the treasury forms one of a tribunal, of which the civil governor and the *delegado do procurador regio* are the other members; this commission (*junta*) is charged with the sale of the produce of the national properties and tithes. It also takes cognizance of appeals from the decisions of the *director* of customs. The *director* is accountable only to the Lisbon government, but the Custom House, over which he presides, is under the superintendence of the civil governor. The revenues of the Custom House, with the exception of the imposts on foreign grain, are paid into the central chest, and disposed of in the same manner as the other revenues of the treasury*. The amount annually paid into the public chest generally exceeds £41,672 13*s.* 4*d.* Government imposes a duty upon all imports into Madeira, except provisions. Protection is afforded on all articles of Portuguese production or manufacture, which, with the exception of wine, pay next to no duty on export or

* The usual gross receipts of the Custom House average from £23,988 6*s.* 8*d.* to £25,003 per annum. In 1847, the receipts from customs amounted to £23,919 9*s.* 2*d.*; in 1848, they amounted to £21,785 5*s.* 1½*d.*; and in 1849, to £24,898 1*s.* 10*d.* These figures include the moneys accruing from the imposts on foreign grain, which moneys are paid to the *Cameras*, and not into the treasury.

import. On Madeira wines the following duties are charged:—on all exported to Portugal and its dependencies, 8*s.* 7¾*d.* per pipe; on all exported to foreign countries, £1 3*s.* 0¾*d.* per pipe; on all consumed in the island, the value of 4 *canadas** is charged on each barrel of wine; the wine of shipment pays besides £1 9*s.* 2*d.* for imposts and Custom-house dues. Meat pays in proportion of one pound in each *arroba*†, at its retail price. Fish pays six per cent. on its net value. These are termed indirect imposts. The direct imposts are the tithes, which are the tenth part of the productions of the land, with the exception of some vegetables and fruits. These, next to the customs, are the principal sources of revenue‡.

* A barrel of wine contains 28 *canadas*.

† An *arroba* contains 32 pounds.

‡ The following extract from the treasury operations in the years 1848 and 1849 will give a clearer idea of the financial resources of Madeira. In 1848 there was a balance in the treasury from the last year of £7830 11*s.* 9¾*d.*; the receipts from the customs, and from the coffers of the *concelhos*, were £30,481 8*s.* 11½*d.*; moneys replaced, £195 5*s.* 5¼*d.*; deposits, £46 7*s.* 8¼*d.*; treasury receipts, £78 2*s.* 6*d.* The expenditure during that year, by order of Government, was £34,422 6*s.* 10*d.*, making a total of £38,631 16*s.* 4¾*d.* received,

34,422	6	10	spent,
£4,209	9	6¾	balance to next year.

In 1849 there was a balance in the treasury from the last year of £4209 9*s.* 6¾*d.*; the receipts from the customs were £22,768 19*s.* 4*d.*; from the coffers of the *concelhos*, £11,419 11*s.* 4*d.*; moneys replaced, 4*s.* 2*d.* The expenditure during that year was, by order of the Minister of the Home Department, £3013 17*s.* 6½*d.*; by order of the Minister of Justice, £275 8 11*s.* 5*d.*; by order of the Minister of War, £16,136 19*s.* 9¼*d.*; by order of the Minister of Marine, £961 8*s.* 3¾*d.*; by order of the Minister of Finance, £6296 5*s.* 9*d.*; and by funds transferred, £2776 6*s.* 6*d.*, making a total of

£38,398	4*s.*	4¾*d.*	received,
31,943	9	4½	spent,
£6,454	15	0¼	balance to next year.

To define the meaning of "funds transferred," or of "moneys replaced,"

GOVERNMENT MONOPOLIES.

Government maintains monopolies of soap, tobacco, and *urzella* *: the penalties for infringing them are very severe;

would not be so easy; the receipts "from the coffers of the *concelhos*," however, require some explanation. The particulars of these receipts, in 1849, are as follows:—

	£	s.	d.
Duties on patents	179	18	9½
Five per cent. additional duty	137	7	7
Tithes	3,756	5	6
Fintos (imposts)	288	18	1½
Diplomas	27	4	0
Fines	236	13	7½
Stamps	201	5	6
Stamps on licences	236	17	1
Stamps on passports	73	17	0
Printed licences	2	1	11
Printed passports	0	9	7½
Ten per cent. on the sale of real estates	1,157	0	10¾
Educational fund	1,292	3	3
One-fifth of the revenue of crown property granted to individuals	43	14	8½
Legacy duty	273	10	9
Six per cent. on fish	188	19	7
Tax on meat	724	8	11½
Another tax on meat	376	3	11½
Tax on wine	1,061	3	11
Tax on fishing-boats	0	12	6
Ground rents	191	8	6½
Interest	4	7	4¾
Two and a half per cent. to landlord on transfer of ground rents	1	6	5
Rents	711	18	11
Unclassed receipts	251	12	9½
	£11,419	11	4

* *Urzella*, or orchil weed, is a lichen, or moss, used in making dye; it was formerly collected in great quantities on the Dezerta Islands, and in less quantities on the Ponta de Sᵃᵒ Laurenço, and the north coasts of Madeira; it was valued at £350 and upwards per ton, but from the large quantities

even the possession of contraband articles brings the owner within the lash of the law.

Such restrictions as these are founded, no doubt, on narrow views of commerce and policy: many other particulars might be pointed out, in which the political relations of such countries as Portugal with their colonies, and the condition of civil rights both in the dependencies and the mother country, are far different from, and far inferior to those enjoyed by the subjects of the British crown. There is one respect, however, in which countries that suffer from bad government may perhaps find some compensation for the want of a greater degree of public freedom; and that is, in a nearer approach at least to social and personal equality. Amongst these people, there does not appear to be so hard a line of demarcation between the different orders of society as in some other countries. The manners of inferiors are less obsequious, and those of superiors more easy; the general level of society is more even, and less interrupted by abrupt and impassable barriers.

MILITARY AFFAIRS.

Madeira forms the ninth military division of Portugal. The military government of Funchal is committed to officers holding a rank not inferior to that of colonel. The force, which forms the present garrison of Madeira, is composed of the 6th Battalion of *Caçadores* (light infantry), numbering 445 men; a detachment of 21 men, from the 1st Regiment

found of late years at Angola, and the other Portuguese settlements on the coast of Africa, the price has fallen to £50 per ton, and little, if any, is now collected in Madeira. It is remarkable that the African orchil is gathered from trees; any found on the stems of trees in Madeira, and the adjacent islands, was considered worthless as a dye, where none was employed unless it grew on rocks and stones near the sea-shore.

of Artillery; and a militia of 1168 men, who serve in the forts along the sea-shore. All men, from 18 to 25 years of age, are liable to enlistment in the regular army.

It has been remarked that the Portuguese, under good officers, make excellent soldiers; Soult is said to have complained once to Napoleon, after having engaged and been repulsed by Portuguese troops officered by Englishmen, that the English had taken an unfair advantage, and dressed their men in Portuguese clothes, thereby tempting him to attack them as the weakest part of the army.

ROADS.

All men, whether natives or foreigners, being permanent residents, and of sufficient age and strength to work, are obliged to contribute annually to the repairs and making of roads, five days' manual labour, or pay one dollar for their exemption. The *estufa* tax, of one dollar, 920 *reis*, per pipe of wine per annum, is likewise applicable to this purpose and the repairs of bridges. These means, if properly applied to the excellent materials which are furnished by the basaltic rocks, should ensure good highways.

ELECTIONS.

The elections in Madeira, as in the mother country, are carried on in the churches, the priests being required to identify the voters. The Portuguese who have 100 dollars annual income, choose within the limits of their council one or two electors, who go to the capital of the province, where they jointly choose four deputies; this election is by secret scrutiny in both instances. Madeira and Porto Santo together choose twenty-two electors, who elect four deputies to represent them in the Lisbon Cortes.

HABITATIONS OF THE POOR.

The habitations of the poor in Madeira are of the humblest sort; a few stones piled one above the other, a few pine-sticks raised into a high roof, bound together with willow twigs and thatched with straw, form the ordinary style of the tenements of the lower classes. At a distance, these huts are often almost invisible from their colour, and you may appear to be at the first glance in a lonely country, which, on closer inspection, you discover to be thickly covered with these habitations. Near the shore sometimes, where there are seams of tufa, which is easily worked, the inhabitants scoop hovels for themselves out of the rock: at Camera de Lobos these habitations seen from the sea have the appearance of a rabbit-warren.

DRESS.

The dress of the peasantry is as scanty as is consistent with decency; a pair of linen drawers full and reaching down to the knees, together with a loose linen shirt, is the common dress of the men; sometimes a jacket is thrown loosely over the left arm. The more genteel have adopted trowsers, and long yellow boots turned over at the top cover the toes of such as are ashamed of producing them. The cap resembles an inverted funnel, covering no more than the crown of the head, and made of blue cloth lined with red. With southern civility they doff their *carapúça* to every one they meet; they might put to shame many a would-be gentleman by the graceful ease with which they salute each other, and the unassuming uncringing manner with which they comport themselves towards either equals or superiors. The dress of the women is simple and pretty; the native

boddice and the red cape being peculiarly becoming to the young girls; they wear the same *carapúça* as the men. With a great many, that substitute for the mantilla, a handkerchief, is the popular head-dress.

BEAUTY.

You must not look for many pretty faces in Madeira after the age of thirteen, amongst the upper classes inertness, and amongst the lower hard work, reduce the standard of beauty. The upper class of women are hardly ever seen in the streets, save on their road to mass or when going to pay a visit; on these occasions all the jewels, plate, and ribbons of apparently very ancient families are to be seen in full display. The ladies generally live on their balconies watching passers-by. The English ladies going to church draw forth many fair beholders and critics, and on Sundays the balconies are lined with native fashion. The glory of the Madeira women are their hair, which is of the richest growth and blackest hue, and their eyes, which are dark and bright.

MANUFACTURES.

The manufactures of Madeira are as follows: candles; shoes; straw-hats; baskets, of every shape; chairs, of straw and wicker-work; ladies' ornamental chains made of horse-hair; all sorts of woodwork, in which the joiners are very expert, especially in inlaid work of various woods, superior to that produced at Tunbridge: they have an advantage in the diversity and beauty of the many kinds of wood grown on the island, but they add to this a superior skill and taste in the art of *marquetry*, and construct ornamental chairs, tables, chessboards, paper-cutters, card-cases, book-racks, walking-

sticks, &c.; the jewellers' work is rough, but jewellery is more than commonly abundant, owing perhaps to the breaking up of many old families of the ancient proprietors, when their precious stones and other valuables came into the market. The women are famous for their beautiful needlework, and the nuns very skilful in imitating flowers with dyed feathers. The young girls plying the distaff at the doors of the houses by the roadside add a picturesque effect to the scenery: these distaffs are made simply of the *Arundo donax*, split and bowed into the proper shape at the top.

There is a manufacture by handlooms of coarse linen and stuffs, which are worn by the country folk. Pottery, of an inferior texture, is made from materials furnished by the finer beds of red tufa; and leather is tanned on a small scale for island use.

CHAPTER V.

ON THE AGRICULTURE OF MADEIRA.

"Nor ye who live
In luxury and ease, in pomp and pride,
Think these lost themes unworthy of your ear:
Such themes as these the rural Maro sung
To wide-imperial Rome, in the full height
Of elegance and taste, by Greece refined.
Ye generous Britons, venerate the plough."

THOMSON.

Introduction of the vine and sugar-cane.—Clearing the forests.—Cultivation of the sugar-cane.—Cultivation of the vine.—Different soils.—Best wine districts.—Kinds of wines.—Manufacture of wine.—Cultivation of corn.—Manure.—Threshing.—Grinding corn.—Maize.—Flax.—Potatoes.—Yams.—Weeds.—Pine trees.—Sheep.—Cows.—Instruments of husbandry.—Levadas.—Dearths.—Labouring classes.—Wages.—Relation between landlord and tenant.

To the provident care of Prince Henry, Madeira was indebted for its first supply of agricultural seeds, plants, and domestic animals.

Amongst the plants, the vine from Cyprus, and the sugar-cane from Sicily*, throve so prosperously that they soon became important articles in Portuguese commerce.

CLEARING THE FORESTS.

The new colony set to work immediately clearing the ground. For this purpose they fired the great forests, which are said to have burnt with such violence that several of the people were forced to take refuge in their boats. According

* The sugar-cane, we learn from *Hugues Falcand*, a writer of that period, was known in Sicily as early as the twelfth century.

to the accounts transmitted to us, this fire smouldered on for near seven years*; the consequence was, that the soil was so enriched by the vast quantity of wood ashes as to acquire an extraordinary degree of fertility†. A vicious system of agriculture, or rather a total absence of any system, soon exhausted the soil of this exuberance‡.

CULTIVATION OF THE SUGAR-CANE.

The early abandonment of the manufacture of sugar in Madeira has been attributed by some to a blight which is said to have attacked the canes. It is probable, however, that the Portuguese, finding this plant could be grown with more profit elsewhere, transferred it to the island of St. Thomas, on the west coast of Africa, from whence it found its way to the West Indies. There are now but four sugar mills left in Madeira; the wheels are worked by oxen, and the process of crushing the cane is worth seeing. The juice is carried off by a pipe into coppers, where it is boiled, fermented, and converted into rum and molasses. The cane is also chewed by the natives for food.

CULTIVATION OF THE VINE.

The staple of the agriculture of Madeira, and the principal object which occupies its population, is the vine. Vines were

* *J. De Barros*, dec. i.

† "The woods which gave name to the island were fired, and burnt so furiously, that the people were forced to go some space into the sea from the violent heat, which caused such a fatness to the soil that at first it yielded threescore fold; since, half so much." (*Purchas's Pilgrims*, 1626, b. 7, chap. xii. p. 784.) *A. Cadamosto* says, that the vines brought forth more clusters of grapes than leaves, and that the produce of the island in corn amounted to 30,000 Venetian measures called *Stares*, each being equal to 133 lbs.

‡ *Ovington*, p. 10.

formerly planted at a depth of only twenty inches, and sometimes, though never very generally, by means of a plough. The instrument was dragged over and over the same ground, till the required depth was attained. Such a practice has long since ceased; indeed, there are very few places in the island, from its rocky nature, where a plough could penetrate twenty inches into the soil. The vine in the south is now always planted in trenches, varying from four to six feet in depth. The depth of the trench is regulated by the nature of the soil. The object in cutting so deep is to allow the roots of the vine to penetrate sufficiently far through the fresh turned earth, to prevent their being dried by the effects of the sun, and a long-continued season of drought, when water for irrigation is scarce. Lumps of *pedra molle*, and other stones, are placed at the bottom of the trench to keep the earth loose, and prevent the roots of the vines from reaching the stiff soil below. The trenches are filled up slantingly one-third of their depth, the *bacello*, or cutting, never being planted lower than two-thirds of the depth opened. The new roots shoot mainly from the upper part of the *bacello*, and at no great distance from the surface of the ground: the part below the roots decays and rots off. When *rooted* vines are planted they are not put in so deep, although the ground is trenched in the same manner as for *bacellos*.

DIFFERENT SOILS.

The names given to the different kinds of soil in which the vine is planted are *saibro* (decomposed red tufa), *cascalho* (stony soil), *pedra molle* (an arenaceous soil, of decomposed yellow tufa), and *massapés* (clay resulting from the decomposition of dark tufas). The vine lasts the longest in *saibro* and *cascalho*. In *pedra molle* and *massapés* it produces at

first more freely, but the wine is weaker in body, and the plant is soon worn out. The best soil, both for wine and the endurance of the vine, is *saibro* with a mixture of stones, the plant being always partial to stony or rocky ground.

