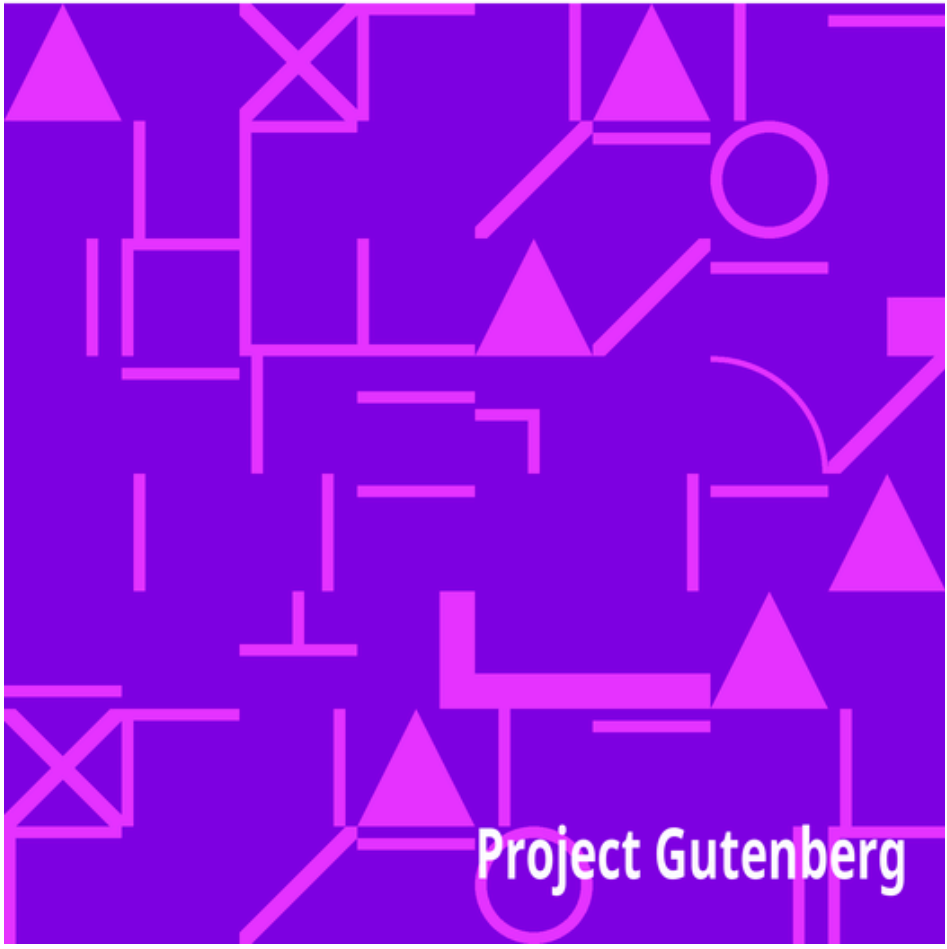
A Voyage to New Holland, Etc. in the Year 1699

William Dampier



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Title: A Voyage to New Holland, Etc. in the Year 1699

Author: William Dampier

Release date: April 21, 2005 [eBook #15675]
Most recently updated: December 14, 2020

Language: English

Other information and formats: www.gutenberg.org/ebooks/15675

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A VOYAGE TO NEW HOLLAND ETC.

IN THE YEAR 1699.

Wherein are described, The Canary Islands, the Isles of Mayo and St. Jago. The Bay of All-Saints, with the forts and town of Bahia in Brazil. Cape Salvador. The winds on the Brazilian coast. Abrolho Shoals. A table of all the variations observed in this voyage. Occurrences near the Cape of Good Hope. The course to New Holland. Shark's Bay. The isles and coast, etc. of New Holland.

Their inhabitants, manners, customs, trade, etc. Their harbours, soil, beasts, birds, fish, etc. Trees, plants, fruits, etc.

Illustrated with several maps and draughts: also divers birds, fishes and plants not found in this part of the world, curiously engraven on copper plates.

BY CAPTAIN WILLIAM DAMPIER.

THE THIRD EDITION.

LONDON,

Printed for James and John Knapton at the Crown in St. Paul's Churchyard.

1729.

MAP. CAPTAIN DAMPIER'S NEW VOYAGE TO NEW HOLLAND ETC. IN 1699 ETC.

Captain William Dampier painted by T. Murray, 1698.

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A VOYAGE TO NEW HOLLAND, ETC. IN THE YEAR 1699.

DEDICATION.

To the Right Honourable Thomas, Earl of Pembroke,

Lord President of Her Majesty's Most Honourable Privy Council.

My Lord,

The honour I had of being employed in the service of his late Majesty of illustrious memory, at the time when Your Lordship presided at the Admiralty, gives me the boldness to ask your protection of the following papers. They consist of some remarks made upon very distant climates, which I should have the vanity to think altogether new, could I persuade myself they had escaped Your Lordship's knowledge. However I have been so cautious of publishing any thing in my whole book that is generally known that I have denied myself the pleasure of paying the due honours to Your Lordship's name in the Dedication. I am ashamed, My Lord, to offer you so imperfect a present, having not time to set down all the memoirs of my last voyage: but, as the particular service I have now undertaken hinders me from finishing this volume, so I hope it will give me an opportunity of paying my respects to Your Lordship in a new one.

The world is apt to judge of everything by the success; and whoever has ill fortune will hardly be allowed a good name. This, My Lord, was my unhappiness in my late expedition in the Roebuck, which foundered through perfect age near the island of Ascension. I suffered extremely in my reputation by that misfortune; though I comfort myself with the thoughts that my enemies could not charge any neglect upon me. And since I have the honour to be acquitted by Your Lordship's judgment I should be very humble not to value myself upon so complete a vindication. This and a world of other favours which I have been so happy as to receive from Your Lordship's goodness, do engage me to be with an everlasting respect,

My Lord,

Your Lordship's most faithful and obedient servant,

WILL. DAMPIER.

THE PREFACE.

The favourable reception my two former volumes of voyages and descriptions have already met with in the world gives me reason to hope that, notwithstanding the objections which have been raised against me by prejudiced persons, this third volume likewise may in some measure be acceptable to candid and impartial readers who are curious to know the nature of the inhabitants, animals, plants, soil, etc. in those distant countries, which have either seldom or not at all been visited by any Europeans.

It has almost always been the fate of those who have made new discoveries to be disesteemed and slightly spoken of by such as either have had no true relish and value for the things themselves that are discovered, or have had some prejudice against the persons by whom the discoveries were made. It would be vain therefore and unreasonable in me to expect to escape the censure of all, or to hope for better treatment than far worthier persons have met with before me. But this satisfaction I am sure of having, that the things themselves in the discovery of which I have been employed are most worthy of our diligentest search and inquiry; being the various and wonderful works of God in different parts of the world: and however unfit a person I may be in other respects to have undertaken this task, yet at least I have given a faithful account, and have found some things undiscovered by any before, and which may at least be some assistance and direction to better qualified persons who shall come after me.

It has been objected against me by some that my accounts and descriptions of things are dry and jejune, not filled with variety of pleasant matter to divert and gratify the curious reader. How far this is true I must leave to the world to judge. But if I have been exactly and strictly careful to give only true relations and descriptions of things (as I

am sure I have) and if my descriptions be such as may be of use not only to myself (which I have already in good measure experienced) but also to others in future voyages; and likewise to such readers at home as are more desirous of a plain and just account of the true nature and state of the things described than of a polite and rhetorical narrative: I hope all the defects in my style will meet with an easy and ready pardon.

Others have taxed me with borrowing from other men's journals; and with insufficiency, as if I was not myself the author of what I write but published things digested and drawn up by others. As to the first part of this objection I assure the reader I have taken nothing from any man without mentioning his name, except some very few relations and particular observations received from credible persons who desired not to be named; and these I have always expressly distinguished in my books from what I relate as of my own observing. And as to the latter I think it so far from being a diminution to one of my education and employment to have what I write revised and corrected by friends that, on the contrary, the best and most eminent authors are not ashamed to own the same thing, and look upon it as an advantage.

Lastly I know there are some who are apt to slight my accounts and descriptions of things as if it was an easy matter and of little or no difficulty to do all that I have done, to visit little more than the coasts of unknown countries, and make short and imperfect observations of things only near the shore. But whoever is experienced in these matters, or considers things impartially, will be of a very different opinion. And anyone who is sensible how backward and refractory the seamen are apt to be in long voyages when they know not whither they are going, how ignorant they are of the nature of the winds and the shifting seasons of the monsoons, and how little even the officers themselves generally are skilled in the variation of the needle and the use of the azimuth compass; besides the hazard of all outward accidents in strange and unknown

seas: anyone, I say, who is sensible of these difficulties will be much more pleased at the discoveries and observations I have been able to make than displeased with me that I did not make more.

Thus much I thought necessary to premise in my own vindication against the objections that have been made to my former performances. But not to trouble the reader any further with matters of this nature; what I have more to offer shall be only in relation to the following voyage.

For the better apprehending the course of this voyage and the situation of the places mentioned in it I have here, as in the former volumes, caused a map to be engraven with a pricked line representing to the eye the whole thread of the voyage at one view, besides charts and figures of particular places, to make the descriptions I have given of them more intelligible and useful.

Moreover, which I had not opportunity of doing in my former voyages; having now had in the ship with me a person skilled in drawing, I have by this means been enabled, for the greater satisfaction of the curious reader, to present him with exact cuts and figures of several of the principal and most remarkable of those birds, beasts, fishes and plants, which are described in the following narrative; and also of several which, not being able to give any better or so good an account of, as by causing them to be exactly engraven, the reader will not find any further description of them, but only that they were found in such or such particular countries. The plants themselves are in the hands of the ingenious Dr. Woodward. I could have caused many others to be drawn in like manner but that I resolved to confine myself to such only as had some very remarkable difference in the shape of their principal parts from any that are found in Europe. I have besides several birds and fishes ready drawn, which I could not put into the present volume because they were found in countries to the description whereof the following narrative does not reach. For, being obliged to prepare for another voyage sooner than I at first expected, I have not been able to

continue the ensuing narrative any further than to my departure from the coast of New Holland. But if it please God that I return again safe, the reader may expect a continuation of this voyage from my departure from New Holland till the foundering of my ship near the island of Ascension.