BEST WINE DISTRICTS.

The finest wines of Madeira are produced in the parishes of Camera de Lobos, S.ᵃᵒ Martinho, and S.ᵃᵒ Pedro; in the *lower* parts of Santo Antonio, the Estreito de Camera de Lobos, Campanario, S.ᵃᵒ Roque, and S.ᵗᵒ Gonçalo. The upper parts of the five last parishes produce only second and third-rate wines. The finest Malmsey and Sercial are from the Fajâa dos Padres, at the foot of Cábo Girão, and from the Paül and Jardim do Mar.

The best vine to graft on is the stock of the *Malmsey*. The best vine to plant in the south is the *Verdelho*. It is obtained either from the north or from the Curral das Freiras.

The length of time that a vineyard will last depends as much on the cultivator as on the quality of his soil. Where the farmer is careless, or intent only on his *bemfeitorias**, the vines are often huddled into the ground close together, when they grow up weak and sickly, yield comparatively but little fruit, and die off in eight or ten years, unless forced to exist a few years longer by parsimonious doses of manure. A prudent cultivator will plant his vines ten or twelve *pálmos*† apart, when in the same ground, with proper treatment, the plants will yield better, and last from fifty to a hundred years.

The vines, excepting in the north of the island, where they luxuriate wild on the branches of the chestnut trees, are

* Explained at page 198. † Spans.

trained on a sort of trellis-work made of the *Arundo donax*, to which they are bound by split shoots of willow. This frame-work, when the leaves are off, has the appearance, as you look down upon it from the hills, of nets spread on the ground. One or more walks intersect each vineyard. Along these walks, wooden pillars about seven feet high are erected at regular distances, to support frames which slope down from them on each side to within two feet of the ground. At this elevation the reeds extend over the whole vineyard. There is barely room for men to creep under these lattice-works either for the purpose of weeding, pruning, or gathering the grapes.

An *alqueire** of ground, being soil of the best description and well cultivated, will produce in an average year from twelve to fifteen barrels of wine, of which twelve go to the pipe. If the soil is of medium quality, and well cultivated, it will produce from eight to ten barrels. Ground of either best or medium quality in bad hands will not produce more than one or two barrels. In bad land, of course, no vines are planted.

The exportation of wine from Madeira and Porto Santo during the last three years has averaged 6738 pipes, whereas the amount grown has averaged 15,887 pipes. This leaves the large amount of 9149 pipes annually consumed in the island, or converted into brandy. The largest amount is drunk by boatmen and *burroqueros*, who spend about one-third of their means in a liquor, which comes under the denomination of *low* wine. Of the wine exported from the island

* An *alqueire* of ground contains 15,625 square *palmos;* the *palmo* is equal to 8½ English inches. A difference in measurements exists in some parts of Madeira; for instance, in Camera de Lobos 5 *palmos* correspond to 43 inches; at Santa Anna a *palmo* equals 9 inches; and at Machico a *palmo* equals 8 inches. In different kinds of measurements the value of a *palmo* varies even in Funchal, where the land surveyors, in measuring walls, use the *palmo* of 9 English inches, instead of 8½.

one-third may be considered of the finest quality, one-third of a medium quality, and one-third as low wine. The first cost of the wine at the press (before fermentation) has this year been from £2 10*s.* to £12 10*s.* per pipe.

KINDS OF WINES.

The names of the different kinds of wine produced in Madeira are—*Malvazia*, *Sercial*, *Tinta*, *Boal*, *Verdelho*, *Bastardo*, *Negrinho*, and *Maroto*, all made from grapes bearing those names. The three last are seldom seen, and the *Negrinho* and *Maroto* are a bad species of grape, always used in the manufacture of *vinho verde*, or refuse wine. The wine called *Madeira* is made principally from the *Verdelho* grape, with an admixture of *Tinta* and *Boal:* the first gives it body, the two latter flavour. The ordinary *Bastardo* is a black grape, which yields a light-coloured wine; the *Bastardo branco* is rare. The *Tinta*, or, as it is sometimes called, *Negra molle*, gives a dark colour to new wines. When it is made into wine by itself, the husk is separated from the stalk and fermented with the juice of the grape, otherwise the Tinta wine would be wanting in the peculiarities of colour and flavour which distinguish it.

MANUFACTURE OF WINE.

To make fine wine it is essential that the grapes should be fully ripe. The ripeness is judged of by the softness of the bunches, which lose their rigidity when the sap ceases to enter them. All unripe grapes, and those of inferior sorts, must be carefully picked out and put aside for the *vinho verde*. When the wine press is full the grapes are trodden, and then pressed under the beam of the *lagár**.

* Wine press.

The must is carried away in goat-skins and transferred to casks, there to undergo fermentation. When the violence of the fermentation is over, that is to say, in ten or twelve days, it is an approved practice to throw into each cask two or three pounds of powdered gypsum, stirring it up in the wines daily for the next ten days. The gypsum is said to take up the watery particles of the wine, and prevent its becoming ropy: the fermentation then gradually subsides, and at the end of six or eight weeks the lees are racked off, and a gallon or two of brandy added to each pipe.

Madeira wines are considerably advanced and matured by heat. It is a common thing to give these wines a passage to the East or West Indies, before they are landed in England.

The heat of a ship's hold in India, or of a sugar-laden ship in Jamaica, sometimes exceeds 110° of Fahrenheit. By some, the wine is ripened at home in stoves; the abuse of which, by giving a false appearance of age to inferior wines, has at various times been prejudicial to the trade of the island.

The countrymen calculate that one-tenth of the produce of a vineyard is destroyed by flies, lizards, and rats.

CULTIVATION OF CORN.

Wheat is cultivated as high as Santo Antonio da Serra, about 2400 feet above the sea. The hard transparent kinds are preferred by the natives, from an opinion that the flour rises better in baking; no very white flour, however, is prepared from such wheat. The sample appears inferior to many from England; but the native corn bears a higher price in Madeira, partly perhaps from being cleaner than that which comes on ship-board from Europe and America. The wheat of the highlands is different from that grown nearer the sea-shore; what is produced on the former ground resembles Odessa

wheat, the natives call it *rapoza;* the grain of the low lands, which they call *anapil*, is finer. In the lighter soils, in a good year, the yield is only from three to five fold: in better land from seven to eight fold is obtained; and under the most favourable circumstances fourteen or fifteen fold is sometimes produced. Wheat is not unfrequently sown in continual succession, the same seed on the same land.

When any rotation of green crops with grain is attempted, corn is sown one year, and lupines the next; then corn again; or corn for two years, and lupines for one. When lupines are sown for the purpose of manuring the land, the practice is to dig them into the ground when they come into flower, whether it be in wheat lands or vineyards. It would be well if they were oftener employed in this manner; unfortunately many cultivators are disposed to consider it a loss of their lupines. In some parts of the island, the corn is followed by beans and sweet potatoes (*Convolvulus batata*), the latter being dug up at the end of six months; when the sweet potato is planted with the vine, it is allowed to remain in the ground a twelvemonth; the leaf is used as food for cattle, but horses will not eat it.

MANURE.

But little manure is used, and no pains taken to preserve it. The landlord has a right to one-half of the straw produced, which he generally sells, and the tenant is not obliged to consume his proportion of the straw on the land he cultivates. Thus it has a very small part of its own produce restored to it. When corn is sown on land where the wild broom grows, the process of cultivation is this:—the broom is cut, strewn on the side of the hill, and then set on fire; without further preparation, the corn is sown on the ashes.

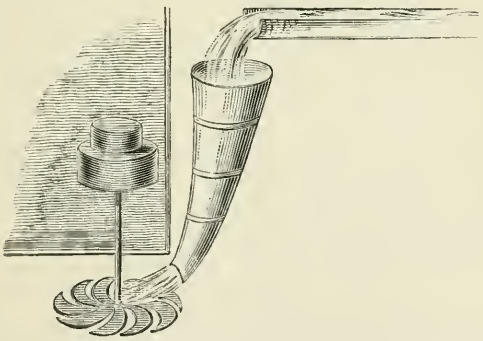
A poor crop is obtained, and when the broom has grown again, in about six years that is, the same process is repeated.

THRESHING.

The general mode of extracting the wheat from the ear is by driving oxen, attached to a light sledge in which a number of small sharp stones are fixed, round the circular earthen threshing floors, which are placed at the corners of the fields; in some parishes the flail is used; barley is almost always threshed out with flails, or with short thick handclubs. The grinding was formerly a monopoly, the exclusive right of it belonging to one family; now every one is free to grind for himself.

GRINDING CORN.

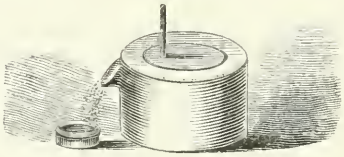
The water-mills which grind the larger quantities of corn, are worked by a single horizontal wheel. The supply of water is obtained from a *levada*, beneath which the mill is



HORIZONTAL WHEEL MILL.

built: the water falls on the wheel through a pipe of wood, broad at the top, and gradually less towards the end. For

Indian corn hand-mills are used, made of the common scoriaceous basalt: in these mills, the upper stone fits into the lower one, as a conical stopper into a bottle; it is turned by



HAND-MILL.

a fixed upright stick; this stick is frequently tied at the upper end to the branch of a tree, to give more purchase.

MAIZE.

An attempt is now being made to introduce several varieties of the *milho*, or maize, in some parts of the north of the island: it is intended that it should supersede the vine, which bears no fruit capable of making good wine in those districts. One enterprising gentleman imported some men from the Western Islands, where they are excellent farmers, to teach the labourers the cultivation of this grain.

FLAX.

A great deal of flax is grown on the northern side of the island; in such a climate, the New Zealand flax (*Phormium tenax*) might be cultivated with great advantage.

POTATOES.

Potatoes yield about five crops in two years. This plant has not here escaped the blight which affected it in other parts of the world, and its loss was severely felt by a population dependent on the cheapest description of food; in event

of its continued failure, the *Chenopodium quinoa*, which has, I believe, been successfully grown in Madeira by one or two persons, might, from its hardy and nutritive qualities, become a useful substitute.

YAMS.

The yam of the West Indies and the coast of Africa is unknown in Madeira. The plant the natives call *inhame* the English have corrupted into yam, from the similarity of pronunciation. The *inhame* is a species of arum (*Arum colocasia*). There are two kinds in Madeira, the white and the red, the latter requiring more water than the former; to plant it, a trench is cut near some spring and filled with branches of broom, which are covered with earth: in this the root is placed and left to shoot downwards through the branches. It is a wretched vegetable, and pigs are the only animals that will eat the leaf.

WEEDS.

In Madeira the very weeds of the soil realize a profit; these are worth five pence a bundle in the market as horse fodder; they luxuriate everywhere undisturbed amongst the choicest plants: the vines alone, and those in fruiting months only, are freed from such noxious companionship.

PINE TREES.

The pine has been brought into extensive cultivation on the hills; it flourishes on the red tufa, where nothing else will grow. The pines are sown thickly, and at the end of five years they are ready for their first thinning; the process is commonly repeated each succeeding year for seventeen years. The leaves are used as bedding for cattle, and the cones

are collected and sold for fuel, after the seed has been shaken out to yield its share of profit.

SHEEP.

The sheep of the island are of the Spanish hooked-nose breed, very small, and of no excellence either for meat or wool. An English gentleman tried to introduce the South-down breed, but he found they were not hardy enough for the cloud-capped serras. When he told his Portuguese hind that he had given ten and eleven dollars apiece for them in England, the man shrugged his shoulders and said, "You might have spent your money better, *senhor*." The same gentleman afterwards tried crossing the breed with the native animals: the cross succeeds well, giving a better flavour and more flesh to the scraggy mountaineers.

COWS.

The Madeira cows, though they produce good working *bóis*, are bad milkers both as regards quantity and quality. One would think that the constant importation of Alderneys in the traders must in time improve the breed; though perhaps the roughness of the pasturage has a good deal to do with the poverty of the milk. The landlords sometimes furnish their tenants with cattle, and share the profits of the sale.

INSTRUMENTS OF HUSBANDRY.

The instruments employed in agriculture are a plough, very similar to the old Roman one described by Virgil, and the *enchada*, or pick, with which they grub up the ground. The introduction of an English plough was attempted on some ground two thousand four hundred feet above the level of the sea; an English labourer was also imported to teach

the use of it; nothing, however, could be made of the people or their oxen, which had been trained to work as ill as their masters. The harrow has met with more success. This it must be remembered is on a *serra*, or elevated plain; the hill-side cultivation scarcely admits of the use of ordinary agricultural implements.

LEVADAS.

The *levádas*, or courses for the water, are wonderful works; they are the result of the labour of centuries, and are still in progress. The water is gathered by them from its sources in the mountains; sometimes running through the solid rock, and sometimes along the sides of perpendicular cliffs, where it is difficult to conceive how workmen could ever labour; sometimes carried in wooden pipes over your head; and sometimes gliding near your feet, and refreshing you as you toil up the precipitous roads under a hot sun. By these *levádas* means of irrigation are afforded to each tenement. Each has a right to let the water on to his land in turn, and there is a monthly cycle, or *giro*, divided into so many hours, made for the regulation of such turns. The right to water for irrigation is held by title deeds, in the same manner as any other property, and in these deeds the number of hours in each *giro* of a *leváda* is declared. In some *levádas* the *giro* is thirty days, in some more, and in others less. There is frequently a good deal of partiality on the part of the *levádeiro*, the person to whom the division of the water in the main course is intrusted. Here, where water is riches, there are more quarrels and lawsuits about this than any other kind of property; and those who do not carefully watch it, when their turn comes round, may reckon upon being robbed of the greater part of their water.

DEARTHS.

At divers times a want of rain and other causes have combined to create grievous dearths in the island*; in the year

* The following tables of productions, imports, and exports, may serve to give general notions on the self-supporting capabilities of Madeira:—

Madeira produced the following quantity of pulse and grain in the years

	1847.	1848.	1849.
Beans	0	104½	122
Kidney beans	0	240½	281¾
Lentils	8	7	11
Barley	503¼	460½	538¾
Rye	259½	261½	351¼
Indian corn	23	46	132
Wheat	2459	1159½	3060½

These quantities are reckoned in *moios*. There are 3 quarters English in a *moio*, and each quarter is 20 *alqueires*, or 8 bushels Winchester measure.

The importations of pulse and grain to Madeira from Portugal and its dependencies were as follows, in the years

	1847.	1848.	1849.
Horse beans	65	43	62
Kidney beans	211	2	10
Black-eyed peas	14	1	0
Lupines	1	15	0
Barley	1½	4¾	13¼
Rye	117¾	103	69½
Indian corn	3391	2714	3216
Wheat	1028	1797	2038
And from foreign countries during the same period—			
Horse beans	0	1	0
Kidney beans	3	0	0
Oats	34¾	0	0
Barley	58	3	0
Rye	4	316	55½
Indian corn	5055	6894	7690
Wheat	2770	3095	2193

The value of all articles, exclusive of wine, exported from the island of Madeira to Portugal and its dependencies was, in 1848, £1584 12*s.* 8*d.*; in 1849, £1628 15*s.* 9*d.*: and to foreign ports, in 1848, £1623 7*s.* 11*d.*; and in 1849, £1759 12*s.* 1*d.*

1847 the failure of the potato, together with the famine in Ireland, which opened a better market for corn elsewhere, produced great distress in Madeira; at this time the mercantile class came forward nobly, to assist the sufferers, by a handsome subscription towards a loan fund for importing provisions.