In the meantime to make the narrative in some measure complete I shall here add a summary abstract of the latter part of the voyage, whereof I have not had time to draw out of my journals a full and particular account at large. Departing therefore from the coast of New Holland in the beginning of September 1699 we arrived at Timor September 15 and anchored off that island. On the 24th we obtained a small supply of fresh water from the governor of a Dutch fort and factory there; we found also there a Portuguese settlement and were kindly treated by them. On the 3rd of December we arrived on the coast of New Guinea; where we found good fresh water and had commerce with the inhabitants of a certain island called Pulo Sabuda. After which, passing to the northward, we ranged along the coast to the easternmost part of New Guinea, which I found does not join to the mainland of New Guinea, but is an island, as I have described it in my map, and called it New Britain.

It is probable this island may afford many rich commodities, and the natives may be easily brought to commerce. But the many difficulties I at this time met with, the want of convenience to clean my ship, the fewness of my men, their desire to hasten home, and the danger of continuing in these circumstances in seas where the shoals and coasts were utterly unknown and must be searched out with much caution and length of time, hindered me from prosecuting any further at present my intended search. What I have been able to do in this matter for the public service will, I hope, be candidly received; and no difficulties shall discourage me from endeavouring to promote the same end whenever I have an opportunity put into my hands.

May 18 in our return we arrived at Timor. June 21 we passed by part of the island Java. July 4 we anchored in Batavia Road, and I went ashore, visited the Dutch General, and desired the privilege of buying provisions that I wanted, which was granted me. In this road we lay till the 17th of October following, when, having fitted the ship, recruited myself with provisions, filled all my water, and the season of the year for returning towards Europe being come, I set sail from Batavia, and on the 19th of December made the Cape of Good Hope, whence departing January 11 we made the island of St. Helena on the 31st; and February the 21st the island of Ascension; near to which my ship, having sprung a leak which could not be stopped, foundered at sea; with much difficulty we got ashore where we lived on goats and turtle; and on the 26th of February found, to our great comfort, on the south-east side of a high mountain, about half a mile from its top, a spring of fresh water. I returned to England in the Canterbury East India ship. For which wonderful deliverance from so many and great dangers I think myself bound to return continual thanks to Almighty God; whose divine providence if it shall please to bring me safe again to my native country from my present intended voyage; I hope to publish a particular account of all the material things I observed in the several places which I have now but barely mentioned.

A VOYAGE TO TERRA AUSTRALIS.

CHAPTER 1.

DEPARTURE AND PROVISIONING EN ROUTE.

1699.

THE AUTHOR'S DEPARTURE FROM THE DOWNS.

I sailed from the Downs early on Saturday, January 14, 1699, with a fair wind, in His Majesty's Ship the Roebuck; carrying but 12 guns in this voyage and 50 men and boys with 20 months' provision. We had several of the King's ships in company, bound for Spithead and Plymouth, and by noon we were off Dungeness.

A CAUTION TO THOSE WHO SAIL IN THE CHANNEL.

We parted from them that night, and stood down the Channel, but found ourselves next morning nearer the French coast than we expected; Cape de Hague bearing south-east and by east 6 leagues. There were many other ships, some nearer, some farther off the French coast, who all seemed to have gone nearer to it than they thought they should. My master, who was somewhat troubled at it at first, was not displeased however to find that he had company in his mistake: which as I have heard is a very common one, and fatal to many ships. The occasion of it is the not allowing for the change of the variation since the making of the charts; which Captain Halley has observed to be very considerable. I shall refer the reader to his own account of it which he caused to be published in a single sheet of paper, purposely for a caution to such as pass to and fro the English Channel. And my own experience thus confirming to me the usefulness of such a caution I was willing to take this occasion of helping towards the making it the more public.

Not to trouble the reader with every day's run, nor with the winds or weather (but only in the remoter parts, where it may be more particularly useful) standing away from Cape la Hague, we made the start about 5 that afternoon; which being the last land we saw of England, we reckoned our departure from thence: though we had rather have taken it from the Lizard, if the hazy weather would have suffered us to have seen it.

HIS ARRIVAL AT THE CANARY ISLANDS.

The first land we saw after we were out of the Channel was Cape Finisterre, which we made on the 19th; and on the 28th made Lancerota, one of the Canary Islands of which, and of Allegrance, another of them, I have here given the sights, as they both appeared to us at two several bearings and distances.

TABLE 1. CANARY ISLANDS.

SANTA CRUZ IN TENERIFE; THE ROAD AND TOWN, AND SPANISH WRECK.

We were now standing away for the island Tenerife where I intended to take in some wine and brandy for my voyage. On Sunday, half an hour past 3 in the afternoon, we made the island and crowded in with all our sails till five; when the north-east point of the isle bore west-south-west distance 7 leagues. But, being then so far off that I could not expect to get in before night, I lay by till next morning, deliberating whether I should put in at Santa Cruz, or at Oratavia, the one on the east, the other on the west side of the island; which lies mostly north and south; and these are the principal ports on each side. I chose Santa Cruz as the better harbour (especially at this time of the year) and as best furnished with that sort of wine which I had occasion to take in for my voyage: so there I come to an anchor January 30th, in 33 fathom water, black slimy ground; about half a mile from the shore; from which distance I took the sight of the town.

In the road ships must ride in 30, 40, or 50 fathom water, not above half a mile from the shore at farthest: and if there are many ships they must ride close one by another. The shore is generally high land and in most places steep too. This road lies so open to the east that winds from that side make a great swell, and very bad going ashore in boats: the ships that ride here are then often forced to put to sea, and sometimes to cut or slip their anchors, not being able to weigh them. The best and smoothest landing is in a small sandy cove, about a mile to the north-east of the road, where there is good water, with which ships that lade here are supplied; and many times ships that lade at Oratavia, which is the chief port for trade, send their boats hither for water. That is a worse port for westerly than this is for easterly winds; and then all ships that are there put to sea. Between this watering-place and Santa Cruz are two little forts; which with some batteries scattered along the coast command the road. Santa Cruz itself is a small unwalled town fronting the sea, guarded with two other forts to secure the road. There are about 200 houses in the town, all two stories high, strongly built with stone and covered with pantile. It hath two convents and one church, which are the best buildings in the town. The forts here could not secure the Spanish galleons from Admiral Blake, though they hauled in close under the main fort. Many of the inhabitants that are now living remember that action in which the English battered the town, and did it much damage; and the marks of the shot still remain in the fort walls. The wrecks of the galleons that were burnt here lie in 15 fathom water: and it is said that most of the plate lies there, though some of it was hastily carried ashore at Blake's coming in sight.

LAGUNA TOWN LAKE AND COUNTRY; AND ORATAVIA TOWN AND ROAD.

Soon after I had anchored I went ashore here to the Governor of the town, who received me very kindly and invited me to dine with him the next day. I returned on board in the evening, and went ashore again with two of my officers the next morning; hoping to get up the hill time

enough to see Laguna, the principal town, and to be back again to dine with the Governor of Santa Cruz; for I was told that Laguna was but 3 miles off. The road is all the way up a pretty steep hill; yet not so steep but that carts go up and down laden. There are public houses scattering by the wayside, where we got some wine. The land on each side seemed to be but rocky and dry; yet in many places we saw spots of green flourishing corn. At farther distances there were small vineyards by the sides of the mountains, intermixed with abundance of waste rocky land, unfit for cultivation, which afforded only dildo-bushes. It was about 7 or 8 in the morning when we set out from Santa Cruz; and, it being fair clear weather, the sun shone very bright and warmed us sufficiently before we got to the city Laguna; which we reached about 10 o'clock, all sweaty and tired, and were glad to refresh ourselves with a little wine in a sorry tippling-house: but we soon found out one of the English merchants that resided here, who entertained us handsomely at dinner, and in the afternoon showed us the town.

Laguna is a pretty large well-compacted town, and makes a very agreeable prospect. It stands part of it against a hill, and part in a level. The houses have mostly strong walls built with stone and covered with pantile. They are not uniform, yet they appear pleasant enough. There are many fair buildings; among which are 2 parish churches, 2 nunneries, a hospital, 4 convents, and some chapels; besides many gentlemen's houses. The convents are those of St. Austin, St. Dominick, St. Francis, and St. Diego. The two churches have pretty high square steeples, which top the rest of the buildings. The streets are not regular, yet they are mostly spacious and pretty handsome; and near the middle of the town is a large parade, which has good buildings about it. There is a strong prison on one side of it; near which is a large conduit of good water, that supplies all the town. They have many gardens which are set round with oranges, limes, and other fruits: in the middle of which are pot-herbs, salading, flowers, etc. And indeed, if the inhabitants were curious this way, they might have very pleasant gardens: for as the town stands high from the sea on the brow of a plain that is all open to the

east, and hath consequently the benefit of the true tradewind, which blows here and is most commonly fair; so there are seldom wanting at this town brisk, cooling, and refreshing breezes all the day.