LABOURING CLASSES.

The labouring classes in general are a fine set of men, but they cannot be said to be hard workers; they exert themselves for a time with much spirit, and in some kinds of work are capable of great endurance; but they are wanting in perseverance. Their food seems not to be such as is most conducive to the development of muscular vigour. Part of the year they subsist chiefly on chestnuts; the yam, the sweet potato, the Indian corn, and the lupine, form, with the tunny fish, the complement of their diet. The yam is but a moderate food; the sweet potato is better; the Indian corn, united with the tunny, or with dried mackerel, is the best fare of the bulk of the population.

WAGES.

Five pence a day and food are reckoned good wages in the country; a man, however, seldom gets six days' work together. In fact, but little money passes from hand to hand; work is done chiefly on the *give and take* system of America, *i. e.*, I do so much work for you to-day, on condition that you do so much for me to-morrow. In town, wages vary from one shilling to fifteen pence *per diem*.

RELATION BETWEEN LANDLORD AND TENANT.

The land in Madeira is generally cultivated by *colonos* (tenants), under a peculiar tenant law. If the tenant resides

on the ground he leases, he is called a *caseiro*, from the *casa* or house he occupies; otherwise he is called a *méyro*, from the *meyo* or half produce that he gives his landlord. The owner of the land is called the *senhorio;* he generally possesses nothing but the land! the tenant is usually owner of everything on it, such as trees, vines, walls, houses, embankments, &c., to which the name of *bemfeitorias* (improvements) is given. The tenant pays to his landlord one-half of all the produce of the land. The wine and corn are strictly looked after; but the *verduras*, such as potatoes, cabbages, lupines, &c., are often unaccounted for by the tenants. The landlord by right can demand one-half of the grass, but it is rarely done; when the landlord and tenant quarrel, and the former refuses to give his share of grass to the latter, the tenant cannot in this case dispose of his own half of it. Where the landlord is needy, as the greater part now are, this system gives rise to a constant watching and suspicion on both sides, anything but conducive to the mutual good understanding which is essential to the due cultivation of the land. Few of the landlords are now resident on their estates, and where the steward, or *feitor*, is too rigorous in exacting his master's due, he receives very unequivocal marks of the disapprobation of the tenants. Few tenements exceed an acre, but the greater part are not more than one-eighth of that size. When the leases are farmed out to a middle-man, or *rendeiro*, the tenants are sometimes treated with great oppression. The landlord cannot turn off his tenant, without compensating him for all his *useful* improvements, except houses, for which he is not obliged to pay unless they were built with his permission. The tenant, when he obtains leave to build a house, is generally obliged to pay annually a trifling acknowledgment to his landlord, such as a fowl, a dozen eggs,

or the like. The *bemfeitorias* are valued by two officers appointed by the *camera*, who generally put an excessive price on everything; a practice which, where the landlord is poor, goes far towards creating a perpetuity of tenure. The tenant can sell his improvements without asking his landlord's consent, and the landlord can dispose of his ground without communicating his intention to the tenant.

Government takes a tithe of the proceeds of an estate, before the division is made between landlord and tenant.

The *contracto de colonia*, or tenure, does not finish with the death of the landlord or tenant, but continues with their heirs, and with such as may purchase the land or the improvements upon it.

CHAPTER VI.

THE NATURAL HISTORY AND GEOLOGY OF MADEIRA.

From a Sketch by Lady Susan Vernon Harcourt.

Bananas.

See page 114.

CHAPTER VI.

ON THE NATURAL HISTORY AND GEOLOGY OF MADEIRA.

> "Sweet contemplation elevates my sense,
> While I survey the works of Providence.
> O could the Muse in loftier strains rehearse
> The glorious Author of the Universe,
> My soul should overflow in songs of praise,
> And my Creator's name inspire my lays!"
>
> GAY.

Fire on the south of the island.—Forests on the north side.—Dragon tree.—Urze.—Palm trees.—Opuntia.—Fruits and Vegetables.—Flowers.—Plants peculiar to Madeira.—Birds.—Reptiles.—Insects.—Fishes.—Turtles.—Corals.—Medusæ.—Luminosity of the ocean.—Geology.

So many exotics have been introduced into Madeira, into a soil and climate favourable to a great range of vegetation, that it is now difficult to draw any line between those which are really indigenous and others.

FIRE ON THE SOUTH OF THE ISLAND.

On the south side, the woods have never raised their heads since the great fire which destroyed them on the first colonization of the island. In the north, the forests still retain a great deal of their pristine grandeur, though the axe, ruthless as the flame, is as surely, though more slowly, doing the work of destruction*.

* There is a regulation, which, *if attended to*, would be productive of very beneficial results, that no one shall cut down a tree on the *Serras*, without permission from the municipal authorities of the district; and furthermore, all trees growing within a radius of one hundred paces of any fountain, are

FORESTS ON THE NORTH SIDE.

These forests are composed chiefly of the family of *Laurus*, such as the Til (*Laurus fœtens*), the Vinhatico (*Laurus indica*); and of other families, the Folhádo, the Teixo, Azevinho, Pao Branco, &c. The Til, which grows to a very large size, is of a dark colour, and the inner wood is quite black. In the hands of cabinet-makers it produces very handsome furniture, and in the course of time loses its disagreeable smell. The Vinhatico is the Madeiran mahogany, not differing much from that wood in colour, and being applicable to similar uses; its bark is used in making a brown dye. The most remarkable tree, though there are not at present any growing here of great size, is the Dragon tree (*Dracæna draco*). It has been found, as Humboldt observes, in the Canaries, and in Madeira and Porto Santo, from the earliest times: varieties of it occur in South Africa, the Isle of Bourbon, and New Zealand. At Oratava, in Teneriffe, I saw a Dragon tree, celebrated both for its extraordinary magnitude and age. At the time of the Spanish and Norman invasions, in 1402, it was said to have been as large in the stem as now, that is to say, forty-eight feet in circumference.

URZE.

The *Urze*, or arborescent heath, is what is principally used for firewood in the town. The carrying large bundles of this and other woods on their heads to Funchal is computed to give

prohibited from being felled. If the government would take upon itself the regulation of wood cutting for fuel, and establish a regular cycle of years for felling trees in different districts, the total loss of the future means of supply might be prevented.

occupation to one-fifth of the inhabitants of the island. As the Cactus form is almost entirely American, so the heath form, says Humboldt, specially belongs to the Old World, but more particularly to the African continent and islands.

The Madeiran Cedar (*Juniperus oxycedrus*) is a tree of very graceful growth, which is said to have abounded greatly when the island was first discovered; now it is rarely met with in a wild state.

The most valuable of the trees which have been introduced into the island is the Spanish chestnut, which furnishes food to the population in some of the higher grounds. The Oak, which is of later introduction, may be said to be in leaf all the year, for the young leaves begin to appear early in February, and the last year's foliage is never quite gone at that time. Two varieties of pines, the Stone Pine and the Pinaster, grow well in the tufa.

PALM TREES.

Palm trees are not of very frequent occurrence, and are shorn of their beauty for the religious ceremonies, the leaves being in requisition on Palm Sunday to adorn the churches. According to Humboldt, the true climate of palms has a mean annual temperature of 78°·2 to 81°·5.

OPUNTIA.

An Opuntia*, or prickly pear, grows luxuriantly on the most barren places. It is not turned to the same account by the cultivation of the cochineal insect on it, as in Teneriffe, where upwards of sixty thousand pounds' worth of this valuable dye is annually exported. The atmosphere of Madeira

* The fruit of this plant is eaten.

is said to be too humid for the insect to thrive in, but the experiment has scarcely been tried.

FRUITS AND VEGETABLES.

The fruits which are brought here to the greatest perfection, in addition to the grape, are the orange and the fig, to which may be added the mulberry: the lemon also, and the pomegranate, with the strawberry and apple, represent the products of a temperate latitude; whilst the pineapple, the guava, the mango, the shaddock, the custard apple, the papaw, the Japan meddlar, and the banana *, ripen, a tropical fruitage, without assistance from art. All European vegetables grow to perfection.

At the Jardim, Mr. Veitch has succeeded in growing rice and the principal varieties of the tea plant, at an elevation of three thousand feet above the sea.

The Tchu-tchu (*Sechium edule*), or *pepinella*, as the natives call it, is an excellent vegetable; it is a creeper, and grows so luxuriantly that one seed is sufficient to cover a whole house with its produce. It resembles vegetable marrow in substance, but is superior in flavour, and is even said to improve the taste and quality of bread when added to wheaten flour Arrowroot is produced abundantly and of good quality in Madeira. Pumpkins grow to a very large size, and are used by the natives as the chief ingredient of their favourite dish, the *Sôpa Portugueza*. The coffee tree flourishes in their grounds, and plentifully supplies their tables.

* "'T is almost a crime inexpiable to cut this fruit with a knife, which after dissection gives a faint similitude of our Saviour crucified; and this they say is to wound his sacred image."—*Ovington's Voyage to Suratt*, 1689.

FLOWERS.

The flowers of every country thrive carelessly in the gardens. The fuchsias are formed into perpetual hedges, and horses are fed with the clippings. Camellias attain the height of from fifteen to twenty-five feet. A stranger being told that there were fine camellias grown at the Palheiro, went up there for the purpose of seeing them, but sought them in vain, and was coming away disappointed, when it was hinted to him to look up, and there, far out of reach, he saw the wax-like flowers of purest white and darkest scarlet. Myrtle trees are to be seen, which are more than three feet in circumference, and the Urze grows to a similar size. The Magnolia, the Solandra, the Datura, the Judas tree, the Spike Coral, the Turpentine tree, the Camphor laurel, several varieties of Acacia, the Eucalyptus and the Strelitzia, the Justicia, the Crista Galli (*Erythrina*), the Oleander, the Euphorbia, the Hibiscus, and many other beautiful flowering shrubs, are amongst the ornaments of a Madeira garden.

PLANTS PECULIAR TO MADEIRA.

Humboldt says, that "though the whole archipelago contains several plants found in Portugal, in Spain, at the Azores, and in the north-west of Africa, a great number of species, and even genera, are peculiar to Teneriffe, to Porto Santo, and Madeira. Such are the Mocanera, the Plocama, the Bosea, the Canarina, and the Drusa."

BIRDS.

The birds of Madeira are less numerous than might be expected in so genial a climate, and most of them, where they differ from European species, are merely varieties.

BIRDS THAT BREED IN MADEIRA DESCRIBED.

The Kestrels are very numerous and very tame, perching on the roofs of houses, from whence they dart frequently at Canary birds hanging in their reed cages outside the windows, and generally succeed in securing their prey. They live principally on lizards, grasshoppers, and mice.

The Buzzard is seldom seen about the town, but confines his flights to the highest mountains, feeding on small birds, insects, and reptiles.

The Barn Owl inhabits the ravines in small numbers: it is a little darker than the British owl. It may be remarked that all the birds of Madeira are darker than their European brethren.

The Blackbird, which in some parts is very plentiful, does not differ from the English bird.

The Redbreast, which more than any other bird reminds one of home, is very common: it is frequently caged, and seems to flourish in capitivity.

The Black-cap Warbler, which is here the most domestic songster, has been sometimes called the Madeira Nightingale. There is a fulness in its warble which in a degree justifies such praise. Its plumage is sometimes rather darker than that of the English black-cap. A Madeiran variety of this bird has been described by Sir W. Jardine* as a new species, under the name of Curruca Heineken. Dr. Heineken, however, in a paper in the *Zoological Journal*, No. 17, Art. xvii., controverted the supposition of its being a distinct species, and there is reason to believe that he is right. The popular belief amongst the natives is, that where the nest of a "Tinto

* Edin. Journ. of Nat. and Geog. Science, Jan., 1830, p. 243, vol. i.

Negro"* contains five eggs, the fifth always turns out a "Tinto Negro de Capello." The variety is much prized, for where you could buy a common "Tinto Negro" for sixpence or a shilling, you would be asked eight or ten shillings for a "Tinto Negro de Capello." The dimensions of the two birds are precisely the same in all particulars. The chief difference consists in the black cap being extended in the variety to the shoulders, and I have sometimes seen the black colour extended over all the under parts. The under parts are generally much the same as those of the common female black-cap, and the upper parts as those of the common male.

The Wren is one of the prettiest feathered inhabitants of Madeira. It is a true *Regulus*, but appears to differ from any of the three European species best known, namely, *Cristatus*, *Ignicapillus*, or *Modestus*. It has the beak black, the forehead white, which colour extends backwards, forming a small band; the base of the crest is black, the crest itself bright orange, in that respect differing from the *Ignicapillus*, which is a fiery red; from the beak to the eye there is a small black band, which does not go beyond the eye, and in that respect also it differs from *Ignicapillus;* the upper part of the neck and all the back are olive green, with a bright mark of orange yellow on each side of the neck; the great wing coverts are nearly black, and tipped with buffy-white, forming a band; the primaries brownish black, with a narrow external edging of green; the secondaries the same, but with a broad velvet black mark at the base; the tail feathers brownish black, tinged with greenish yellow on the outer web; the chin and throat white, slightly tinged with green; the rest of the under parts of the body white, tinged with yellowish-

* From "Tontiço," occiput, and "negro," black.

green; the under wing coverts white; the legs pale brown; the entire length is four inches; from the carpus to the end of the wing two inches and a quarter; the length of the tarsus is three-quarters of an inch; the middle toe and claw half an inch; the fourth, fifth, and sixth quill feathers are of equal length, and the longest in the wing. Believing so small a bird to have but a limited range, and not finding it even amongst the birds of the Canary Islands described by Webb and Berthelot, or amongst the birds of Africa, I venture to give it the name of "Regulus Madeirensis." It lives amongst the laurel forests, in the less frequented parts of the island.

The Spectacle Warbler is very locally distributed. It is found in brakes and bushes in some of the unfrequented parts.

The Gray Wagtail is very common, frequenting the cisterns attached to houses, as well as the streams, where, from its familiar habits amongst the washerwomen, it has been admitted, in Madeiran phraseology, into the ranks of the sisterhood, under the title of "Lavandeira."

The Meadow Pipet is plentifully found on the cliffs and fields near the sea and on the serras. It utters a low note, running along the ground, and never taking a long flight.

The Green Canary is the original stock of the bird so well known to us as the yellow Canary. It flies about in large flocks with linnets and other birds, and is easily distinguished by its song, which is the same as that of the captive variety. The price of a good singing canary either in Madeira or the Canary Islands varies from five to nine shillings, so that, in fact, it may be bought much cheaper in London. This bird has been admirably described by Dr. Heineken in these

words*:—"It is very familar, haunting and breeding in gardens about the city. It is a delightful songster, with, beyond doubt, much of the nightingale's and skylark's, but none of the woodlark's song, although three or four skylarks in confinement in Funchal are the only examples of any of these three birds in the island, and notwithstanding the general opinion, that such notes are the result of education in the canary. It is in full song about nine months in the year. I have heard one sing on the wing and passing from one tree to another at some distance, and am told that during the pairing season this is very common. Each flock has its own song, and, from individuals in the same garden differing considerably, I suspect that of each nest varies more or less. After the breeding season they flock along with linnets, goldfinches, &c., and are then seldom seen in gardens. An old bird caught and put into a cage will sometimes sing almost immediately, but seldom lives longer than the second year in confinement. The young from the nest are difficult to rear, dying generally at the first moult. They cross readily with the domesticated variety, and the progeny are larger, stronger, better breeders, and, to my taste, better songsters also, than the latter; but a pure wild song from an island canary at liberty, in full throat, and in a part of the country so distant from the haunts of men that it is quite unsophisticated, is unequalled in its kind, by anything I have ever heard in the way of bird-music."

The Goldfinch is very common, and differs in no respect from our own.

The Ring-Sparrow here takes the place, in a way, of our house-sparrow. It is universal, on the bleak serras, near

* Zoological Journal, No. 17, Art. xvii.

houses, on the rocks by the sea—there is no place that it does not frequent: it differs thus in habits, though in nothing else, from the ring-sparrow of Europe.

The Buff-breasted Chaffinch is nearly identical with the bird figured, under the name of *Fringilla tintillon*, in Webb and Berthelot's work on the Canary Islands.

The Greater Redpole, or Linnet, is very abundantly met with: it differs from the English linnet only in retaining its carmine colouring, which is very bright, through the year.

The Lesser Swift is mentioned in Brewster's Journal by Dr. Heineken under the title of "Black-chinned Swift:" this property is, however, by no means general amongst the species. I have several in my possession with the chin fully as white as that of the common swift: one of the chief differences is in size, the *unicolor* being much the smallest; the tail is forked about an inch and a half, and the plumage is rather darker than that of the common swift.

The Common Swift is not quite so plentiful as the lesser swift; both species remain in the island throughout the year; their nests are built in the cliffs; their habits vary from those of swifts in England; here they seem to take the place of the swallow, hunting and skimming along the ground in a manner that would appear very degrading to their northern brethren. Dr. Heineken says*, "The swallow and snipe are said to be periodical visitors, and the reason both for the migratory habits of these birds, as well for the stationary habits of the woodcock and swift, is very readily to be found, I suspect, in one common cause, namely, *food*. The woodcock finds its food about spring-heads, the margins of little mountain-rills, water-courses, &c. These are neither dried

* Zoological Journal, No. 17, Art. xvii.

up here during our hottest summers, nor frozen in the severest winters. The swift preys on insects universally, but throughout the summer on a moth which abounds so on our most parched and sterile serras, that what with the insects and the birds the place seems all alive. The snipe requires a tolerable quantity of poachy, moist, decomposing soil, for the production of its food, and this, even in winter, is both scarce and very local, while at other times there is not a square yard in the whole island; and the swallow requires insects which are found only over streams, and something approaching to rivers, which we make but a sorry figure in at the wettest of seasons, and are entirely without six months in twelve."

The Ring-dove appears to be rather larger than the English bird, in other respects it is similar; it lives in the forests on the north side of the island.

The Long-toed Wood Pigeon has been described by Dr. Heineken in Brewster's Journal, under the name of *Columba trocaz*. It is about an inch longer than the Madeiran ring-dove; one of its chief peculiarities, and which seems to have escaped observation, is the great length of its centre toe, being more than an inch longer than that of the ring-dove; it has a silvery ring all round its neck,and is darker in its general plumage than the ring-dove. It inhabits the forests on the north side of the island, feeding upon grasses and the acorns of the laurel trees.

The Rock Pigeon inhabits the sea cliffs and rocks in the ravines all over the island: there is a variety here which is darker in its plumage and in the colour of its feet than the common rock pigeon. Purchas relates that "at first the pigeons suffered themselves to be taken, not knowing, and

therefore not fearing, a man;" and Sir Hans Sloane tells us that "wild peacocks and pigeons were here caught in abundance with perches at first."

The Red-legged Partridge is shot on the serras; sportsmen in Madeira must be prepared for hard work and a light bag, for the walking is very difficult, and the game scarce.

The Quail is more plentiful than the partridge, and approaches nearer to the habitations of man; it pairs, laying about sixteen eggs, and has three or four broods in the season.

The Woodcock is found chiefly in the west, and on the Paül da Serra sometimes plentifully; it is a large bird, but I think of inferior flavour.

The Tern appears chiefly at the Dezerta Islands and at Pt. S.^to^ Laurenço.

The Herring Gull is common everywhere: Dr. Renton says it is quicker by some months in obtaining its mature plumage than with us.

The Cinereous Shearwater breeds plentifully on the Dezerta Islands; its cry, whether on the wing or on shore, is very peculiar; the natives salt it, and consider it eatable.

The Manks Shearwater is also very plentiful at the Dezertas; it is easily to be distinguished from the Dusky Shearwater, which is another inhabitant of the Dezertas, by its superior size, and by the colour of its feet; in the dusky shearwater the feet are bluish ash-colour, and in the Manks shearwater flesh-colour; in the dusky shearwater all the secretions are green, and in Manks shearwater yellow; the dusky shearwater is a very tame bird, and will live upon almost anything; it runs along the ground on its

belly, and uses its curious shaped bill in climbing up the rocks.

The Angel Petrel of Heineken is said to have the tail slightly forked, and to differ from the other smaller petrels in having no white about the rump or flanks.

The Bulwer's Petrel has been described by Sir W. Jardine*; it is very common on the Dezerta Islands; when approached it emits a highly offensive matter. Sir W. Jardine says, "It is easily distinguished from any other by having the two centre tail feathers elongated, as in the genus *Lestris*, and not even or forked like the other petrels." It is probably identical with the angel petrel.

There is another petrel called by the natives "Roque de Castro," and pronounced "Roque de Crasto," which is likewise an inhabitant of the Dezerta Islands; it differs from Leach's petrel, to which it is closely allied, in being larger; it has a shorter wing and shorter tarsus, though its entire length is greater; it has also a square tail instead of a forked one. It measures seven inches and a half entire length; from the carpus to the end of the wing, five inches and three-quarters; tarsus, three-quarters of an inch. I have called it *Thalassidroma castro*, as I am not aware that it has ever been described before.

REPTILES.

There are no venomous reptiles in the island. A brown lizard (*Lacerta duges*, Edw.) is to be seen on every wall. These are very destructive to vineyards. Frogs have been introduced of late years.

* Sir W. Jardine on the Birds of Madeira, Edin. Journ. of Nat. and Geog. Science, Jan., 1830, p. 245, and Illustrations of Ornithology, by Jard. and Selb.

FISHES.

Several fishes known in the Mediterranean and on the south coast of England frequent these shores, and they have many more peculiar to themselves. As far as the table is concerned, the John Dory (*Zeus*), the Gray Mullet (*Mugil cephalus*), and the Red Mullet (a genus of the *Percidæ*), are by far the best. The rest, though very numerous, are mostly insipid. The Tunny (*Thynnus*) forms one of the principal articles of food of the poor. It is caught in amazing quantities on the coast, and attains a great size, being sometimes nine or ten feet in length. The flesh is coloured: it is sold at one penny or a halfpenny per pound, and sometimes even much cheaper.

To catch the Tunny a large hook is run through the tail or back of a live mackerel, which is allowed to swim with a long line. The hook is sometimes taken by sharks, of which there are several species, including the hammer-headed (*Zygæna Malleus*, Val.). The Swordfish also (*Xiphias gladius*, Linn.) is occasionally caught in the bay. On a quiet day you may see the whole surface of the water glisten with little creatures floating on their sides as if they were dead; they never attempt to escape, and on closer inspection prove to be the Trumpet-fish, deserving their name from a prolongation of the mouth into a tube like a pipe about an inch long. At the fall of the tide, which rises here nine feet, lobsters, crabs, and shrimps are caught in the crevices of the rocks.

On the Dezerta Islands seals are to be found throughout the year.

TURTLES.

The Hawk-billed Turtle (*Caretta*) is plentiful, and is used

for the table, though the soup is not comparable to that made from the green turtle of hotter climates.

INSECTS.

The insects of Madeira have not yet been completely investigated. A few of the more peculiar have been described by Mr. Bowdich, and a larger collection has recently been made by an English entomologist well qualified to do justice to the subject.

The Death's-Head Moth (*Acherontia atropos*) is common; so is the Humming-bird Hawk Moth (*Sphinx stellatarum*), which hovers over every flower in the hottest sun, taking a sip of each as it hurries along. There are also several varieties of the *Diurna*. There are several species of Ants: a very minute one which pervades the houses is highly destructive; it is next to impossible to preserve any specimens of birds or insects from its ravages. You eat it in your puddings, vegetables, and soups, and wash your hands in a decoction of it. There are several kinds of *Libellula*, *Saltoria*, *Blatta*, *Coccinella*, *Rhyncophora*, &c., with some water insects.

Yet in this climate, so favourable to existence of all sorts, the Mosquito, that plague of most hot countries, is comparatively innocuous. Not so that familiar insect which loves a temperature such as best suits ourselves, neither very hot nor very cold. The common flea thrives in the streets and boats of Funchal. Some of the varieties of the spider here are curious. The Cactus Spider is striped like a zebra, with bands of silver, yellow, and brown. There is also a large black spider, which the natives believe to be venomous.

CORALS.

A few species of the tribe of corals are fished up from great depths. Amongst the most remarkable are the *Gorgonia verrucosa*, Sol., having a stem which forms the axis of an outer calcareous coat; its cells are on both sides of the stem, which branches out in a fan-shape form. These corals are often covered with an elegant bivalve shell, the *Avicula hirundo*, Var., *Aculiata*. There is another coral, which has a delicate scarlet hue for some time after it is taken out of the water; but as the colour depends on the animal tissue, it disappears when this undergoes decomposition.

MEDUSÆ.

Star-fish, sea hedgehogs, and sponges are found on the coast. The *Caravel*, or Portuguese man-of-war, which Sir Hans Sloane described as *Urtica marina, soluta, purpuria, oblonga, cirrhis longissimis*, with the delicate pink and blue tints of their tiny transparent sails, sometimes cover the waters of the bay like floating soap bubbles. Humboldt mentions as having seen off Madeira the *Medusa aurita* of Baster, the *Medusa pelagica* of Bosc, &c., with eight tentacula (*Pelagia denticuluta*, Peron), and a third species, which he says "resembles the *Medusa hysocella*, and which Vandelli found at the mouth of the Tagus. It is known by its brownish yellow colour, and by its tentacula, which are longer than the body. They are sometimes four inches in diameter, and their changeable colours of violet and purple form an agreeable contrast with the azure tint of the ocean."

LUMINOSITY OF THE OCEAN.

Sir Joseph Banks, on his passage from Madeira to Rio de

Janeiro, observed the sea in those parts to be unusually luminous, flashing like lightning. On examining the water he discovered two kinds of animals that occasioned this appearance. The one he called *Cancer fulgens*, a crustaceous insect; the other *pellucens*, a species of Medusa. The former of these somewhat resembles a small shrimp, and light appears to issue from every part of its body. The latter, which is the most luminous of all zoophytes, measures about six inches across; its central part is opaque, and from it depend several long tentacula. Numerous other reasons have been given for the luminosity of the ocean, which has been deemed phosphoric by some, and electrical by others. Macartney, Humboldt, and many others have entered at length into a discussion on this subject. Humboldt says that "the luminous appearance of the sea is due partly to living animals, and partly to organic fibres and membranes derived from the destruction of these living torchbearers."

GEOLOGY.

The first description of the geology of Madeira which I have met with is contained in the posthumous work of Bowdich, a traveller whose name belongs to the list of those that have fallen victims to an ardent zeal for science, and who died, soon after quitting Madeira, under the burning suns of Ashantee. In this work, published by his widow, who nobly accompanied him on the hazardous enterprise in which he perished, there is a general account of the eruptive rocks of which the island chiefly consists, and there is mention also of a stratified limestone, near S^{a}. Vincente, to which his attention was directed by Mr. Veitch. The highly-inclined position and crystalline character of this calcareous rock led Mr. Bowdich to regard it as that which some geologists have

termed *transition* limestone, or one of the lowest of the sedimentary formations of which the crust of the earth is known to be composed.

A gentleman, however, belonging to a more advanced school of geology *, who has visited Madeira within a few years, has shown that this supposition was erroneous, and from the fossil shells, or rather casts of shells, which he obtained in such a condition that he was enabled to determine the genera, though not the species, to which they belong, concluded the formation to be of the Tertiary epoch. My father, to whom I owe the present sketch of the geology of the island, discovered in the calcareous rock of S^a^o Vincente numerous specimens of a very remarkable species of Echinanthus, the *E. altus* of Gray, or *Clypeaster altus* of Lamarck. This species is figured by Scilla amongst the fossils of Malta. It is found in the *Miocene* beds of that island, of Italy, and of Greece. De Verneuil, in his notice of a geological map of Spain, says that "in the Sierra Morena, near Cordova, are to be seen, in a horizontal position in contact with the old rocks, the *Miocene* beds with huge *Clypeaster altus*."† If we take this fossil, then, as characteristic of the Miocene period, we have a continuous line of that deposit established nearly east and west from Greece to Madeira; and at the latter place its formation has occurred in one of the intervals of a series of basaltic eruptions and disturbances to which the island owed its existence.

The general correspondence of the shells and corals of this bed in Madeira with that found at a lower level in the neigh-

* Mr. Smith of Jardine Hill, see Geol. Trans., vol. iii. part ii. No. 73.

† British Association Report, 1850.

bouring Isle of Baxio (Porto Santo) leaves no doubt that they have belonged to the same period. The latter bed, coming out in the sea board instead of the interior, as at S^to^ Vincente, and consequently better situated for access and transport, is alone worked at present, and supplies the lime-kilns of Funchal. Amongst the species of shells observed in it are Cardium, Chama, Conus, Cypræa, Gastrochæna, Lithodomus, Pecten, Spondylus, Turritella, Vermetus; and it contains numerous specimens of very delicately-preserved corals. Between these fossils and the casts of similar fossils from Malta, in the British Museum, there is also an observable correspondence.

The fossils in both islands are mingled with basaltic pebbles, and in many specimens include them. In my father's collection from the Isle of Baxio is a Spondylus (Gaderopus ?) which carries the marks of its attachment to a basaltic rock. The beds, both in the Isle of Baxio and at S^to^ Vincente are penetrated by basaltic dikes, and are covered by, as well as based upon, basalt, the contact of which has given in many parts to the calcareous matter the crystalline structure of marble. Thus it appears that, after the basaltic rocks had been extensively spread beneath the level of the sea, a period of repose had succeeded, during which, through an area extending from Madeira at least to Porto Santo, a bed of shells and corals had formed upon them, and that this bed was afterwards penetrated and overlaid by an irruption of similar materials, in the course of which it was lifted up at S^to^ Vincente to the height of 1700 feet above the sea level. In the Isle of Baxio, on the western side, the same bed is stated to be not more than 50 feet above the water. A gallery, 6 feet high, has been worked through the islet to the eastward, and there the limestone emerges at an elevation of 400 or 500 feet.