On the back of the town there is a large plain of 3 or 4 leagues in length and 2 miles wide, producing a thick kindly sort of grass, which looked green and very pleasant when I was there, like our meadows in England in the spring. On the east side of this plain, very near the back of the town, there is a natural lake or pond of fresh water. It is about half a mile in circumference; but being stagnant, it is only used for cattle to drink of. In the wintertime several sorts of wildfowl resort hither, affording plenty of game to the inhabitants of Laguna. This city is called Laguna from hence; for that word in Spanish signifies a lake or pond. The plain is bounded on the west, the north-west and the south-west with high steep hills; as high above this plain as this is above the sea; and it is from the foot of one of these mountains that the water of the conduit which supplies the town is conveyed over the plain in troughs of stone raised upon pillars. And indeed, considering the situation of the town, its large prospect to the east (for from hence you see the Grand Canary) its gardens, cool arbors, pleasant plain, green fields, the pond and aqueduct, and its refreshing breezes; it is a very delightful dwelling, especially for such as have not business that calls them far and often from home: for, the island being generally mountainous, steep, and craggy, full of risings and fallings, it is very troublesome travelling up and down in it, unless in the cool of the mornings and evenings: and mules and asses are most used by them, both for riding and carriage, as fittest for the stony, uneven roads.

Beyond the mountains, on the south-west side, still further up, you may see from the town and plain a small peaked hill, overlooking the rest. This is that which is called the Pike of Tenerife, so much noted for its height: but we saw it here at so great a disadvantage, by reason of the nearness of the adjacent mountains to us, that it looked inconsiderable in respect to its fame.

OF THE WINES AND OTHER COMMODITIES OF TENERIFE, ETC.

The true malmsey wine grows in this island; and this here is said to be the best of its kind in the world. Here is also canary wine, and verdona, or green wine. The canary grows chiefly on the west side of the island; and therefore is commonly sent to Oratavia; which being the chief seaport for trade in the island, the principal English merchants reside there, with their consul; because we have a great trade for this wine. I was told that that town is bigger than Laguna; that it has but one church, but many convents: that the port is but ordinary at best and is very bad when the north-west winds blow. These norwesters give notice of their coming by a great sea that tumbles in on the shore for some time before they come, and by a black sky in the north-west. Upon these signs ships either get up their anchors, or slip their cables and put to sea, and ply off and on till the weather is over. Sometimes they are forced to do so 2 or 3 times before they can take in their lading; which it is hard to do here in the fairest weather: and for fresh water they send, as I have said, to Santa Cruz. Verdona is green, strong-bodied wine, harsher and sharper than canary. It is not so much esteemed in Europe, but is exported to the West Indies, and will keep best in hot countries; for which reason I touched here to take in some of it for my voyage. This sort of wine is made chiefly on the east side of the island, and shipped off at Santa Cruz.

Besides these wines, which are yearly vended in great plenty from the Canary Islands (chiefly from Grand Canary, Tenerife, and Palma) here is store of grain, as wheat, barley, and maize, which they often transport to other places. They have also some beans and peas, and coches, a sort of grain much like maize, sowed mostly to fatten land. They have papaws, which I shall speak more of hereafter; apples, pears, plums, cherries, and excellent peaches, apricots, guavas, pomegranates, citrons, oranges, lemons, limes, pumpkins, onions the best in the world, cabbages, turnips, potatoes, etc. They are also well stocked with horses, cows, asses, mules, sheep, goats, hogs, conies, and plenty of deer. The Lancerota horses are said to be the most mettlesome, fleet, and loyal

horses that are. Lastly here are many fowls, as cocks, and hens, ducks, pigeons, partridges, etc. with plenty of fish, as mackerel, etc. All the Canary Islands have of these commodities and provisions more or less: but as Lancerota is most famed for horses, and Grand Canary, Tenerife, and Palma for wines, Tenerife especially for the best malmsey (for which reason these 3 islands have the chief trade) so is Forteventura for dunghill-fowls, and Gomera for deer. Fowls and other eatables are dear on the trading islands; but very plentiful and cheap on the other; and therefore it is best for such ships that are going out on long voyages, and who design to take in but little wine, to touch rather at these last; where also they may be supplied with wine enough, good and cheap: and, for my own part, if I had known before I came hither, I should have gone rather to one of those islands than to Tenerife: but enough of this.

AND THE GOVERNORS AT LAGUNA AND SANTA CRUZ.

It is reported they can raise 12,000 armed men on this island. The governor or general (as he is called) of all the Canary Islands lives at Laguna: his name is Don Pedro de Ponto. He is a native of this island, and was not long since President of Panama in the South Seas: who bringing some very rich pearls from thence, which he presented to the Queen of Spain, was therefore, as it is said, made general of the Canary Islands. The Grand Canary is an island much superior to Tenerife both in bulk and value; but this gentleman chooses rather to reside in this his native island. He has the character of a very worthy person; and governs with moderation and justice, being very well beloved.

One of his deputies was the governor of Santa Cruz, with whom I was to have dined; but staying so long at Laguna, I came but time enough to sup with him. He is a civil, discreet man. He resides in the main fort close by the sea. There is a sentinel stands at his door; and he has a few servants to wait on him. I was treated in a large dark lower room, which has but one small window. There were about 200 muskets hung up against the walls, and some pikes; no wainscot, hangings, nor much furniture. There was only a small old table, a few old chairs, and 2 or 3

pretty long forms to sit on. Having supped with him I invited him on board, and went off in my boat. The next morning he came aboard with another gentleman in his company, attended by 2 servants: but he was presently seasick and so much out of order that he could scarce eat or drink anything, but went quickly ashore again.

OF THE WINDS IN THESE SEAS.

Having refreshed my men ashore, and taken in what we had occasion for, I sailed away from Santa Cruz on February 4 in the afternoon; hastening out all I could, because the north-east winds growing stormy made so great sea that the ship was scarce safe in the road; and I was glad to get out, though we left behind several goods we had bought and paid for: for a boat could not go ashore; and the stress was so great in weighing anchor that the cable broke. I designed next for the Island of Mayo, one of the Cape Verde Islands; and ran away with a strong north-east wind right before it all that night and the next day, at the rate of 10 or 11 miles an hour; when it slackened to a more moderate gale. The Canary Islands are, for their latitude, within the usual verge of the true or general tradewind; which I have observed to be, on this side the equator, north-easterly: but then, lying not far from the African shore, they are most subject to a north wind, which is the coasting and constant trade, sweeping that coast down as low as to Cape Verde; which, spreading in breadth, takes in mostly the Canary Islands; though it be there interrupted frequently with the true tradewind, north-west winds, or other shifts of wind that islands are subject to; especially where they lie many together. The Pike of Tenerife, which had generally been clouded while we lay at Santa Cruz, appeared now all white with snow, hovering over the other hills; but their height made it seem the less considerable; for it looks most remarkable to ships that are to the westward of it. We had brisk north-north-east and north-east winds from Tenerife, and saw flying-fish, and a great deal of sea-thistle weed floating. By the 9th of February at noon we were in the latitude of 15 degrees 4 minutes so we steered away west-north-west for the island of

Mayo, being by judgment not far to the east of it, and at 8 o'clock in the evening lay by till day. The wind was then at west by south, and so it continued all night, fair weather, and a small easy gale. All these were great signs, that we were near some land, after having had such constant brisk winds before. In the morning after sunrise we saw the island at about 4 leagues distance. But it was so hazy over it that we could see but a small part of it; yet even by that part I knew it to be the isle of Mayo. See how it appeared to us at several views as we were compassing the east and south-east and south of it, to get to the road, on the south-west of it, and the road itself.

TABLE 2. CAPE VERDE ISLANDS.

THE AUTHOR'S ARRIVAL AT MAYO.

I got not in till the next day, February 11, when I come to an anchor in the road, which is the leeward part of the island; for it is a general rule never to anchor to windward of an island between the tropics. We anchored at 11 o'clock in 14 fathom clean sand, and very smooth water, about three-quarters of a mile from the shore, in the same place where I anchored in my voyage round the world; and found riding here the Newport of London, a merchantman, Captain Barefoot commander, who welcomed me with 3 guns and I returned one for thanks. He came from Fayal, one of the western islands; and had store of wine and brandy aboard. He was taking in salt to carry to Newfoundland, and was very glad to see one of the King's ships, being before our coming afraid of pirates, which of late years had much infested this and the rest of the Cape Verde Islands.

I have given some account of the island of Mayo and of other of these islands in my Voyage round the World, but I shall now add some further observations that occurred to me in this voyage. The island of Mayo is about 7 leagues in circumference, of a roundish form, with many small rocky points shooting out into the sea a mile or more. Its latitude is 15 degrees north, and as you sail about the isle, when you come pretty nigh

the shore, you will see the water breaking off from those points; which you must give a berth to and avoid them. I sailed at this time two parts in three round the island, but saw nothing dangerous besides these points; and they all showed themselves by the breaking of the water: yet it is reported that on the north and north-north-west side there are dangerous shoals that lie farther off at sea; but I was not on that side. There are 2 hills on this island of a considerable height; one pretty bluff, the other peaked at top. The rest of the island is pretty level and of a good height from the sea. The shore clear round hath sandy bays between the rocky points I spoke of, and the whole island is a very dry sort of soil.

OF THE CAPE VERDE ISLANDS; ITS SALT POND COMPARED WITH THAT OF SALT TORTUGA; ITS TRADE FOR SALT, AND FRAPE-BOATS.

On the west side of the isle where the road for ships is, there is a large sandy bay and a sandbank of about 40 paces wide within it which runs along the shore 2 or 3 miles; within which there is a large salina or salt pond, contained between the sandbank and the hills beyond it. The whole salina is about 2 miles in length, and half a mile wide; but above one half of it its commonly dry. The north end only of the pond never wants water, producing salt from November till May, which is here the dry season of the year. The water which yields this salt works in from out of the sea through a hole in the sandbank before mentioned, like a sluice, and that only in spring tides when it fills the pond more or less, according to the height of the tides. If there is any salt in the ponds when the flush of water comes in it presently dissolves: but then in 2 or 3 days after it begins to kern; and so continues kerning till either all or the greatest part of the salt water is congealed or kerned; or till a fresh supply of it comes in again from the sea. This water is known to come in only at that one passage on the north part of the pond; where also it is deepest. It was at a spring of the new moon when I was there; and I was told that it comes in at no other time but at the new moon spring tides;

but why that should be I can't guess. They who come hither to lade salt rake it up as it kerns, and lay it in heaps on the dry land, before the water breaks in anew: and this is observable of this salt pond, that the salt kerns only in the dry season, contrary to the salt ponds in the West Indies, particularly those of the island Salt Tortuga, which I have formerly mentioned, for they never kern there till the rains come in about April; and continue to do so in May, June, July etc. while the wet season lasts; and not without some good shower of rain first: but the reason also of this difference between the salt ponds of Mayo and those of the West Indies why these should kern in the wet season, and the former in the dry season, I shall leave to philosophers.