If we extend our geological view from these islands to the Canaries, we do not find, at least in Teneriffe, the same fossil bed; but we perceive, nevertheless, in the mineral masses of which that island is composed, evidence of its belonging to the same formation. In Teneriffe the lofty central crest of mountains, so well described by Von Buch as a *crater of elevation*, consists of a trachytic rock, that is to say, a rock largely felspathic, of a rough fracture, and marked by numerous crystals of glassy felspar. Mantling round the base of the trachytic mountains lie the basaltic strata, which line the coast, and, associated with these, beds of cinders and tufa variously coloured. The vineyards, both of Teneriffe and Madeira, are planted in the tufas, several varieties of which readily form a fruitful soil. Not only the general disposition of this series, but many of the details of it, are identical in the two islands; and, in particular, the seams of tufa have the same peculiarities of mineral contents. These beds are best seen along a considerable section of the coast of Madeira, in the neighbourhood of Funchal. They lie in horizontal strata, covering, and interposed between, basaltic lavas, by which at many points they are dislocated and pierced. Their stratification is marked by the different colours of the seams—red, yellow, brown, and black. Their substance seems to be no other than that of disintegrated, incoherent, basalt, in different states of oxygenation, as regards the iron with which they are coloured. Where the red variety is consolidated in contact with super-imposed streams of basaltic lava, it sometimes assumes, in both islands, the prismatic form of columnar basalt. Amongst the materials of which these strata consist certain seams of *pumice* nodules, occupying the same place in the yellow tufa of either island, is especially characteristic.

Mr. Bennet* observed a pumice-bearing tufa in the interior of the *curral*, near the bottom, at the depth, that is, of several thousand feet beneath the summits of the walls of that great central crater. These consist of a series of tufas and conglomerates which rise, pierced by dikes, and surmounted with crests of basalt, to a height above the sea of five and six thousand feet; if, therefore, the bed observed by Mr. Bennet is identical with that which appears on the southern coast, it is certain that this lies low in the series of the rocks of Madeira.

Mr. Smith has remarked that the seams of pumice "often contain portions of heavier volcanic products, as cinders or scoriæ, dispersed without regard to gravitation, proving that the various materials could not have been deposited under the sea, because in water they would instantly have separated according to their respective weights;" and he proceeds to conclude that "the volcanic products of the island, being *subaërial*, the curral is *not a crater of elevation, though it agrees with the characters assigned to such craters;*" and he is further induced to "infer, from the resemblance of the Curral das Freiras to the more ancient portions of Teneriffe and the other Canary Islands, said to be craters of elevation raised from beneath the level of the sea, that a wrong conclusion has been drawn respecting them." The supposition, however, on which this large inference was grounded seems to be without foundation. A *single* shower of materials of unequal specific gravities might possibly be completely sifted by falling through water; but in case of *consecutive* showers no such effect would follow, since the different rates of descent would be variously compensated by the different times of ejection: but, in point of fact, the nodules of pumice do

* See Geol. Trans., vol. i. p. 391, No. 17.

lie in continuous seams sufficiently distinct to justify the idea that they have been separated and arranged by subsidence. Meanwhile it is very probable that these materials have not been projected into the air, but poured forth in torrents of a consistence muddy or granular, in which differences of specific gravity would exercise an imperfect operation. When we come to a mineralogical inspection of specimens, we see further that the temperature required to account for the formation of these beds must greatly have exceeded that of the boiling mud thrown out by existing volcanoes; for this *pumice* differs from that which we find conjoined with *obsidian* amongst *subaërial* volcanic products in one remarkable respect—in containing, that is, prismatic crystals of two kinds, the one colourless and transparent, being probably *glassy felspar*, the other black and opaque, believed to be *augite*. The tufa, likewise, in which the pumice nodules are embedded contains itself crystals of the latter kind, precisely the same as those which have been formed in the pumice. The whole mass, then, at the time of its formation has been subject to conditions in which very powerful *disintegrating* and *combining* forces have been in simultaneous operation, conditions foreign from that which has produced the vitreous pumice of obsidian lavas.

But another species of mineral occurs in these beds, both at Madeira and Teneriffe, which throws light on the question of the order and period of volcanic formation to which they belong. In the tufas which have been cut through near Mr. Veitch's quinta, at the Gorgulho, the author found, together with sheets of carbonate of lime, plates and infiltrations of *Quartz resinite*. The same opaline substance occurs similarly in Teneriffe; but the occurrence of *opal*, that is to say, of a *hydrate* of silica containing *water*, as a large and essential

constituent, affiliates the beds in which it is found to the *basaltic* or *trap* rocks. Such are not the products of recent volcanoes any more than of furnaces. The *silicious sinter* formed even by the boiling eruptions of Hecla contains no water. Hydrated silicates seem to belong peculiarly to *trap* formations.

The scanty list of other minerals found in Madeira corroborates these views. The Zeolites, which in the vicinity of Porta da Cruz abound in the lavas, correspond with the opal of the tufas in the character of being hydrates. *Augite* and *olivine*, minerals characteristic of basalt, occur in every rock. Specular and micaceous iron are found near St. Jorge. The specimens of iron pyrites which are occasionally met with may perhaps be of recent formation; but there are no other minerals of modern aspect, no sulphur, no obsidian or obsidianic pumice, no silicious sinter. A small deposit of carbonaceous matter*, without any marks of organization, is found in the ravine of St. Jorge; but there are no remains in Madeira of plants, animals, or soil, buried beneath tufa or lava; with the exception of the tertiary bed already described, there is nowhere a trace of organic substance beneath the present "*habitats*" of organic life. The ramifications of carbonate of lime which have spread through portions of the tufa, and have been supposed to represent ancient fibres and roots of plants, are for the most part the effect only of capillary infiltration, and where tubular structure indicates that they have encrusted vegetable fibres which have since disappeared, they are not beyond the reach of the roots of recent

* The following analysis of this lignite is given by Mr. Smith as made by Professor Johnstone:—

Carbon	60·7
Hydrogen	5·82
Oxygen and Nitrogen . . .	33·47

plants. The fossil bed, as it is called, of Caniçal, forms no exception to this statement. On that neck of land the wind blows away the basaltic sand from many fantastic forms of calcareous infiltration, which present the aspect of roots turned into limestone. These pseudo-roots, however, showing no other structure than that of an aggregation of lime and sand, probably owe their forms to the direction of the roots of plants which may have grown on the spot at no very distant time, but at a time when a portion of calcareous tufa, since weathered away, supported a vegetation which no longer exists. In the same place is a deposit of land and fresh-water shells. Most, if not all of them, have been identified with species existing either in Madeira or in Porto Santo.

All the volcanic beds, then, of which Madeira consists, whether tufa, conglomerates, or lava, correspond with those which in the Mediterranean and other parts of the world appear to have been upheaved from the bed of the sea by a great and general explosion of subterranean forces at the Miocene period of the tertiary epoch. There is no *crater of eruption* to be found from which lavas can be presumed to have run down, or the tufas to have been ejected. The whole island, from the lowest of the lateral knolls to the highest peaks of the mountains, consists of tufas and conglomerates piled upon each other, composed of trachytic and basaltic materials, cemented by a similar paste, and injected by basaltic dikes which rise from below and penetrate them, sometimes partially, and sometimes to their very summits. There are points, as, for instance, in the vast detached hill of the Penha d'Aguia, where it is easy to observe that these dikes spring from beds which appear as a vesicular scoriaceous lava at the water's edge. It is evident, therefore, that at the time when the elevation of the mountains took place, the

beds of which they are formed were split at innumerable points, and that the basaltic lava rose in every split, and issued at every pore. It is further to be inferred, from what has been said, that at a time *anterior to this elevation of the land* a space equal to its area below the surface of the sea had been covered with those beds of conglomerate, tufa, and lava, which make up the body of the island. Nothing is more probable than the supposition that the elevation itself was due to the expansion and explosion of steam and gases, and that the *Curral* and *ravines* of Madeira, as well as the *cañadas* and *barrancos* of Teneriffe, are due to the mechanical effects of such an expansion riving the rocks, *qua-qua-versally*, from a central *crater of elevation*. At Teneriffe the phenomena are slightly modified by the repetition of eruptions in subsequent times; but in Madeira there appears to be no evidence of any eruptions not coeval with the island.

As for the geological "*locus*" of the subterranean forces of elevation and eruption, it appears to lie here, as in so many other cases, in or beneath a trachytic formation. In Teneriffe the crater of elevation is all trachytic. In Madeira a well-characterized trachytic rock appears in the ravine of Faial, near Porta da Cruz, beneath the crater of elevation, which, as has been stated, consists entirely of basaltic tufas, conglomerates, and lava.

That there is a general identity in the source of all volcanic action no one can doubt who observes the uniformity of volcanic products, under similar conditions, in all parts of the world. It may be presumed, perhaps, that the correspondence and contemporaneousness of earthquakes in distant volcanic *foci* are due to this cause. One of the statements of such a correspondence in Madeira is that "the undulation from the Lisbon earthquake in 1755 reached this island soon

after it visited Portugal." It may be questioned, however, whether we have here an instance of the rapidity of undulations, or rather of the simultaneous exertion of volcanic forces, proportionably affecting at the same moment certain weak points of the surface of the earth. Countries raised by volcanic action so late as the tertiary period appear to be still more subject than others to earthquakes, and Madeira is not an exception to this rule.

APPENDIX.

LIST OF PLANTS, BIRDS, ETC.,

OF

MADEIRA.

From a Sketch by Lady Susan Vernon Harcourt.

English Burial Ground.

See page 35.

APPENDIX.

I.

SIR HANS SLOANE'S LIST OF PLANTS.

The following list of some of the plants of Madeira is curious, as being one of the earliest notices of the botany of the island. It was drawn up by Sir Hans Sloane during his visit to Madeira in 1687 *. In an inner margin of the page are given the Linnæan names, which I found in some marginal pencil notes to an old edition of Sir Hans Sloane's works in the library of West Dean House, Sussex: they are evidently the work of no mean botanist. To these a few corrections are added in brackets, by the Rev. Mr. Lowe, from whose scientific skill and intimate acquaintance with the *Flora* and *Sylva* of the island a more accurate account of its botanical products may hereafter be looked for.

" *Oleastre species ut quidam putant, ut alii Zizyphus alba. Gesn. hort. Germ. fol.* 269. *Olea Sylvestris folio molli incano*, C. B., *Pin.* p. 472.

" Elegans angustifolia. Linn. Sp. pl. 774.

* Voyage to Jamaica, vol. i. p. 7, edit. 1707.

"*Lapthum pulchrum Bononiense sinuatum*, J. B. Fidle Dock.

"Rumex pulcher. Linn. Sp. pl. 774.

"*Jasminum tertium seu humilius magno flore*, C. B., p. 398. *Catalonicum. Park. Parad.*

"Jasminum grandiflorum. Linn. Sp. pl. 9.

"*Arum maximum Ægyptiacum, quod vulgo Colocasia*, C. B., *Pin.*, p. 195.

"This is here planted by river sides in great quantities, for the root's sake, which is eaten, and very much esteemed, the leaves being good for nothing but to wrap up things in.

"Arum colocasia. Linn. Sp. pl. 1368.

"*Arundo Donax sive Cypria Dod.*, p. 602. The great *Spanish* or *Cyprus* Reed and Cane.

"Arundo donax. Linn. Sp. pl. 120.

"*Ruta quarta seu ruta sylvestris minor*, C. B., *Pin.*, p. 332.

"(Ruta angustifolia. Pers.)

"*Hypericon minus. Dod.*, p. 75. The least trailing *St. John's Wort.*

"Hypericum humifusum. Linn. Sp. pl. 1105.

"*Muscus marinus plumiformis ramulis et foliis densissimis capillaceis. Cat. pl. Jam.*, p. 6.

"This, from a broad base sticking to stones, or other solids at the bottom of the sea, rises to be about three inches high, being divided into several branches, and they into twigs, which were subdivided into smaller branches, set with long, round, short leaves, no bigger than hairs,

coming out of opposite sides of the middle rib or stalk, of a glue or darkish yellow colour, which did not crackle under the teeth. They look just like feathers, and were more thick branched and set with twigs than any other of the *Abies-Marina-Belgica* kind I ever saw.

" I found this thrown up by the waves on the shore of the Island of Madeira, near the town of Funchal.

" *Lenticula palustris sexta vel Ægyptiaca, sive stratiotes aquatica foliis sedo majore latioribus*, C. B. *Pin.*, p. 362.

" I found this plant either in the Island of *Madeira* or *Barbadoes* floating on the water, having several capillary brown fibres for its roots, and appearing nerves on the upper sides of the leaves, which, because it seems to differ very little from that of *Alpinus*, this not being *Hirsute*, I take to be the same, and his differing from that of *Veslingius*, but in little, I think them not to be two plants.

" It is used for the same diseases as plantain, either outwardly or inwardly, in juice or the powder to a drachm.

" Because there is no account of the seeds of this, or whether it has any or no, I think this a more proper name for it than that of *Stratiotes*.

" Pistia Stratiotes. Linn. Spec. pl. 1365.
" (Not found in Madeira.)

" *Hemionitis Asari folio, Cat. pl. Jam.*, p. 14.

" The root of this most elegant plant was made up of many brown fibrils, which, towards the surface of the earth, were covered with a *ferrugineous* down, the stalks were many from the same root, blackish, round, and shining, about seven inches high, on the top of which was a round leaf, exactly like that of *Asarum*, about two inches diameter, having veins running from the top of the foot-stalk as from

a common centre through the leaf, which was of the consistence of *Hemionitis*, or *Lingua cervis*. Round the edges, on the under-side, lay the seed in a welt, being *ferrugineous*, as other ferns, and making the leaf appear as if it were indented.

" Adiantum Reniforme. Linn. Sp. pl. 1556.

" *Lonchitis aspera Maranthæ*, J. B. *Raii Hist.*, p. 139.

" (Nothochlæna Marantæ? R. Br.)

" *Adiantum ramosum majus, foliis seu pinnulis tenuibus longis profunde laciniatis obtusis. Cat. pl. Jam.*, p. 22.

" This rises to be a foot and a half, or two feet high, having a reddish pale brown stalk, cornered in the inside, and round on the other, at nine inches or a foot distance from the ground branched; those branches undermost, or next the root, being the largest, about a foot long, having their twigs, on which stand the *Pinnulæ*, or leaves alternatively, they being long, thin, pale green coloured, and divided into long, blunt, narrow sections, or incisures, by several very deep *Laciniæ*.

" Trichomanes Canariense. Linn. Sp. pl. 1562. (?)
" (Adiantum Capellis Veneris? Linn.)

" *Gramen paniceum spica simplici lævi. Raii Hist.*

" Panicum Glaucum. Linn. Sp. pl. 83.
" (Setaria Glauca. Beauv.)

" *Gramen dactylon Siculum multiplici panicula spicis ab eodem exortu genuinis. Raii Hist.*, p. 1271.

" Andropogon hirtum. Linn. Sp. pl. 1482.

" *Gramen tremulum maximum*, C. B. *Raii Hist.*, p 1274.

" Briza Maxima. Linn. Sp. pl. 103.

" *Gramen miliaceum angustifolium altum locustis minimis. Cat. pl. Jam.*, p. 35.

" This had a small, hard, green stalk, or *culmus*, frequently jointed, at each joint, having three or four inches long narrow grassy leaves, and rising to be four or five feet high, the panicle was about six inches long. The little twigs or strings going out of the upper part of the *culmus*, and to which the *locustæ* were fastened were about two inches, taking their beginning from the same part of the stalk, standing round about like so many rays from the centre, at about an inch distance more or less from one another after the manner of oats. The *locustæ* were not scaly, but standing singly by one another, being many and small, having within clay-coloured *glumæ* or chaff, one shining, roundish, small seed, like that of millet.

" Panicum junceum. M. Scr.
" (Panicum repens. Linn.)

" *Gramen avenaceum, panicula minus sparsa, cuja singula grana, tres aristas longissimas habent. Cat. pl. Jam.*, p. 35.

" This grass had a panicle of about six inches long, not very sparse; when ripe, of a reddish yellow colour. The spikes were placed alternately at long intervals, and had set on them by small foot-stalks, several very long grains, each of which had on their uppermost end three very long *aristæ*, by which it may be sufficiently distinguished. The *glumæ* were of the same colour as the panicle, and not awned. The spikes were not many in number.

" Aristida adscensionis. Linn. Sp. pl. 121.
" (Potiùs, Aristida Cœrulescens. Desf.)

"*Urtica, caule lignoso, foliis tenuioribus atrovirentibus. Cat. pl. Jam.*, p. 38.

"This had an upright, cornered, woody stem, solid, and having a fungous pith, being covered with a smooth, reddish brown bark, rising two or three feet high, having joints and branches set opposite to one another, and on which stand, likewise opposite to one another, at the joints the leaves on three-quarters of an inch long foot-stalks. They are very thick set with burning small prickles, being an inch long, and three-quarters broad at round base where broadest, from whence they decrease to their ends, being very much cut in, on the edges thin, and of a dark green colour.

"Urtica urens var. Linn. Sp. pl. 1396.
"(Potiùs, Urtica elevata. Lowe.)

"*Persicaria procumbens longissima, angustifolia, non maculosa, spica longiori, laxiori, et graciliori. Cat. pl. Jam.*, p. 48.

"The root of this plant has several protuberances here and there, as also great numbers of reddish brown strings or filaments scattered up and down in the muddy ground. The stalks are spread round, trailing on the surface of the earth for about four feet in length. They are round, reddish, smooth, jointed at every inch's interval, having a swelling at every joint, and near the top one leaf exactly like that of the ordinary *Hydropiper*, only much narrower and longer. The flowers stand on foot stalks, *ex alis fol.*, and on the top of the branches, like those of the ordinary Arsmart, only they are not so closely put together, but more lax and slender; and to them follows in a green husk a small, shining, black seed, angular, and having two

prickly ends, very like the *Persicaria pusilla repens. Ger. emac.*, only the stalks much longer.

"It grows in the Island of Madeira in a river's bank half a mile beyond the town of Funchal towards the mountain.

"Polygonum Polincoba. H. Ind. Occ.

"(Polygonum Hydropiper, Linn., is not uncommon in Madeira, but Polygonum Minus, to which this description seems to point, does not occur there now.)

"*Blitum vulgare minus surrectum. Munt. pl. Cult., p.* 291.

"Found in the Island of Madeira, near Funchal, and differing in nothing from the ordinary wild, small, white Blite, only it is more erect.

"Amaranthus Blitum. Linn. Sp. pl. 1405.

"*Psyllium majus erectum*, C. B., J. B. *Raii Hist.*, p. 881.

"(Eclipta Erecta. Linn.)

"*Convolvulus altheæ foliis Clus., rar. pl. Hist.*, lib. iv. p. 49.

"I found this plentifully near *Funchal*. It is good to cure wounds, *Clus.*

"(Convolvulus Althæoides. Linn.)

"*Salvia major, folio glauco, serrato. Cat. pl. Jam.*, p. 64.

"This hath square, whitish, *glaucous* stalks, rising two or three feet high, having two leaves standing opposite to one-anothor, on inch foot-stalks, being two inches long, and one broad near the base where broadest, being cut in very deep on the edges, of a dirty green colour on the upper side, and very white underneath, having one middle, and several transverse ribs.

"It grew near *Funchal*, where I gathered it without flowers or seed, so that I am not able to determine its

family. Perhaps it may be a *Marrubium nigrum*, or of some other kind.

"(Teucrium Betonicum. Linn.)

"*Horminum luteum glutinosum*, C. B. *Raii Hist.*, p. 547. *Colus Jovis Ger.*, p. 769.

"Salvia Glutinosa. Linn. Sp. pl. 37.
"(Not at present existing in Madeira.)

"*Origanum spicis latioribus. Cat. pl. Jam.*, p. 65.

"I found this wild in Madeira Island. It has very broad spikes, in which it seems to differ chiefly from *Origanum vulgare.*

"(Origanum Virens. Hoffm.)

"*Hedera terrestris. Cæsalp.*, p. 453.

"I found this near the town of *Funchal.* They use to boil it in their flesh broths in *Germany. Cord.*

"Glecoma Hederacea. Linn. Sp. pl. 807.
"(Does not exist in Madeira now, possibly Sibthorpia Peregrina. Linn.)

"*Trifolium bituminosum seu trifolium cæruleum aut violaceum bitumen redolens. Moris. Hist. pl.*, Part ii., p. 136.

"I found it in the Island of Madeira. The seed from *Italy*, in *Germany*, produces one with smell and taste; but the seed of the *German* sown has neither taste nor smell, C. B.

"Psoralea Bituminosa. Linn. Sp. pl. 1074.

"*Fumaria quinta seu lutea*, C. B. *Pin.*, p. 143.
"*Genistella tinctoria Ger.*, p. 1316.

"Genista Tinctoria. Linn. Sp. pl. 121.
"(Not at present existing in Madeira.)

"*Scorpioides beupleuri folio*, C. B. *Raii*, p. 931.

"(Scorpiurus Sulcata. Linn.)

"*Cicer sativum*, C. B. *Raii Hist.*, p. 917.

"Cicer arietinum. Linn. Sp. pl. 1040.

"*Tithymalus perennis et procerior lini folio acuto. Cat. pl. Jam.*, p. 82.

"This seemed to differ in nothing from the *Tithymalus annuus lini folio acuto Magnol. in Botan. Monsp.* but in this, that the stalks were higher and woody.

"Euphorbia segetalis. Linn. Sp. pl. 657.

"*Plantago quinquenervia cum globulis albis pilosis*, J. B. Tom. iii., lib. xxxi., p. 504.

"(Plantago lanceolata. Linn.)

"*Caryophyllus barbatus sylvestris annuus latifolius multis capsulis simul junctis donatus. Morison, Hist., pl.*, Part ii., p. 568.

"Dianthus prolifer. Linn. Sp. pl. 587.

"*Lychnis hirsuta quarta, seu sylvestris lanuginosa minor*, C. B *Pin.*, p. 306.

"Silene gallica. Linn. Sp. pl. 595. (?)

"*Cistus folio oblongo, integro, glabro, subtus albido, vasculis trigonis. Cat. pl. Jam.* p. 86.

"This shrub was five or six feet high, having a solid stem, covered with a light brown reddish smooth bark, and towards its top being divided into many branches going out opposite the one to the other, having likewise leaves set on them one against another, some being larger than others. The largest are about an inch long, half as broad

in the middle where broadest, smooth, pale, of a pale green colour above and white underneath, with one middle rib, and some transverse nerves, going from it to the sides of the leaf, appearing on its upper side. It has no foot stalk, but out of one of the *alæ* of the leaves, towards the top, rise many brown stalks supporting flowers, which are whitish, with many *stamina*, surrounded by a *pentaphyllous calix*, after which come heads of the same colour, as big as a small pea, being roundish, though acuminated at top, made up of three loculaments or cells, having each on his top an apex. In each of these heads lies great quantities of small, oblong, ash-coloured seed. The head bruised smells very sweet.

"Hypericum erectum. M. Scr.

"*Geranium Altheæ folio*, C.B. *Raii Hist.*, p. 1055.

"Geranium Malacoides. Linn. Sp. pl. 952. (?)

"*Apocynum fruticosum, folio oblongo, acuminato, floribus racemosis. Cat. pl. Jam.*, p. 89.

"This had woody stalks round, and of the bigness of hen's quills, covered with a reddish brown bark, the wood being solid and white, having leaves going out at about an inch distance, always opposite to one another. They stand on half a quarter of an inch foot-stalks, are two inches long, and about three-quarters of an inch broad, near the middle, towards the base where broadest, and whence they decrease, ending in a point which is not very sharp. There is one middle rib, and several transverse ones running through the leaf, which is undivided, smooth, of a yellowish, pleasant green colour. *Ex alis foliorum*, towards the tops come three or four inch long *petioli*, which are branched, and sustain several very small flowers.

"*Trifolium acetosum corniculatum luteum minus repens et etiam procumbens. Moris. Hist. pl.*, p. 183.

"It takes out spots of linen. *Cam.*

"Oxalis corniculata. Linn. Sp. pl. 623.

"*Fœniculum vulgare. Ger. emac.*, p. 1032.

"I found this in the Madeira Island very plentifully.

"Anethum Fœniculum. Linn. Sp. pl. 377.

"(Rectiùs, Fœniculum Peperitum. Dc.)

"*Bupleuron primum sive folio rigido*, C. B. *Pin.*, p. 278.

"It is a sallet herb. *Cæsalp.*

"*Bupleurum tertium minimum. Col. Min. Cogn. Stirp.*, pp. 85, and 247.

"*Heliotropium majus, Gesn. Hort. Germ.*, f. 261.

"I found a plant, something higher than the *Heliotropium majus* is, in *Madeira* Island, but I take it, notwithstanding, to be the same, only it varied in stature from the soil, being in everything else the same.

"Heliotropium Europæum. Linn. Sp. pl. 187.

"*Solanum nonum seu fructisosum bacciferum*, C. B. *Pin.*, p. 166.

"Solanum Pseudo-capsicum. Linn. Sp. pl. 263.

"*Asparagus maritimus crassiore folio*, C. B. *Pin.*, p. 490.

"*Clusius* seems to make this a distinct plant from the *prat. α marit.*, saying they were differing, though in the same place.

"(Asparagus Scoparius? Lowe.)

"*Hieracium stellatum.*, J. B. Tom. ii., lib. xxiv., p. 1014.

"*Hieracium fruticosum foliis tenuissimè coronopi modo divisis. Cat. pl. Jam.*, p. 123.

"From one single, three, or four inches long, crooked,

root, rises a woody, solid, crooked, round, light brown stalk, three feet high, having several small branches towards the top, and now and then tufts of leaves, some bigger, others smaller, but all of them divided or lacinated very minutely, almost into hairs, like the leaves of *Coronopus Ruellii* or *Sophia Chirurgorum*. The flowers are several at top, standing within a *calix* made up of a great many small, long, and narrow leaves, which are reflected when the seed ripens, leaving many small black *pappous* seeds to be carried away with the wind.

"It grew on the stony hills to the eastward of the town of *Funchal*.

"(Tolpis Pectinata. Lowe.)

"*Alypum, sive herba terribilis procerior, cortice cinereo scabro, folio acuminato longiore. Cat. pl. Jam.*, p. 124.

"This rose much higher than the *Herba terribilis narbonensum*, having a hard white wood, with a large pith, a *scabrous* or unequal light brown or gray bark; the branches toward their ends were very thick set with leaves, without any order. They were two inches long, and a third part of an inch broad where broadest, being narrow at the beginning, increasing to the middle, and ending in a point, equal at the edges, with one middle rib, and several transverse ones, of a yellowish green colour. Towards the tops of the twigs, *ex alis fol.*, come the flowers, being several heads, round or spherical, made up of many very small blue flowers, with their *stamina* set round very close together in the same head, to which follows a very small gray *pappous* seed, all over downy.

"(Globularia Salicina. Linn.)

"*Helichrysum secundum seu Helichryso sylvestri flore oblongo similis*, C.B. *Pin.*, p. 265. *Prod.*, p. 123.

"It is good in decoctions for the cholic. *Clus.*

"Conyza Saxatilis. Linn. Sp. pl. 1206. (?)

"*Gnaphalium ad Stœchadis citrinam accedens*, J. B. Tom. iii., lib. xxvi., p. 160.

"I found this both ramose and not ramose.

"Gnaphalium luteo Album. Linn. Sp. pl. 1196. (?)

"*Chrysanthemum aquaticum cannabinum, folio tripartito di viso. Herm. cat. pl.*, p. 146.

"(Bidens leucantha. Willd.)

"*Erica folio coridis sexta, seu major scoparia foliis deciduis*, C. B. *Pin.*, p. 485.

"(Brica Scoparia? Linn.)

"*Genista non spinosa prima, seu angulosa et scoparia*, C. B. *Pin.*, p. 395.

"Common broom. The flowers are eat in sallets, although two ounces of the seed decocted are a vomit, *Mes.*, but not more than radishes, &c., *Lob.* The water of the flowers, or half a drachm of the seed beaten, are good against the stone, *Lon.*

"Spartium Scoparium. Linn. Sp. pl. 996.

"*Myrtus septima, seu sylvestris foliis acutissimis*, C. B. *Pin.*, p. 469.

"I found this very plentifully growing wild in the hedges by the waysides in the Island of Madeira. This is used for currying leather, as *Rhus* or *Lentisk*, *Cæsalp.* The ripe

berries are used for sauce, *Math.*, before pepper was found, as *Pliny* tells us; the fruit of this was made use of in its place.

" Myrtus communis lusitanica. Linn. Sp. pl. 664.

" *Lycium folio oblongo, serrato acuminato spinis minoribus armatum. Cat. pl. Jam.*, p. 171.

" This seemed to differ very little from the common *Lycium*, only the leaves were longer, serrated, and pointed, and the prickles were not so large.

" *Palma prunifera foliis yuccæ, fructu in racemis congestis cerasi formi, duro, cinereo, pisi magnitudine, cujus lachryma sanguis draconis est dicta. Comm. cat. Amst.*, p. 260.

" I found this in the Island of *Madeira*, in the hedges, very plentifully, though not very large. It is found in the islands *Socotora*, *Borneo*, *Canaries*, *Madagascar*, and (*Aluise de Cadamosto ap. Ram.*, pr. vol. p. 105) at *Porto Santo*, where they cut the trees at the foot, and next year find the gum, which they desiccate in water by boiling and purging. The fruit is yellow, and ripe in March, and good to eat.

" The tree is pierced near the bottom, and so yields the gum. The fruit cools and alters, and is proper in fevers. *Cinaber du Dioscorid. Thevet.*

" It is adulterated with *Rubrica* and *Colophony*. *Cæsalp.*

" *Lobels* leaf is the *Spatha*, in all likelihood. *Lugd.*

" The gum is used by goldsmiths for a foile and enamel, and by glaziers for colouring glass. *Park.*

" It is used to strengthen the gums and teeth, in bloody excretions, fluxes, &c. *Joust.*

" Dracæna Draco. Linn. Syst. Nat. 246.

"*Opuntia Maxima, foliis majoribus crassioribus et atrovirentibus, spinis minoribus et paucioribus obsitis. Cat. pl. Jam.*, p. 195.

"This *Indian* fig was in every part exactly the same with the common, only each leaf was broader, thicker, of a darker green colour, and not so prickly, having a very few white short prickles, and sometimes only one, coming out at a hole very like that kind on which comes the cochineal, only it is not quite so free of prickles as that.

"It grows in *Madeira* and in the *Canaries*.

"(Opuntia Tuna. Linn.)"

LIST OF CULTIVATED PLANTS GROWING IN THE GARDENS OF THE PALMEIRA AND THE DEANERY.

As a fair specimen of perennial plants cultivated in a Madeira garden, may be taken the following list, arranged according to the "Natural System of Botany, by John Lindley, 1836," and furnished me by the kindness of C. Bewicke, Esq., being the produce of the garden of the Quinta da Palmeira. To these the names of a few other plants that are found in the garden of the Deanery have been added by C. Conybeare, Esq.