Our nation drives here a great trade for salt, and have commonly a man-of-war here for the guard of our ships and barks that come to take it in; of which I have been informed that in some years there have not been less than 100 in a year. It costs nothing but men's labour to rake it together, and wheel it out of the pond, except the carriage: and that also is very cheap; the inhabitants having plenty of asses for which they have little to do besides carrying the salt from the ponds to the seaside at the season when ships are here. The inhabitants lade and drive their asses themselves, being very glad to be employed; for they have scarce any other trade but this to get a penny by. The pond is not above half a mile from the landing-place, so that the asses make a great many trips in a day. They have a set number of turns to and fro both forenoon and afternoon, which their owners will not exceed. At the landing-place there lies a frape-boat, as our seamen call it, to take in the salt. It is made purposely for this use, with a deck reaching from the stern a third part of the boat; where there is a kind of bulkhead that rises not from the boat's bottom but from the edge of the deck to about 2 foot in height; all caulked very tight. The use of it is to keep the waves from dashing into the boat when it lies with its head to the shore to take in salt: for here commonly runs a great sea; and when the boat lies so with its head to the shore the sea breaks in over the stern, and would soon fill it was it not for this bulkhead, which stops the waves that come flowing upon the

deck and makes them run off into the sea on each side. To keep the boat thus with the head to the shore and the stern to the sea there are two strong stanchions set up in the boat, the one at the head, the other in the middle of it, against the bulkhead, and a foot higher than the bulkhead. There is a large notch cut in the top of each of these stanchions big enough for a small hawser or rope to lie in; one end of which is fastened to a post ashore, and the other to a grappling or anchor lying a pretty way off at sea: this rope serves to haul the boat in and out, and the stanchions serve to keep her fast, so that she cannot swing to either side when the rope is hauled tight: for the sea would else fill her, or toss her ashore and stave her. The better to prevent her staving and to keep her the tighter together there are two sets of ropes more: the first going athwart from gunwale to gunwale, which, when the rowers benches are laid, bind the boats sides so hard against the ends of the benches that they cannot easily fall asunder, while the benches and ropes mutually help each other; the ropes keeping the boat's sides from flying off, and the benches from being crushed together inwards. Of these ropes there are usually but two, dividing the boat's length as they go across the sides into three equal parts. The other set of ropes are more in number, and are so placed as to keep the ribs and planks of the boat from starting off. For this purpose there are holes made at certain distances through the edge of the keel that runs along on the inside of the boat; through which these ropes passing are laid along the ribs so as to line them, or be themselves as ribs upon them, being made fast to them by rattans brought thither, or small cords twisted close about both ropes and ribs, up to the gunwale: by which means though several of the nails or pegs of the boat should by any shock fall out, yet the ropes of these two sets might hold her together: especially with the help of a rope going quite round about the gunwale on the outside, as our longboats have. And such is the care taken to strengthen the boats; from which girding them with ropes, which our seamen call fraping, they have the name of frape-boats. Two men suffice to haul her in and out, and take in the salt from shore (which is brought in bags) and put it out again. As soon as the boat is brought nigh enough to the shore he who stands by the bulkhead takes

instantly a turn with the hawser about the bulkhead stanchion; and that stops her fast before the sea can turn her aside: and when the two men have got in their lading they haul off to sea till they come a little without the swell; where they remove the salt into another boat that carries it on board the ship. Without such a frape-boat here is but bad landing at any time: for though it is commonly very smooth in the road, yet there falls a great sea on the shore, so that every ship that comes here should have such a boat, and bring or make or borrow one of the other ships that happen to be here; for the inhabitants have none. I have been thus particular in the description of these frape-boats because of the use they may be of in any places where a great sea falls in upon the shore: as it does especially in many open roads in the East and West Indies; where they might therefore be very serviceable; but I never saw any of them there.

ITS VEGETABLES, SILK-COTTON, ETC. ITS SOIL, AND TOWNS; ITS GUINEA-HENS AND OTHER FOWLS, BEASTS, AND FISH. OF THE SEA TURTLES, ETC. LAYING IN THE WET SEASON. OF THE NATIVES, THEIR TRADE AND LIVELIHOOD.

The island Mayo is generally barren, being dry, as I said; and the best of it is but a very indifferent soil. The sandy bank that pens in the salt pond has a sort of silk-cotton growing upon it, and a plant that runs along upon the ground, branching out like a vine, but with thick broad leaves. The silk-cotton grows on tender shrubs, 3 or 4 foot high, in cods as big as an apple, but of a long shape; which when ripe open at one end, parting leisurely into 4 quarters; and at the first opening the cotton breaks forth. It may be of use for stuffing of pillows, or the like, but else is of no value, any more than that of the great cotton-tree. I took of these cods before that were quite ripe, and laid them in my chest; and in 2 or 3 days they would open and throw out the cotton. Others I have bound fast with strings, so that the cod could not open; and in a few days after, as soon as I slackened the string never so little, the cod would burst and the cotton fly out forcibly at a very little hole, just as the pulp out of a

roasting apple, till all has been out of the cod. I met with this sort of cotton afterwards at Timor (where it was ripe in November) and nowhere else in all my travels; but I found two other sorts of silk-cotton at Brazil, which I shall there describe. The right cotton-shrub grows here also, but not on the sandbank. I saw some bushes of it near the shore; but the most of it is planted in the middle of the isle, where the inhabitants live, cotton-cloth being their chief manufacture; but neither is there any great store of this cotton. There also are some trees within the island, but none to be seen near the seaside; nothing but a few bushes scattering up and down against the sides of the adjacent hills; for as I said before the land is pretty high from the sea. The soil is for the most part either a sort of sand, or loose crumbling stone, without any fresh-water ponds or streams to moisten it, but only showers in the wet season which run off as fast as they fall, except a small spring in the middle of the isle, from which proceeds a little stream of water that runs through a valley between the hills. There the inhabitants live in three small towns, having a church and padre in each town: and these towns, as I was informed, are 6 or 7 miles from the road. Pinose is said to be the chief town, and to have 2 churches: St. John's the next, and the third Lagoa. The houses are very mean: small, low things. They build with figtree, here being, as I was told, no other trees fit to build with. The rafters are a sort of wild cane. The fruits of this isle are chiefly figs and watermelons. They have also callavances (a sort of pulse like French beans) and pumpkins for ordinary food. The fowls are flamingos, great curlews, and guinea-hens, which the natives of those islands call galena pintata, or the painted hen; but in Jamaica, where I have seen also those birds in the dry savannahs and woods (for they love to run about in such places) they are called guinea-hens. They seem to be much of the nature of partridges. They are bigger than our hens, have long legs, and will run apace. They can fly too but not far, having large heavy bodies and but short wings and short tails: as I have generally observed that birds have seldom long tails unless such as fly much; in which their tails are usually serviceable to their turning about as a rudder to a ship or boat. These birds have thick and strong yet sharp bills, pretty long claws, and short

tails. They feed on the ground, either on worms, which they find by tearing open the earth; or on grasshoppers, which are plentiful here. The feathers of these birds are speckled with dark and light grey; the spots so regular and uniform that they look more beautiful than many birds that are decked with gayer feathers. Their necks are small and long; their heads also but little. The cocks have a small rising on their crowns, like a sort of a comb. It is of the colour of a dry walnut shell, and very hard. They have a small red gill on each side of their heads, like ears, strutting out downwards; but the hens have none. They are so strong that one cannot hold them; and very hardy. They are very good meat, tender, and sweet; and in some the flesh is extraordinary white; though some others have black flesh: but both sorts are very good. The natives take them with dogs, running them down whenever they please; for here are abundance of them. You shall see 2 or 300 in a company. I had several brought aboard alive, where they throve very well; some of them 16 or 18 months; when they began to pine. When they are taken young they will become tame like our hens. The flamingos I have already described at large. They have also many other sort of fowls, namely pigeons and turtledoves; miniotas, a sort of land-fowls as big as crows, of a grey colour, and good food; crusias, another sort of grey-coloured fowl almost as big as a crow, which are only seen in the night (probably a sort of owls) and are said to be good for consumptive people but eaten by none else. Rabeks, a sort of large grey eatable fowls with long necks and legs, not unlike herons; and many kinds of small birds.

Of land animals here are goats, as I said formerly, and asses good store. When I was here before they were said to have had a great many bulls and cows: but the pirates who have since miserably infested all these islands have much lessened the number of those; not having spared the inhabitants themselves: for at my being there this time the governor of Mayo was but newly returned from being a prisoner among them, they having taken him away, and carried him about with them for a year or two.

The sea is plentifully stocked with fish of divers sorts, namely dolphins, bonetas, mullet, snapper, silver-fish, garfish, etc. And here is a good bay to haul a seine or net in. I hauled mine several times, and to good purpose; dragging ashore at one time 6 dozen of great fish, most of them large mullet of a foot and a half or two foot long. Here are also porpoises, and a small sort of whales that commonly visit this road every day. I have already said that the months of May, June, July and August (that is, the wet season) are the time when the green-turtle come hither and go ashore to lay their eggs. I look upon it as a thing worth taking notice of that the turtle should always, both in north and south latitude, lay their eggs in the wet months. It might be thought, considering what great rains there are then in some places where these creatures lay, that their eggs should be spoiled by them. But the rain, though violent, is soon soaked up by the sand wherein the eggs are buried; and perhaps sinks not so deep into it as the eggs are laid: and keeping down the heat may make the sand hotter below than it was before, like a hot-bed. Whatever the reason may be why Providence determines these creatures to this season of laying their eggs, rather than the dry, in fact it is so, as I have constantly observed; and that not only with the sea-turtle but with all other sorts of amphibious animals that lay eggs; as crocodiles, alligators, iguanas etc. The inhabitants of this island, even their governor and padres, are all negroes, wool-pated like their African neighbours; from whom it is like they are descended; though, being subjects to the Portuguese, they have their religion and language. They are stout, lusty, well-limbed people, both men and women, fat and fleshy; and they and their children as round and plump as little porpoises; though the island appears so barren to a stranger as scarce to have food for its inhabitants. I enquired how many people there might be on the isle; and was told by one of the padres that here were 230 souls in all. The negro governor has his patent from the Portuguese governor of St. Jago. He is a very civil and sensible poor man; and they are generally a good sort of people. He expects a small present from every commander that lades salt here; and is glad to be invited aboard their ships. He spends most of his time with the English in the salting season, which is his harvest; and indeed, all the

islanders are then fully employed in getting somewhat; for they have no vessels of their own to trade with, nor do any Portuguese vessels come hither: scarce any but English, on whom they depend for trade: and though subjects of Portugal, have a particular value for us. We don't pay them for their salt, but for the labour of themselves and their beasts in lading it: for which we give them victuals, some money, and old clothes, namely hats, shirts, and other clothes: by which means many of them are indifferently well rigged; but some of them go almost naked. When the turtle season comes in they watch the sandy bays in the night to turn them; and having small huts at particular places on the bays to keep them from the rain, and to sleep in: and this is another harvest they have for food; for by report there come a great many turtle to this and the rest of the Cape Verde Islands. When the turtle season is over they have little to do but to hunt for guinea-hens and manage their small plantations. But by these means they have all the year some employment or other; whereby they get a subsistence though but little else. When any of them are desirous to go over to St. Jago they get a licence from the governor and desire passage in any English ship that is going thither: and indeed all ships that lade salt here will be obliged to touch at St. Jago for water, for here at the bay is none, not so much as for drinking. It is true there is a small well of brackish water not half a mile from the landing-place which the asses that carry salt drink at; but it is very bad water. Asses themselves are a commodity in some of these islands, several of our ships coming hither purposely to freight with them and carry them to Barbados and our other plantations. I stayed at Mayo 6 days and got 7 or 8 ton of salt aboard for my voyage: in which time there came also into this road several sail of merchants ships for salt; all bound with it for Newfoundland.

THE AUTHOR'S ARRIVAL AT ST. JAGO; PRAYA AND ST. JAGO TOWN.

The 19th day of February, at about one o'clock in the morning, I weighed from Mayo Road in order to water at St. Jago, which was about 5 or 6 leagues to the westward. We coasted along the island St. Jago and passed by the port on the east of it I mentioned formerly which they call Praya; where some English outward-bound East-Indiamen still touch, but not so many of them as heretofore. We saw the fort upon the hill, the houses and coconut-trees: but I would not go in to anchor here because I expected better water on the south-west of the island at St. Jago Town. By eight o'clock in the morning we saw the ships in that road, being within 3 leagues of it: but were forced to keep turning many hours to get in, the flaws of wind coming so uncertain; as they do especially to the leeward of islands that are high land. At length two Portuguese boats came off to help tow us in; and about three o'clock in the afternoon we came to an anchor and took the prospect of the town. We found here, besides two Portuguese ships bound for Brazil whose boats had towed us in, an English pink that had taken in asses at one of the Cape Verde Islands and was bound to Barbados with them. Next morning I went ashore with my officers to the governor, who treated us with sweetmeats: I told him the occasion of my coming was chiefly for water; and that I desired also to take in some refreshments of fowls, etc. He said I was welcome, and that he would order the townsmen to bring their commodities to a certain house, where I might purchase what I had occasion for: I told him I had not money but would exchange some of the salt which I brought from Mayo for their commodities. He replied that salt was indeed an acceptable commodity with the poor people, but that if I designed to buy any cattle I must give money for them. I contented myself with taking in dunghill-fowls: the governor ordering a crier to go about the town and give notice to the people that they might repair to such a place with fowls and maize for feeding them where they might get salt in exchange for them: so I sent on board for salt and ordered some of my men to truck the same for the fowls and maize while the rest of them were busy in filling of water. This is the effect of their keeping no

boats of their own on the several islands, that they are glad to by even their own salt of foreigners for want of being able to transport it themselves from island to island.

St. Jago Town lies on the south-west part of the island in latitude about 15 degrees north, and is the seat of the general governor and of the bishop of all the Cape Verde Islands. This town stands scattering against the sides of two mountains, between which there is a deep valley, which is about 200 yards wide against the sea; but within a quarter of a mile it closes up so as not to be 40 yards wide. In the valley by the sea there is a straggling street, houses on each side, and a run of water in the bottom which empties itself into a fine small cove or sandy bay where the sea is commonly very smooth; so that here is good watering and good landing at any time; though the road be rocky and bad for ships. Just by the landing-place there is a small fort, almost level with the sea, where is always a court of guard kept. On the top of the hill, above the town, there is another fort which, by the wall that is to be seen from the road, seems to be a large place. They have cannon mounted there, but how many know not: neither what use that fort can be of except it be for salutes. The town may consist of 2 or 300 houses, all built of rough stone; having also one convent, and one church.

OF THE INHABITANTS AND THEIR COMMODITIES.

The people in general are black, or at least of a mixed colour, except only some few of the better sort, namely the governor, the bishop, some gentlemen, and some of the padres; for some of these also are black. The people about Praya are thievish; but these of St. Jago Town, living under their governor's eye, are more orderly, though generally poor, having little trade: yet besides chance ships of other nations there come hither a Portuguese ship or two every year, in their way to Brazil. These vend among them a few European commodities, and take of their principal manufactures, namely striped cotton cloth which they carry with them to Brazil. Here is also another ship comes hither from Portugal for sugar, their other manufacture, and returns with it directly thither: for it is

reported that there are several small sugar-works on this island from which they send home near 100 ton every year; and they have plenty of cotton growing up in the country wherewith they clothe themselves, and send also a great deal to Brazil. They have vines of which they make some wine; but the European ships furnish them with better; though they drink but little of any. Their chief fruits are (besides plantains in abundance) oranges, lemons, citrons, melons (both musk and watermelons) limes, guavas, pomegranates, quinces, custard-apples, and papaws, etc.

OF THE CUSTARD-APPLE, ST. JAGO ROAD.

The custard-apple (as we call it) is a fruit as big as a pomegranate, and much of the same colour. The outside husk, shell, or rind, is for substance and thickness between the shell of a pomegranate, and the peel of a seville orange; softer than this, yet more brittle than that. The coat or covering is also remarkable in that it is beset round with small regular knobs or risings; and the inside of the fruit is full of a white soft pulp, sweet and very pleasant, and most resembling a custard of any thing, both in colour and taste; from whence probably it is called a custard-apple by our English. It has in the middle a few small black stones or kernels; but no core, for it is all pulp. The tree that bears this fruit is about the bigness of a quince-tree, with long, small, and thick-set branches spread much abroad: at the extremity of here and there one of which the fruit grows upon a stalk of its own about 9 or 10 inches long, slender and tough, and hanging down with its own weight. A large tree of this sort does not bear usually above 20 or 30 apples, seldom more. This fruit grows in most countries within the tropics, I have seen of them (though I omitted the description of them before) all over the West Indies, both continent and islands; as also in Brazil, and in the East Indies.

The papaw too is found in all these countries, though I have not hitherto described it. It is a fruit about the bigness of a musk-melon, hollow as that is, and much resembling it in shape and colour, both outside and

inside: only in the middle, instead of flat kernels, which the melons have, these have a handful of small blackish seeds about the bigness of peppercorns; whose taste is also hot on the tongue somewhat like pepper. The fruit itself is sweet, soft and luscious, when ripe; but while green it is hard and unsavoury: though even then being boiled and eaten with salt-pork or beef, it serves instead of turnips and is as much esteemed. The papaw-tree is about 10 or 12 foot high. The body near the ground may be a foot and a half or 2 foot diameter; and it grows up tapering to the top. It has no branches at all, but only large leaves growing immediately upon stalks from the body. The leaves are of a roundish form and jagged about the edges, having their stalks or stumps longer or shorter as they grow near to or further from the top. They begin to spring from out of the body of the tree at about 6 or 7 foot height from the ground, the trunk being bare below: but above that the leaves grow thicker and larger still towards its top, where they are close and broad. The fruit grows only among the leaves; and thickest among the thickest of them; insomuch that towards the top of the tree the papaws spring forth from its body as thick as they can stick one by another. But then lower down where the leaves are thinner the fruit is larger, and of the size I have described: and at the top where they are thick they are but small, and no bigger than ordinary turnips; yet tasted like the rest.

Their chief land animals are their bullocks, which are said to be many; though they ask us 20 dollars apiece for them; they have also horses, asses, and mules, deer, goats, hogs, and black-faced long-tailed monkeys. Of fowls they have cocks and hens, ducks, guinea-hens, both tame and wild, parakeets, parrots, pigeons, turtledoves, herons, hawks, crab-catchers, galdens (a larger sort of crab-catchers) curlews, etc. Their fish is the same as at Mayo and the rest of these islands, and for the most part these islands have the same beasts and birds also; but some of the isles have pasturage and employment for some particular beasts more

than other; and the birds are encouraged, by woods for shelter, and maize and fruits for food, to flock to some of the islands (as to this of St. Jago) than to others.

FOGO.