ORDERS.		ENGLISH NAMES.	PORTUGUESE NAMES.
Genera.	Species.		
	PAPAVERACEÆ.		
Chryseis	Californica		
	MAGNOLIACEÆ.		
Magnolia	grandiflora	.....	Magnolia
———	purpurea		

ORDERS.		ENGLISH NAMES.	PORTUGUESE NAMES.
Genera.	Species.		
Magnolia	fuscata		
———	pumila	Dwarf magnolia	
Liriodendron	tulipifera	Tulip tree	Tulipeiro
ANONACEÆ.			
Anona	tripetala	Custard apple	Annona
ARALIACEÆ.			
Hedera	helix	Ivy	Hera
VITACEÆ.			
Vitis	vinifera Several varieties.	Vine	Vinha
PITTOSPORACEÆ.			
Pittosporum	undulatum	.....	Mocaim
ONAGRACEÆ.			
Fuchsia	coccinea	.....	Mimo
———	corymbiflora		
———	serratifolia		
———	fulgens		
———	globosa		
———	arborescens		
	And varieties.		
Œnothera.			
MYRTACEÆ.			
Eucalyptus	robusta		
———	pulverulenta		
Melaleuca	ericifolia	.....	Urze de pluma
Metrosideros	speciosa	Bottle brush	Martinet
———	lanceolata		
Psidium	pomiferum	Guava	Guaveiro
———	catleianum		
Myrtus	communis (native)	Myrtle	Murta
Eugenia	jambos	Rose apple	Jambeiro das Indias
Eugenia	Micheli	Petanga	
Punica	granatum	Pomegranate	Romeira
PHILADELPHACEÆ.			
Philadelphus	grandiflorus	Syringa	
COCURBITACEÆ.			
Sechium	edule	Tchu-tchu	Pepinella

ORDERS.		ENGLISH NAMES.	PORTUGUESE NAMES.
Genera.	Species.		
	CACTACEÆ.		
Echinocactus	eyriesii		
———	ottonis		
Cereus	speciosissimus		
———	triangularis		
———	flagelliformis	.....	Rabo de Macaca
———	serpentinus		
Epiphyllum	truncatum		
Opuntia	tuna	.....	Tabaiba
———	mikrodasis		
Pereskia	aculeata		
	FICOIDEÆ.		
Mesembryanthemum	deltoideum	.....	Amores de rapazes
———	aureum		
———	speciosum		
———	tenuifolium		
	BEGONIACEÆ.		
Begonia	nitida		
———	semperflorens		
———	dregii		
	CRUCIFERÆ.		
Cheiranthus		Wall-flower	Goiveiro
	CAPPARIDACEÆ.		
Cleome	spinosa		
	VIOLACEÆ.		
Viola	Madeirensis	Violet	Violetta
	PASSIFLORACEÆ.		
Passiflora	cœrulea	Passion-flower	Martyrio
———	edulis	.....	Maracujà
———	racemosa	Scarlet passion-flower	
	BIXACEÆ.		
Bixa	orellana	Arnotta	
	GUTTIFERÆ.		
Mammea	Africana	Mammee tree	Mamoeira

ORDERS. Genera.	Species.	English Names.	Portuguese Names.
	TERNSTROMIACEÆ.		
Camellia	Japonica Varieties.	.....	Rosa de Japão
	ACERACEÆ.		
Acer	pseudo platanus	Sycamore	
——	rubrum	Maple	
	SAPINDACEÆ.		
Sapindus	saponaria	Soap-berry	Saboeira
	ÆSCULACEÆ.		
Œsculus	pavia	Horse-chestnut	
	LINACEÆ.		
Linum	trigynum	Flax	
	CISTACEÆ.		
Cistus	ladaniferus	Gum sistus	
	STERCULIACEÆ.		
Bombax	ceiba	Silk cotton tree	Algodão do mato
———	erianthos	Woolly flowered ditto	
	MALVACEÆ.		
Malva			
Hibiscus	rosa sinensis	.....	Cardeal singela
———	mutabilis	Changeable rose	Metamorphose
———	syriacus		
———	heterophyllus		
Abutilon	striatum		
Althæa	rosea	Hollyhock	Malvaeisco
	LYTHRACEÆ.		
Cuphea	miniata		
———	platycentra		
———	strigulosa		
Lagerstræmia	indica		
	MELIACEÆ.		
Melia	azedarach	Bead tree	Sycomoro bastardo

ORDERS. Genera.	Species.	English Names.	Portuguese Names.
	AURANTIACEÆ.		
Citrus	aurantium	Orange	Larangeiro
——	nobilis	Mandarin orange	—— Tangerino
——	vulgaris	Seville orange	
	RHAMNACEÆ.		
Rhamnus	latifolius	.....	Rhamno
Ceanothus	africanus		
	EUPHORBIACEA.		
Buxus	semperflorens	Box	Buxo
———	angustifolia		
———	suffruticosa		
Euphorbia	splendens		
————	bojeri		
————	neriifolia		
————	canariensis		
Poinsettia	pulcherrima	.....	Manhâa de Pascoa
Ricinus	communis	Castor oil plant	
Jatropha	manihot	Cassava	Mandioca
———	curcas	Angular-leaved physic nut	Pinhoês do Brazil
	CELASTRACEÆ.		
Celastrus	cassinoides (native)	Staff tree	
	SILENACEÆ.		
Dianthus	chinensis	Pink	Cravina da Arrabida
———	barbatus	Sweet William	——— barbella
———	caryophyllus	Carnation	Craveiro
———	latifolius		
	TAMARICACEÆ.		
Tamarix	indica	Tamarisk	
	RUTACEÆ.		
Diosma	ericoides	.....	Urze de Cheiro
Melianthus	major	Honey flower	
	GERANIACEÆ.		
Pelargonium	glutinosum	.....	Malva
————	graveolens		
	And many varieties.		

ORDERS.		English Names.	Portuguese Names.
Genera.	Species.		
	OXALIDACEÆ.		
Oxalis	versicolor		
	ROSACEÆ.		
Rosa	multiflora	Rose	Rosa de tocar
——	banksiæ		
——	—— flore luteo		
——	sinica		
——	indica	.....	Rosa de China
——	muscosa	.....	Rosa de Musgo
	And varieties.		
Fragaria	3 varieties	Strawberry	Morango
	Suborder, POMEÆ.		
Eriobotrya.	japonica	Loquat	Nesperas de Japão
Cydonia	vulgaris	Quince	Marmuleiro
Pyrus	communis	Pear	Pereiro
——	japonica		
	Suborder, AMYGDALEÆ.		
Amygdalus	communis	Almond	Amendoeira
——	persica	Peach	Pecegueiro
Prunus	laurocerasus	Laurel (so called)	Loirocerejo
	LEGUMINOSÆ.		
	(Tribe, Papilionaceæ.)		
Edwardsia			
Robinia	pseud-acacia	Common acacia	Acacia bastarda
Coronilla	glauca		
Kennedya	monophylla		
——	rubicunda		
Wisteria	sinensis		
Phaseolus	caracalla	.....	Caracoleiro
Erythrina	poianthus	Coral tree	
——	velutina		
——	cristagalli	.....	Arvore de Coral
——	caffra	Cape coral tree	
	(Tribe, Cæsalpiniæ.)		
Gleditschia	triacanthos	Honey locust tree	
Cæsalpinia	Sappan		
Poinciana	pulcherrima	Flower fence	

ORDERS.		ENGLISH NAMES.	PORTUGUESE NAMES.
Genera.	Species.		
Cassia	lævigata		
Cercis	siliquastrum	Judas tree	Olaya
Ceratonia	siliqua	Carob tree	Alfaroba
(Tribe, Mimoseæ.)			
Acacia	dealbata		
——	verticillata		
——	farnesiana	.....	Aroma
——	leucocephala		
——	lophantha		
——	plumosa		
SAXIFRAGACEÆ.			
Hydrangea	hortensis	.....	Novellos
Saxifraga	sarmentosa		
CRASSULACEÆ.			
Rochea	falcata	.....	Flor de Misanga
Crassula	lactea		
———	arborescens		
Bryophyllum	calycinum		
Cotyledon	coccinea		
———	orbiculata		
Sempervivum	glutinosum (native)	House leek	Ensayâo
ANACARDIACEÆ.			
Rhus		Sumach	Sumagre
Mangifera	indica	Mango	Mangueira
Pistacia	terebinthus	Cyprus turpentine tree	
CUPULIFERÆ.			
Castanea	vesca (native)	Chestnut	Castanheiro
Quercus	ilex	Oak	Carvalho
———	robur		
———	pedunculata		
———	coccinea		
———	suber	Cork tree	Sovereiro
Fagus	sylvatica	Beech	
URTICACÆ.			
Morus	nigra	Mulberry	Amoreira
Ficus	carica	Fig	Figueira
——	stipulata		
——	comosa		
——	elastica	Caoutchouc	

ORDERS.		ENGLISH NAMES.	PORTUGUESE NAMES.
Genera.	Species.		
	ULMACEÆ.		
Celtis	australis	Nettle tree	
	PIPERACEÆ.		
Peperonica	inæqualifolia		
	SALICACEÆ.		
Salix	Babylonica	Weeping willow	Choradeira
Populus	dilatata	Poplar	Alemo
	PLATANACEÆ.		
Platanus	orientalis	Plane	Platano
———	occidentalis		
	LAURACEÆ.		
Oreodaphne	fœtens (native)	.....	Til
Persea	indica (native)	.....	Vinhatico
——	gratissima	Avocado pear	
Laurus	barbusano (native)	.....	Barbusano
——	canariensis (native)	.....	Louro
——	camphora	Camphor tree	Camphoreiro
	PHYTOLACCACEÆ.		
Phytolacca	decandra	Virginian poke	
	NYCTAGINACEÆ.		
Mirabilis	jalapa	Marvel of Peru	Boninas
	ERICACEÆ.		
Erica		Heath	Urze da Serra
Arbutus	unedo	Strawberry tree	Medronheiro
Azalea	indica	.....	Azalia
———	pontica		
	SAPOTACEÆ.		
Chrysophyllum	monopyrenum	Star apple	
	LOBELIACEÆ.		
Lobelia	cardinalis		
———	pubescens		
	CONVOLVULACEÆ.		
Ipomea	tuberosa	Yellow cable plant	

ORDERS.		ENGLISH NAMES.	PORTUGUESE NAMES.
Genera.	Species.		
	CAMPANULACEÆ.		
Campanula	pyramidalis	Bell flower	
Trachelium	cœruleum	Throatwort	
Adenophora	suaveolens		
	CINCHONACEÆ.		
Gardenia	radicans		
———	florida	Cape Jasmine	
Coffea	arabica	Coffee	Caffeiro
	CAPRIFOLIACEÆ.		
Weigelia	rosea		
Caprifolium	etruscum	Honeysuckle	Madre de sylva
———	confusum		
Viburnum	tinus	Laurestinus	Louro regio
	COMPOSITÆ.		
Dahlia	superflua		
Gaillardia	picta		
Humea	elegans		
Cineraria	amelloides		
———	maritima		
Sonchus	pinnatus (native)	Sowthistle	Mal me quer de rocha
Kleinia	neriifolia		
	GLOBULARIACEÆ.		
Globularia	longifolia (native)	.....	Malforado
	PLUMBAGINACEÆ.		
Plumbago	capensis	Leadwort	
	EHRETACEÆ.		
Heliotropium	peruvianum	Heliotrope	Balsama
	BORAGINACEÆ.		
Echium	simplex		
———	nervosum (native)	Pride of Madeira	Penacho azul da rocha
	LABIATÆ.		
Salvia	patens	.....	Salva
——	splendens		
——	mexicana		
——	involucrata	.....	Camarâo
——	officinalis		

ORDERS.		ENGLISH NAMES.	PORTUGUESE NAMES.
Genera.	Species.		
Leonotis	leonurus		
Mentha		Mint	Hortelâa
VERBENACEÆ.			
Duranta	ellisia		
———	microphylla		
Lantana	aculeata		
Lippia	citriodora	Verbena	Pexegueiro Ingles
Clerodendron	fragrans		
———	viscosum		
Verbena	melindrus	Verbena	Guarnicâo de jardim
BIGNONIACEÆ.			
Bignonia	radicans		
———	stans		
———	venusta		
———	capensis		
Catalpa	syringifolia		
Crescentia	cucurbitina	Round - fruited Calabash	Cuja
ACANTHACEÆ.			
Acanthus	mollis	.....	Gigante
Justicia	adhatoda		
Eranthemum	pulchellum		
GESNERACEÆ.			
Gesnera	zebrina		
Gloxinia	speciosa		
Achimenes	pulchella		
———	longiflora		
SCROPHULARIACEÆ.			
Calceolaria	integrifolia		
Maurandya	barclayana		
———	rosea superba		
———	semperflorens		
Lophospernum	scandens		
———	hendersoni		
Russellia	juncea		
Mimulus			
Diplacus	puniceus		
Penstemon			
Paulownia	imperialis		

ORDERS.		ENGLISH NAMES.	PORTUGUESE NAMES.
Genera.	Species.		
Alonsoa	urticæfolia		
Veronica	speciosa		
Brunsfelsia	americana		
	SOLANACEÆ.		
Capsicum	frutescens	.....	Pimenteiro
Solandra	grandiflora		
Datura	fastuosa		
Brugmansia	suaveolens	.....	Trombetas
———	sanguinea		
Petunia	nyataginiflora		
———	phenicia		
Solanum	pseudo capsicum		
	CESTRACEÆ.		
Cestrum	vespertinum	.....	Bellas noites
	APOCYNACEÆ.		
Nerium	oleander	Oleander	Sevandilha
———	—— (white variety)		
Vinca	rosea	Periwinkle	
———	major	.....	Congossa
Plumieria	rubra		
	ASCLEPIADACEÆ.		
Stapelia			
Hoya	carnosa	.....	Flor de cera
Asclepias	curassavica		
	OLEACEÆ.		
Olea	Europea	Olive	Oliveira
——	fragrans	Sweet olive	Magnolia de cheiro
Ligustrum	vulgaris	Privet	Alfeneiro
Fraxinus	excelsior	Ash	Freixo
	JASMINACEÆ.		
Jasminum	odoratissimum (native)	Jasmine	Jasmin
———	grandiflorum		
	CYENDACEÆ.		
Cycas	revolnta		
	CONIFERÆ.		
Pinus	pinea	Stone pine	Pinheiro manso

ORDERS.		ENGLISH NAMES.	PORTUGUESE NAMES.
Genera.	Species.		
Pinus	pinaster		
——	canariensis	Canary pine	
Larix	cedrus	.....	Cedro
Taxodium	distichum	Deciduous cypress	
Cupressus	sempervirens stricta	Cypress	Cypreste
——	—— horizontalis		
——	lusitanica		
Juniperus	oxycedrus (native)	.....	Cedro da Serra
Thuja	occidentalis		
Araucaria	braziliensis		
	TAXACEÆ.		
Salisburia	adiantifolia		
	ZINGIBERACEÆ.		
Hedychium	gardnerianum	Garland flower	
——	angustifolium		
Alpinia	nutans	.....	Roca de Venus
Zingiber	officinale	Ginger	Ginga
Curcuma	leucorhiza	East India arrow root	Batatinha
	MARANTACEÆ.		
Calathea	zebrina		
Canna	indica	Indian shot	Cana de India
——	speciosa		
——	lutea		
	MUSACEÆ.		
Strelitzia	ovata		
——	angusta		
Musa	paradisaica	Banana	Bananeira
——	sapientum		
——	coccinea		
——	cavendishii		
	AMARYLLIDACEÆ.		
Furcræa	gigantea		
Agave	americana	Aloe	Piteira
——	—— variegata		
Narcissus	jonquilla		
——	orientalis		
——	odorus		
Pancratium			
Amaryllis	formosissima	.....	Seraphim
——	belladonna (native)		Belladonna