St. Jago Road is one of the worst that I have been in. There is not clean ground enough for above three ships; and those also must lie very near each other. One even of these must lie close to the shore, with a land-fast there: and that is the best for a small ship. I should not have come in here if I had not been told that it was a good secure place; but I found it so much otherways that I was in pain to be gone. Captain Barefoot, who came to an anchor while I was here, in foul ground, lost quickly 2 anchors; and I had lost a small one. The island Fogo shows itself from this road very plain, at about 7 or 8 leagues distance; and in the night we saw the flames of fire issuing from its top.

CHAPTER 2.

SOUTH OF THE LINE TO BRAZIL.

THE AUTHOR'S DELIBERATION ON THE SEQUEL OF HIS VOYAGE AND DEPARTURE FROM ST. JAGO.

Having despatched my small affairs at the Cape Verde Islands I meditated on the process of my voyage. I thought it requisite to touch once more at a cultivated place in these seas, where my men might be refreshed, and might have a market wherein to furnish themselves with necessaries: for, designing that my next stretch should be quite to New Holland, and knowing that after so long a run nothing was to be expected there but fresh water, if I could meet even with that there, I resolved upon putting in first at some port of Brazil, and to provide myself there with whatever I might have further occasion for. Beside the refreshing and furnishing my men I aimed also at the inuring them gradually and by intervals to the fatigues that were to be expected in the

remainder of the voyage, which was to be in a part of the world they were altogether strangers to: none of them, except two young men, having ever crossed the Line.

HIS COURSE, AND THE WINDS, ETC. IN CROSSING THE LINE.

With this design I sailed from St. Jago on the 22nd of February with the winds at east-north-east and north-east fair weather and a brisk gale. We steered away south-south-east and south-south-east half east till in the latitude of 7 degrees 50 minutes we met with many ripplings in the sea like a tide or strong current, which setting against the wind caused such a rippling. We continued to meet these currents from that latitude till we came into the latitude of 3 degrees 22 north when they ceased. During this time we saw some bonetas and sharks; catching one of these. We had the true general tradewind blowing fresh at north-east till in the latitude of 4 degrees 40 minutes north when the wind varied, and we had small gales with some tornados. We were then to the east of St. Jago 4 degrees 54 minutes when we got into latitude 3 degrees 2 minutes north (where I said the rippling ceased) and longitude to the east of St. Jago 5 degrees 2 minutes we had the wind whiffling between the south by east and east by north small gales, frequent calms, very black clouds with much rain. In the latitude of 3 degrees 8 minutes north and longitude east from St. Jago 5 degrees 8 minutes we had the wind from the south-south-east to the north-north-east faint, and often interrupted with calms. While we had calms we had the opportunity of trying the current we had met with hitherto and found that it set north-east by east half a knot, which is 12 mile in 24 hours: so that here it ran at the rate of half a mile an hour, and had been much stronger before. The rains held us by intervals till the latitude of 1 degree 0 minutes north with small gales of wind between south-south-east and south-east by east and sometimes calm: afterwards we had the wind between the south and south-south-east till we crossed the Line, small winds, calms, and pretty fair weather. We saw but few fish beside porpoises; but of them a great many and struck one of them.

It was the 10th of March, about the time of the equinox, when we crossed the equator, having had all along from the latitude of 4 degrees 40 minutes north, where the true tradewind left us, a great swell out of the south-east and but small uncertain gales, mostly southerly, so that we crept to the southward but slowly. I kept up against these as well as I could to the southward, and when we had now and then a flurry of wind at east I still went away due south, purposely to get to the southward as fast as I could; for while near the Line I expected to have but uncertain winds, frequent calms, rains, tornados, etc. which would not only retard my course but endanger sickness also among my men: especially those who were ill provided with clothes, or were too lazy to shift themselves when they were drenched with the rains. The heat of the weather made them careless of doing this; but taking a dram of brandy which I gave them when wet, with a charge to shift themselves, they would however lie down in their hammocks with their wet clothes; so that when they turned out they caused an ill smell wherever they came, and their hammocks would stink sufficiently that I think the remedying of this is worth the care of commanders that cross the Line; especially when they are, it may be, a month or more before they get out of the rains, at some times of year, as in June, July or August.

HE STANDS AWAY FOR THE BAY OF ALL-SAINTS IN BRAZIL; AND WHY.

What I have here said about currents, winds, calms, etc. in this passage is chiefly for the farther illustration of what I have heretofore observed in general about these matters, and especially as to crossing the Line, in my Discourse of the Winds, etc. in the Torrid Zone: which observations I have had very much confirmed to me in the course of this voyage; and I shall particularise in several of the chief of them as they come in my way. And indeed I think I may say this of the main of the observations in that treatise that the clear satisfaction I had about them and how much I might rely upon them was a great ease to my mind during this vexatious voyage; wherein the ignorance, and obstinacy withal, of some under me,

occasioned me a great deal of trouble: though they found all along, and were often forced to acknowledge it, that I was seldom out in my conjectures when I told them usually beforehand what winds, etc. we should meet with at such or such particular places we should come at.

Pernambuco was the port that I designed for at my first setting out from St. Jago; it being a place most proper for my purpose, by reason of its situation, lying near the extremity of Cape St. Augustine, the easternmost promontory of Brazil; by which means it not only enjoys the greater benefit of the seabreezes, and is consequently more healthy than other places to the southward, but is withal less subject to the southerly coasting tradewinds that blow half the year on this shore; which were now drawing on, and might be troublesome to me: so that I might both hope to reach soonest Pernambuco as most directly and nearest in my run; and might thence also more easily get away to the southward than from Bahia de todos los Santos or Rio de Janeiro.

But notwithstanding these advantages I proposed to myself in going to Pernambuco I was soon put by that design through the refractoriness of some under me, and the discontents and backwardness of some of my men. For the calms and shiftings of winds which I met with, as I was to expect, in crossing the Line, made them who were unacquainted with these matters almost heartless as to the pursuit of the voyage, as thinking we should never be able to weather Cape St. Augustine: and though I told them that by that time we should get to about three degrees south of the Line we should again have a true brisk general tradewind from the north-east, that would carry us to what part of Brazil we pleased, yet they would not believe it till they found it so. This, with some other unforeseen accidents, not necessary to be mentioned in this place, meeting with the aversion of my men to a long unknown voyage, made me justly apprehensive of their revolting, and was a great trouble and hindrance to me. So that I was obliged partly to alter my measures, and met with many difficulties, the particulars of which I shall not trouble the reader with: but I mention thus much of it in general for my

own necessary vindication, in my taking such measures sometimes for prosecuting the voyage as the state of my ship's crew, rather than my own judgment and experience, determined me to. The disorders of my ship made me think at present that Pernambuco would not be so fit a place for me; being told that ships ride there 2 or 3 leagues from the town, under the command of no forts; so that whenever I should have been ashore it might have been easy for my discontented crew to have cut or slipped their cables and have gone away from me: many of them discovering already an intention to return to England, and some of them declaring openly that they would go no further onwards than Brazil. I altered my course therefore, and stood away for Bahia de todos los Santos, or the Bay of All Saints, where I hoped to have the governor's help, if need should require, for securing my ship from any such mutinous attempt; being forced to keep myself all the way upon my guard, and to lie with my officers, such as I could trust, and with small arms upon the quarter-deck; it scarce being safe for me to lie in my cabin by reason of the discontents among my men.

HIS ARRIVAL ON THAT COAST AND IN THE BAY.

On the 23rd of March we saw the land of Brazil; having had thither, from the time when we came into the true tradewind again after crossing the Line, very fair weather and brisk gales, mostly at east-north-east. The land we saw was about 20 leagues to the north of Bahia; so I coasted alongshore to the southward. This coast is rather low than high, with sandy bays all along by the sea.

OF THE SEVERAL FORTS, THE ROAD, SITUATION, TOWN, AND BUILDINGS OF BAHIA.

A little within land are many very white spots of sand appearing like snow; and the coast looks very pleasant, being chequered with woods and savannahs. The trees in general are not tall; but they are green and flourishing. There are many small houses by the seaside, whose inhabitants are chiefly fishermen. They come off to sea on bark logs,

made of several logs fastened side to side, that have one or two masts with sails to them. There are two men in each bark log, one at either end, having small low benches, raised a little above the logs, to sit and fish on, and two baskets hanging up at the mast or masts; one to put their provisions in, the other for their fish. Many of these were a-fishing now, and 2 of them came aboard, of whom I bought some fish. In the afternoon we sailed by one very remarkable piece of land where, on a small pleasant hill, there was a church dedicated to the Virgin Mary. See a sight of some parts of this coast and of the hill the church stands on.

TABLE 3. BRAZIL.

I coasted along till the evening and then brought to, and lay by till the next morning. About 2 hours after we were brought to, there came a sail out of the offing (from seaward) and lay by about a mile to windward of us and so lay all night. In the morning upon speaking with her she proved to be a Portuguese ship bound to Bahia; therefore I sent my boat aboard and desired to have one of his mates to pilot me in: he answered that he had not a mate capable of it, but that he would sail in before me, and show me the way; and that if he went into the harbour in the night he would hang out a light for me. He said we had not far in, and might reach it before night with a tolerable gale; but that with so small an one as now we had we could not do it: so we jogged on till night and then he accordingly hung out his light, which we steered after, sounding as we went in. I kept all my men on deck and had an anchor ready to let go on occasion. We had the tide of ebb against us, so that we went in but slowly; and it was about the middle of the night when we anchored. Immediately the Portuguese master came aboard to see me, to whom I returned thanks for his civilities; and indeed I found much respect, not only from this gentleman but from all of that nation both here and in other places, who were ready to serve me on all occasions. The place that we anchored in was about two miles from the harbour where the ships generally ride; but the fear I had lest my people should run away with the ship made me hasten to get a licence from the governor to run up

into the harbour and ride among their ships, close by one of their forts. So on the 25th of March about ten o'clock in the morning, the tide serving, I went thither, being piloted by the superintendent there, whose business it is to carry up all the King of Portugal's ships that come hither, and to see them well moored. He brought us to an anchor right against the town, at the outer part of the harbour, which was then full of ships, within 150 yards of a small fort that stands on a rock half a mile from the shore. See a prospect of the harbour and the town as it appeared to us while we lay at anchor.