ORDERS.		ENGLISH NAMES.	PORTUGUESE NAMES.
Genera.	Species.		
Amaryllis	reginæ	Mexican lily	Rachael
———	longifolia		
Nerine	sarniensis	Guernsey lily	
———	undulata		
Crinum	amabile		
	IRIDACEÆ.		
Gladiolus	segetum		
———	psittacinus		
———	Herbert's hybrids, various		
Tritonia	crocata		
———	longiflora		
———	fenestrata		
Tigridia	pavonia	Tiger flower	Flor d'um dia
Ferraria	undulata	.....	Flor de abelha
Iris	florentina	Lirio	
——	Xiphium		
——	biflora		
	BROMELIACEÆ.		
Bromelia	ananas	Pine apple	Ananaz
	PALMACEÆ.		
Phœnix	dactylifera	Date palm	Palmeira
Cocos	nucifera	Cocoa nut	
	LILIACEÆ.		
Lilium	lancifolium	.....	Lirio
———	bulbiferum		
———	tigrinum		
———	candidum	.....	Sucena
Scilla	hyacinthoides (native)	.....	Alvarrâa
——	peruviana	.....	—— do Peru
Hemerocallis	fulva		
Agapanthus	umbellatus	.....	Coroa de Henrique
Allium	moly		
Ruscus	androgynus (native)	.....	Allegra campo
Dracæna	draco (native)	Dragon tree	Dragoeiro
———	ferrea		
———	australis		
Phormium	tenax	New Zealand flax	
Yucca	filamentosa		
———	aloifolia		

ORDERS.		ENGLISH NAMES.	PORTUGUESE NAMES.
Genera.	Species.		
Aloe	verrucosa		
——	arborescens		
——	plicatilis		
——	saponaria		
——	humilis		
	COMMELINACEÆ.		
Tradescantia	virginica		
————	discolor		
————	zebrina		
	SMILACEÆ.		
Smilax	aspera	.....	Lagacâo
	PANDANACEÆ.		
Pandanus	odoratissimus	Screw pine	
	ARACEÆ.		
Calla	ethiopica	.....	Jarros
Caladium	seguinum	Dumb cane	
Arum	dracunculus (native)	.....	Dracunculo
——	colocasia	Yam (so called)	Inhame
	GRAMINACEÆ.		
Arundo	donax	Cane	Cana
————	—— versicolor		
Bambusa	arundinacea	Bamboo	Cana de Brazil
Saccharum	officinarum	Sugar-cane	Cana d'assucar.

N.B. The Portuguese names are generally those used in the island of Madeira, with a few added from the "Compendio de Botanica" of Brotero.

II.

LIST OF BIRDS THAT BREED IN MADEIRA.

Latin Name.	English Name.	Portuguese Name.
1. Falco tinnunculus.—Linn.	Kestrel	Francelho
2. —— buteo.—Linn.	Buzzard	Manta
3. Strix flammea.—Linn.	Barn owl	Coruja
4. Turdus merula.—Linn.	Blackbird	Mérlo-preto
5. Sylvia rubecula.—Lath.	Redbreast	Papinho
6. —— atricapilla.—Lath.	Black-cap warbler	Tinto-Negro
(Corruca Heineken.—Jard.)	Variety of the former	Tinto-Negro de Capello
7. Corruca conspicillata.—Gould.	Spectacle warbler	.....
8. Regulus madeirensis.—Mihi.	.....	Abibe
9. Motacilla boarula.—Linn.	Gray wagtail	Lavandeira amarella
10. Anthus pratensis.—Bechst.	Meadow pipet	Corre de Caminho
11. Fringilla butyracea.—Linn.	Green or wild canary	Canario
12. —— carduelis.—Linn.	Goldfinch	Pinta Silva
13. —— petronia.—Linn.	Ring sparrow	Pardâo
14. —— tintillon.—Webb and Berthelot	Buff-breasted Chaffinch	Tentilhâo
15. —— cannabina.—Linn.	Greater redpole or linnet	Tinto roxo
16. Cypselus unicolor.—Jard.	Lesser swift	Andorinha da Serra
17. —— murarius.—Temm.	Common swift	—— do Mar
18. Columba trocaz.—Hein.	Long-toed wood pigeon	Trocaz
19. —— palumbus.—Linn.	Ringdove	Pombo
20. —— livia.—Briss.	Rock pigeon	Pombinho
21. Perdix rubra.—Briss.	Red-legged partridge	Perdiz
22. —— coturnix.—Lath.	Quail	Cordonez
23. Scolopax rusticola.—Linn.	Woodcock	Gallinhola
24. Sterna hirundo.—Linn.	Tern	Garajâo
25. Larus argentatus.—Brunn.	Herring gull	Gaio, Guivata (after third aut. moult)
26. Procellaria puffinus.—Linn.	Cinereous shearwater	Cagarra
27. —— anglorum.—Temm.	Manks shearwater	Boeiro
28. —— obscura.—Gmel.	Dusky petrel	Pintainho

Latin Name.	English Name.	Portuguese Name.
29. Thalassidroma anginho.—Hein.	Angel petrel	Anginho
Thalassidroma Bulwerii.—Jard.	Bulwer's petrel	
30. Thalassidroma castro.—Mihi.	.....	Roque de Castro

LIST OF STRAGGLERS IN MADEIRA.

Latin Name.	English Name.	Authority*.
31. Cathartes percnopterus.—Temm.	Egyptian vulture	* * *
32. Falco nisus.—Linn.	Sparrow hawk	* * *
33. Corvus corax.—Linn.	Raven	* * *
34. —— corone.—Linn.	Carrion crow	Mr. Lowe
35. Oriolus gabula.—Linn.	Golden oriole	* * *
36. Sturnus vulgaris.—Linn.	Common starling	* * *
37. Turdus iliacus.—Linn.	Redwing	Mr. Lowe
38. ——— musicus.—Linn.	Common thrush	Mr. Penfold
39. Sylvia hortensis.—Lath.	Greater pettychaps	Mr. Penfold
40. Troglodytes Europæus.—Selb.	Common wren	Mr. Lowe
41. Motacilla alba.—Linn.	Pied wagtail	* * *
42. Alanda arvensis.—Linn.	Skylark	Mr. Lowe
43. Fringilla chloris.—Linn.	Greenfinch or grosbeak	* * *
44. ——— domestica.—Linn.	Common sparrow	Mr. Penfold
45. Cuculus canorus.—Linn.	Cuckow	* * *
46. Musaphaga Africana.—Temm.	African bee-eater	Mr. Penfold
47. Upupa epops.—Linn.	Hoopoe	* * *
48. Merops apiaster.—Linn.	Bee-eater	Mr. Lowe
49. Alcedo ispida.—Linn.	Kingfisher	Mr. Lowe
50. Hirundo urbica.—Linn.	House martin	* * *
51. ——— rustica.—Linn.	Chimney swallow	* * *
52. ——— riparia.—Linn.	Bank martin	Doubtful
53. Caprimulgus Europæus.—Linn.	European goatsucker	Mr. Hinton
54. Columba ænas.—Linn.	Stock dove	Mr. Lowe
55. ——— turtur.—Linn.	Turtle dove	* * *
56. Œdicnemus crepitans.—Temm.	Thick-knee	Mr. Lowe
57. Calidris arenaria.—Ill.	Sanderling	Mr. Lowe
58. Vanellus cristatus.—Meyer	Crested lapwing	* * *
59. Charadrius hiaticula.—Linn.	Ringed plover	Mr. Lowe

* The stars refer to the Author's own observations.

Latin Name.	English Name.	Authority.
60. Charadrius pluvialis.—Linn.	Golden plover	Mr. Hewitson
61. Strepsilus interpres.—Leach	Turnstone	Mr. Lowe
62. Ciconia nigra.—Temm.	Black stork	Mr. Lowe
63. Ardea cinerea.—Lath.	Common heron	* * *
64. ——— russata.—Wagler	Buff-backed heron	* * *
65. ——— purpurea.—Linn.	Purple heron	* * *
66. ——— minuta.—Linn.	Little heron, or bittern	* * *
67. ——— stellaris.—Linn.	Common bittern	Mr. Lowe
68. ——— nycticorax.—Linn.	Night heron	* * *
69. Limosa melanura.—Leislor	Black-tailed godwit	* * *
70. Numenius arquata.—Lath.	Common curlew	Mr. Hinton
71. ——— phæopus.—Temm.	Whimbrel	Mr. Lowe
72. Tringa pugnax.—Linn.	Ruff	* * *
73. ——— subarquata.—Temm.	Pigmy curlew	Mr. Lowe
74. ——— variabilis.—Meyer	Dunlin	* * *
75. ——— cinerea.—Temm.	Knot	Mr. Lowe
76. Totanus hypoleucos.—Temm.	Sandpiper	* * *
77. ——— glottis.—Bechst.	Greenshank	* * *
78. Scolopax gallinago.—Linn.	Common snipe	Mr. Hinton
79. ——— major.—Temm.	Great or solitary snipe	* * *
80. Crex Baillonii.—Temm.	Baillon's crake	* * *
81. ——— pratensis.—Selb.	Landrail, or corn crake	Mr. Lowe
82. Gallinula chloropus.—Lath.	Gallinule, or water hen	* * *
83. Fulica atra.—Linn.	Coot	* * *
84. Anser segetum.—Steph.	Bean goose	* * *
85. Marecea Penelope.—Selb.	Wigeon	Mr. Penfold
86. Anas crecca.—Linn.	Teal	* * *
87. ——— boschas.—Linn.	Mallard, or common duck	Mr. Penfold
88. Sterna nigra.—Linn.	Black tern	Mr. Lowe
89. ——— Dougalli.—Mont.	Roseate tern	Sir W. Jardine
90. Larus tridactylus.—Lath.	Kittiwake	* * *
91. Lestris cataractes.—Temm.	Skua	* * *
92. Colymbus glacialis.—Linn.	Northern diver	* * *
93. Sula alba.—Temm.	Gannet, or solan goose	Mr. Lowe
94. Thalassidroma Leachii.—Temm.	Leach's petrel	Sir W. Jardine
95. ——— pelagica.—Linn.	Stormy petrel	Doubtful

III.

TABLES OF NAVIGATION.

THE subjoined tables of navigation, with which I have been favoured by Mr. Caldbeck, commander of the Madeira packet brig "Brilliant," may prove interesting and useful to such as contemplate a yacht voyage to Madeira.

"Some difference of opinion appearing to exist as to the actual distance between Southampton and Funchal, I beg to offer you the results of a few calculations I have worked with reference to the subject. The maritime positions are deduced from Table 8, in the 'Practice of Navigation,' by Lieutenant Raper, R.N., and which valuable book has obtained for its author the prize of the gold medal of the Royal Geographical Society.

"The various points assumed in the route are those which would successively be reached by a ship bound to Madeira, with a fair wind, and in moderate weather. A probability of a scant wind (*i. e.* a breeze barely permitting the vessel to pursue her course), or the circumstance of a mountainous north-westerly swell, rolling in from the Atlantic upon the rugged shores of Gallicia, would of course tend to modify this track in some measure.

"To those possessing yachts and sufficiently ambitious to wish to vary the monotony of cruizes 'round the Bramble,' 'up Southampton Water,' and 'down to Bembridge,' by a dash into the western wave, the Table of Courses and Distances may be of use; while, with regard to the navigation of those seas to which the table refers, any modern book of sailing directions is sufficiently explicit.

"Much stress having lately been laid upon the advantages to be derived from sailing upon the orthodromic curve, com-

monly called 'Great Circle Sailing,' it is as well to remark that, when sailing from Southampton to Madeira, the rhumb line (or track cutting all meridians at the same angle) approximates so closely to an arc of a great circle, owing to the very trifling difference of longitude between the positions as compared with the difference of latitude, that the unsophisticated seaman, while shaping his course by either Mercator's or middle latitude sailing, is, without knowing it, sailing closely upon an arc of a great circle, and consequently upon the most direct route. For example, the distance between the Lizard Point in England and Funchal is, by Mercator's sailing, 1164 geographical miles, and by great circle sailing 1163, only one mile shorter.

"I add, for the benefit of the amateur sailor, this case worked out both by the usual method (Mercator's sailing) and by great circle sailing.

"MERCATOR.

"Let difference of latitudes $= a$, and meridional diff. of lats. $= n$; diff. of longitude $= \Delta$; bearing, or course, $= \odot$; distance required $= x$.

"TO FIND THE COURSES.

$n = 1389$	Log . .	3·145507
	Radius .	10·000000
$\Delta = 703$	Log . .	2·846955
$\odot =$ S. 26·42′ W.	Tangent .	9·701448

"TO FIND THE DISTANCE.

Radius	10·000000
$a = 1040$ Log	3·017033
$\odot = 26{\cdot}42'$ Secant . . .	10·048968
$x = 1164$ Log.	3·066001

"GREAT CIRCLE SAILING.

"Let co-latitude of Lizard $= \beta$; co-lat. of Funchal $= \gamma$; difference of longitude $= \Delta$; difference of co-latitude $= \mu$; bearing from Lizard $= \lambda$; bearing from Funchal $= \phi$; distance required $= x$.

"TO FIND THE DISTANCE.

$\beta = 40°$	02′	sine	9·808368
$\gamma = 57$	22	sine	9·925384
$\Delta = 11$	43	log sine sq. . .	8·017789
		Constant log .	6·301030

Natural number 11287 = 4·052571 log.

$\mu = 17°$ 20′ ver. sine 045412

056699 versed sine 19° 23′

× 60

Miles 1163 $= x$

"TO FIND THE BEARINGS.

$x = 19°$	23′	sine	9·520990	. . . . .	sine	9·520990
$\Delta = 11$	43	sine	9·307650	. . . . .	sine	9·307650
$\gamma = 57$	22	sine	9·925384	. $\beta = 40°$	02′	sine	9·808368
31° 01′ 02″			=9·712044				9·595028
180				23° 10′ 37″ $= \phi$			
148 58 58 $= \lambda$							

"TABLE OF COURSES AND DISTANCES.

Various Points determined.	Latitude North.	Longitude West.	Courses. True.	Courses. Magnetic.	Distances in Geog. Miles.
From Southampton Dock to Calshot Light-vessel			Various	Various	7
Calshot Light to Hurst Castle			Ditto	Ditto	12·2
Hurst Castle to the Needles	50° 40′	1° 34′	Ditto	Ditto	3
Needles to a position 15 miles to the S. of Start Point	49 57	3 39	S. 61° 49′ W.	W. ¼ S.	91·0
Position off Start to a fairway in Chops of Channel	48 45	6 00	S. 53 41 W.	W. by S.	121·6
Fairway of Channel to a position 30 leagues W. of C. Finisterre	42 55	11 20	S. 32 28 W.	S.W. by W.	414·8
Position off C. Finisterre to one 5 miles south of Porto Santo	32 59	16 17	S. 21 24 W.	S.W. Southerly	640·0
Position off Porto Santo to one 3 miles off Point St. Lourenço	32 40	16 39	S. 45 00 W.	S.W. by W. ¾ W.	26·9
Position off St. Lourenço to one 2½ miles off Brazen Head	32 35	16 51	S. 63 26 W.	W. ½ S.	11·2
Position off Brazen Head to Mr. Veitch's house, Funchal	32 38	16 55	N. 53 12 W.	W. by N. ½ N.	5·0
				Miles	1332·7

J. B. CALDBECK,
'Brilliant,'
Funchal Roads.

January 24th, 1851.

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