Bahia de todos los Santos lies in latitude 13 degrees south. It is the most considerable town in Brazil, whether in respect of the beauty of its buildings, its bulk, or its trade and revenue. It has the convenience of a good harbour that is capable of receiving ships of the greatest burden: the entrance of which is guarded with a strong fort standing without the harbour, called St. Antonio: a sight of which I have given as it appeared to us the afternoon before we came in; and its lights (which they hang out purposely for ships) we saw the same night. There are other smaller forts that command the harbour, one of which stands on a rock in the sea, about half a mile from the shore. Close by this fort all ships must pass that anchor here, and must ride also within half a mile of it at farthest between this and another fort (that stands on a point at the inner part of the harbour and is called the Dutch Fort) but must ride nearest to the former, all along against the town: where there is good holding ground, and less exposed to the southerly winds that blow very hard here. They commonly set in about April, but blow hardest in May, June, July and August: but the place where the ships ride is exposed to these winds not above 3 points of the compass.

Beside these there is another fort fronting the harbour, and standing on the hill upon which the town stands. The town itself consists of about 2000 houses; the major part of which cannot be seen from the harbour;

but so many as appear in sight with a great mixture of trees between them, and all placed on a rising hill, make a very pleasant prospect; as may be judged by the draught.

There are in the town 13 churches, chapels, hospitals, convents, beside one nunnery, namely the ecclesia major or cathedral, the Jesuits' college, which are the chief, and both in sight from the harbour: St. Antonio, St. Barbara, both parish churches; the Franciscans' church, and the Dominicans'; and 2 convents of Carmelites; a chapel for seamen close by the seaside, where boats commonly land and the seamen go immediately to prayers; another chapel for poor people, at the farther end of the same street, which runs along by the shore; and a third chapel for soldiers at the edge of the town remote from the sea; and an hospital in the middle of the town. The nunnery stands at the outer edge of the town next the fields, wherein by report there are 70 nuns. Here lives in archbishop, who has a fine palace in the town; and the governor's palace is a fair stone building, and looks handsome to the sea, though but indifferently furnished within: both Spaniards and Portuguese in their plantations abroad, as I have generally observed, affecting to have large houses; but are little curious about furniture, except pictures some of them. The houses of the town are 2 or 3 stories high, the walls thick and strong, being built with stone, with a covering of pantile; and many of them have balconies. The principal streets are large, and all of them paved or pitched with small stones. There are also parades in the most eminent places of the town, and many gardens, as well within the town as in the out parts of it, wherein are fruit trees, herbs, saladings and flowers in great variety, but ordered with no great care nor art.

OF ITS GOVERNOR, SHIPS AND MERCHANTS; AND COMMODITIES TO AND FROM EUROPE.

The governor who resides here is called Don John de Lancastrio, being descended, as they say, from our English Lancaster family; and he has a respect for our nation on that account, calling them his countrymen. I waited on him several times, and always found him very courteous and

civil. Here are about 400 soldiers in garrison. They commonly draw up and exercise in a large parade before the governor's house; and many of them attend him when he goes abroad. The soldiers are decently clad in brown linen, which in these hot countries is far better than woollen; but I never saw any clad in linen but only these. Beside the soldiers in pay, he can soon have some thousands of men up in arms on occasion. The magazine is on the skirts of the town, on a small rising between the nunnery and the soldiers' church. It is big enough to hold 2 or 3000 barrels of powder; but I was told it seldom has more than 100, sometimes but 80. There are always a band of soldiers to guard it, and sentinels looking out both day and night.

A great many merchants always reside at Bahia; for it is a place of great trade: I found here above 30 great ships from Europe, with 2 of the King of Portugal's ships of war for their convoy; beside 2 ships that traded to Africa only, either to Angola, Gambia, or other places on the coast of Guinea; and abundance of small craft that only run to and fro on this coast, carrying commodities from one part of Brazil to another.

The merchants that live here are said to be rich, and to have many negro slaves in their houses, both of men and women. Themselves are chiefly Portuguese, foreigners having but little commerce with them; yet here was one Mr. Cock, an English merchant, a very civil gentleman and of good repute. He had a patent to be our English consul, but did not care to take upon him any public character because English ships seldom come hither, here having been none in 11 or 12 years before this time. Here was also a Dane, and a French merchant or two; but all have their effects transported to and from Europe in Portuguese ships, none of any other nation being admitted to trade hither. There is a custom-house by the seaside, where all goods imported or exported are entered. And to prevent abuses there are 5 or 6 boats that take their turns to row about the harbour, searching any boats they suspect to be running of goods.

The chief commodities that the European ships bring hither are linen cloths, both coarse and fine; some woollens, also as bays, serges, perpetuanas, etc. Hats, stockings, both of silk and thread, biscuit-bread, wheat flour, wine (chiefly port) oil olive, butter, cheese, etc. and salt-beef and pork would there also be good commodities. They bring hither also iron, and all sorts of iron tools; pewter vessels of all sorts, as dishes, plates, spoons, etc. looking-glasses, beads, and other toys; and the ships that touch at St. Jago bring thence, as I said, cotton cloth, which is afterwards sent to Angola.

The European ships carry from hence sugar, tobacco, either in roll or snuff, never in leaf, that I know of: these are the staple commodities. Besides which, here are dye-woods, as fustick, etc. with woods for other uses, as speckled wood, Brazil, etc. They also carry home raw hides, tallow, train-oil of whales, etc. Here are also kept tame monkeys, parrots, parakeets, etc, which the seamen carry home.

CLAYING OF SUGAR.

The sugar of this country is much better than that which we bring home from our plantations: for all the sugar that is made here is clayed, which makes it whiter and finer than our muscovada, as we call our unrefined sugar. Our planters seldom refine any with clay, unless sometimes a little to send home as presents for their friends in England. Their way of doing it is by taking some of the whitest clay and mixing it with water, till it is like cream. With this they fill up the pans of sugar that are sunk 2 or 3 inches below the brim by the draining of the molasses out of it: first scraping off the thin hard crust of the sugar that lies at the top, and would hinder the water of the clay from soaking through the sugar of the pan. The refining is made by this percolation. For 10 to 12 days time that the clayish liquor lies soaking down the pan the white water whitens the sugar as it passes through it; and the gross body of the clay itself grows hard on the top, and may be taken off at pleasure; when scraping off with a knife the very upper-part of the sugar which will be a little sullied, that which is underneath will be white almost to the bottom: and such as

is called Brazil sugar is thus whitened. When I was here this sugar was sold for about 50 shillings per 100 pounds. And the bottoms of the pots, which is very coarse sugar, for about 20 shillings per 100 pounds, both sorts being then scarce; for here was not enough to lade the ships, and therefore some of them were to lie here till the next season.

THE SEASON FOR THE EUROPEAN SHIPS, AND COIR CABLES: OF THEIR GUINEA TRADE AND OF THE COASTING TRADE, AND WHALE KILLING.

The European ships commonly arrive here in February or March, and they have generally quick passages; finding at that time of the year brisk gales to bring them to the Line, little trouble, then, in crossing it, and brisk east-north-east winds afterwards to bring them hither. They commonly return from hence about the latter end of May, or in June. It was said when I was here that the ships would sail hence the 20th day of May; and therefore they were all very busy, some in taking in their goods, others in careening and making themselves ready. The ships that come hither usually careen at their first coming; here being a hulk belonging to the king for that purpose. This hulk is under the charge of the superintendent I spoke of, who has a certain sum of money for every ship that careens by her. He also provides firing and other necessaries for that purpose: and the ships do commonly hire of the merchants here each 2 cables to moor by all the time they lie here, and so save their own hempen cables; for these are made of a sort of hair that grows on a certain kind of trees, hanging down from the top of their bodies, and is very like the black coir in the East Indies, if not the same. These cables are strong and lasting: and so much for the European ships.

The ships that use the Guinea trade are small vessels in comparison of the former. They carry out from hence rum, sugar, the cotton cloths of St. Jago, beads, etc. and bring in return gold, ivory, and slaves; making very good returns.

The small craft that belong to this town are chiefly employed in carrying European goods from Bahia, the centre of the Brazilian trade, to the other places on this coast; bringing back hither sugar, tobacco, etc. They are sailed chiefly with negro slaves; and about Christmas these are mostly employed in whale killing: for about that time of the year a sort of whales, as they call them, are very thick on this coast. They come in also into the harbours and inland lakes where the seamen go out and kill them. The fat of them is boiled to oil; the lean is eaten by the slaves and poor people: and I was told by one that had frequently eaten of it that the flesh was very sweet and wholesome. These are said to be but small whales; yet here are so many, and so easily killed, that they get a great deal of money by it. Those that strike them buy their licence for it of the king: and I was informed that he receives 30,000 dollars per annum for this fishery. All the small vessels that use this coasting traffic are built here; and so are some men of war also for the king's service. There was one a-building when I was here, a ship of 40 or 50 guns: and the timber of this country is very good and proper for this purpose. I was told it was very strong, and more durable than any we have in Europe; and they have enough of it. As for their ships that use the European trade some of them that I saw there were English built, taken from us by the French, during the late war, and sold by them to the Portuguese.

OF THE INHABITANTS OF BAHIA; THEIR CARRYING IN HAMMOCKS: THEIR ARTIFICERS, CRANE FOR GOODS, AND NEGRO SLAVES.

Besides merchants and others that trade by sea from this port here are other pretty wealthy men, and several artificers and tradesmen of most sorts, who by labour and industry maintain themselves very well; especially such as can arrive at the purchase of a negro slave or two. And indeed, excepting people of the lowest degree of all, here are scarce any but what keep slaves in their houses. The richer sort, besides the slaves of both sexes whom they keep for servile uses in their houses, have men slaves who wait on them abroad, for state; either running by their horse-

sides when they ride out, or to carry them to and fro on their shoulders in the town when they make short visits near home. Every gentleman or merchant is provided with things necessary for this sort of carriage. The main thing is a pretty large cotton hammock of the West India fashion, but mostly died blue, with large fringes of the same, hanging down on each side. This is carried on the negroes' shoulders by the help of a bamboo about 12 or 14 foot long, to which the hammock is hung; and a covering comes over the pole, hanging down on each side like a curtain: so that the person so carried cannot be seen unless he pleases; but may either lie down, having pillows for his head; or may sit up by being a little supported with these pillows, and by letting both his legs hang out over one side of the hammock. When he hath a mind to be seen he puts by his curtain, and salutes everyone of his acquaintance whom he meets in the streets; for they take a piece of pride in greeting one another from their hammocks, and will hold long conferences thus in the street: but then their 2 slaves who carry the hammock have each a strong well made staff with a fine iron fork at the upper end, and a sharp iron below, like the rest for a musket, which they stick fast in the ground and let the pole or bamboo of the hammock rest upon them till their master's business or the complement is over. There is scarce a man of any fashion, especially a woman, will pass the streets but so carried in a hammock. The chief mechanic traders here are smiths, hatters, shoemakers, tanners, sawyers, carpenters, coopers, etc. Here are also tailors, butchers, etc., which last kill the bullocks very dexterously, sticking them at one blow with a sharp-pointed knife in the nape of the neck, having first drawn them close to a rail; but they dress them very slovenly. It being Lent when I came hither there was no buying any flesh till Easter-eve, when a great number of bullocks were killed at once in the slaughterhouses within the town, men, women and children flocking thither with great joy to buy, and a multitude of dogs, almost starved, following them; for whom the meat seemed fittest, it was so lean. All these tradesmen buy negroes, and train them up to their several employments, which is a great help to them; and they having so frequent trade to Angola, and other parts of Guinea, they have a constant supply of blacks both for

their plantations and town. These slaves are very useful in this place for carriage, as porters; for as here is a great trade by sea and the landing-place is at the foot of a hill, too steep for drawing with carts, so there is great need of slaves to carry goods up into the town, especially for the inferior sort; but the merchants have also the convenience of a great crane that goes with ropes or pulleys, one end of which goes up while the other goes down. The house in which this crane is stands on the brow of the hill towards the sea, hanging over the precipice; and there are planks set shelving against the bank from thence to the bottom, against which the goods lean or slide as they are hoisted up or let down. The negro slaves in this town are so numerous that they make up the greatest part or bulk of the inhabitants: every house, as I said, having some, both men and women, of them. Many of the Portuguese, who are bachelors, keep of these black women for misses, though they know the danger they are in of being poisoned by them, if ever they give them any occasion of jealousy. A gentleman of my acquaintance, who had been familiar with his cookmaid, lay under some apprehensions from her when I was there. These slaves also of either sex will easily be engaged to do any sort of mischief; even to murder, if they are hired to do it, especially in the night; for which reason I kept my men on board as much as I could; for one of the French king's ships being here had several men murdered by them in the night, as I was credibly informed.

OF THE COUNTRY ABOUT BAHIA, ITS SOIL AND PRODUCT.

Having given this account of the town of Bahia I shall next say somewhat of the country. There is a salt-water lake runs 40 leagues, as I was told, up the country, north-west from the sea, leaving the town and Dutch fort on the starboard side. The country all around about is for the most part a pretty flat even ground, not high, nor yet very low: it is well watered with rivers, brooks and springs; neither wants it for good harbours, navigable creeks, and good bays for ships to ride in. The soil in general is good, naturally producing very large trees of divers sorts, and fit for any uses. The savannahs also are loaded with grass, herbs, and many sorts of

smaller vegetables; and being cultivated, produce anything that is proper for those hot countries, as sugarcane, cotton, indigo, maize, fruit-trees of several kinds, and eatable roots of all sorts. Of the several kinds of trees that are here I shall give an account of some, as I had it partly from an inhabitant of Bahia, and partly from my knowledge of them otherwise, namely sapiera, vermiatico, comesserie, guitteba, serrie, as they were pronounced to me, three sorts of mangrove, speckled wood, fustick, cotton-trees of 3 sorts, etc., together with fruit trees of divers sorts that grow wild, beside such as are planted.

ITS TIMBER-TREES; THE SAPIERA, VERMIATICO, COMMESSERIE, GUITTEBA, SERRIE, AND MANGROVES.

Of timber-trees the sapiera is said to be large and tall; it is very good timber, and is made use of in building of houses; so is the vermiatico, a tall straight-bodied tree, of which they make plank 2 foot broad; and they also make canoes with it. Comesserie and guitteba are chiefly used in building ships; these are as much esteemed here as oaks are in England, and they say either sort is harder and more durable than oak. The serrie is a sort of tree much like elm, very durable in water. Here are also all the three sorts of mangrove trees, namely the red, the white, and the black, which I have described. The bark of the red mangrove is here used for tanning of leather, and they have great tan-pits for it. The black mangrove grows larger here than in the West Indies, and of it they make good plank. The white mangrove is larger and tougher than in the West Indies; of these they make masts and yards for barks.

THE BASTARD-COCO, ITS NUTS AND CABLES; AND THE SILK-COTTON-TREES.

There grow here wild or bastard coconut-trees, neither so large nor so tall as the common ones in the East or West Indies. They bear nuts as the others, but not a quarter so big as the right coconuts. The shell is full of kernel, without any hollow place or water in it; and the kernel is sweet and wholesome, but very hard both for the teeth and for digestion. These

nuts are in much esteem for making beads for paternosters, boles of tobacco pipes and other toys: and every small shop here has a great many of them to sell. At the top of these bastard coco-trees, among the branches, there grows a sort of long black thread-like horsehair, but much longer, which by the Portuguese is called tresabo. Of this they make cables which are very serviceable, strong and lasting; for they will not rot as cables made of hemp, though they lie exposed both to wet and heat. These are the cables which I said they keep in their harbours here, to let to hire to European ships, and resemble the coir cables.

Here are 3 sorts of cotton-trees that bear silk-cotton. One sort is such as I have formerly described by the name of the cotton-tree. The other 2 sorts I never saw anywhere but here. The trees of these latter sorts are but small in comparison of the former, which are reckoned the biggest in all the West India woods; yet are however of a good bigness and height. One of these last sorts is not so full of branches as the other of them; neither do they produce their fruit the same time of the year: for one sort had its fruit just ripe and was shedding its leaves while the other sort was yet green, and its fruit small and growing, having but newly done blossoming; the tree being as full of young fruit as an apple-tree ordinarily in England. These last yield very large pods, about 6 inches long and as big as a man's arm. It is ripe in September and October; then the pod opens and the cotton bursts out in a great lump as big as a man's head. They gather these pods before they open; otherwise it would fly all away. It opens as well after it is gathered; and then they take out the cotton and preserve it to fill pillows and bolsters, for which use it is very much esteemed: but it is fit for nothing else, being so short that it cannot be spun. It is of a tawny colour; and the seeds are black, very round, and as big as a white pea. The other sort is ripe in March or April. The fruit or pod is like a large apple and very round. The outside shell is as thick as the top of one's finger. Within this there is a very thin whitish bag or skin which encloses the cotton. When the cotton-apple is ripe the outer thick green shell splits itself into 5 equal parts from stem to tail and drops off, leaving the cotton hanging upon the stem, only pent up in its

fine bag. A day or two afterwards the cotton swells by the heat of the sun, breaks the bag and bursts out, as big as a man's head: and then as the wind blows it is by degrees driven away, a little at a time, out of the bag that still hangs upon the stem, and is scattered about the fields; the bag soon following the cotton, and the stem the bag. Here is also a little of the right West India cotton-shrub: but none of the cotton is exported, nor do they make much cloth of it.

THE BRAZILIAN FRUITS, ORANGES, ETC.

This country produces great variety of fine fruits, as very good oranges of 3 or 4 sorts (especially one sort of china oranges) limes in abundance, pomegranates, pomecitrons, plantains, bananas, right coconuts, guavas, coco-plums (called here munsheroos) wild grapes, such as I have described, beside such grapes as grow in Europe. Here are also hog-plums, custard-apples, soursops, cashews, papaws (called here mamoons) jennipahs (called here jennipapahs) manchineel-apples and mangoes. Mangoes are yet but rare here: I saw none of them but in the Jesuits' garden, which has a great many fine fruits, and some cinnamon-trees. These, both of them, were first brought from the East Indies, and they thrive here very well: so do pumplemouses, brought also from thence; and both china and seville oranges are here very plentiful as well as good.

OF THE SOURSOPS, CASHEWS AND JENNIPAHS.

The soursop (as we call it) is a large fruit as big as a man's head, of a long or oval shape, and of a green colour; but one side is yellowish when ripe. The outside rind or coat is pretty thick, and very rough, with small sharp knobs; the inside is full of spongy pulp, within which also are many black seeds or kernels, in shape and bigness like a pumpkin-seed. The pulp is very juicy, of a pleasant taste, and wholesome. You suck the juice out of the pulp, and so spit it out. The tree or shrub that bears this fruit grows about 10 or 12 foot high, with a small short body; the branches growing

pretty straight up; for I did never see any of them spread abroad. The twigs are slender and tough; and so is the stem of the fruit. This fruit grows also both in the East and West Indies.

The cashew is a fruit as big as a pippin, pretty long, and bigger near the stem than at the other end, growing tapering. The rind is smooth and thin, of a red and yellow colour. The seed of this fruit grows at the end of it; it is of an olive colour shaped like a bean, and about the same bigness, but not altogether so flat. The tree is as big as an apple-tree, with branches not thick, yet spreading off. The boughs are gross, the leaves broad and round, and in substance pretty thick. This fruit is soft and spongy when ripe, and so full of juice that in biting it the juice will run out on both sides of one's mouth. It is very pleasant, and gratefully rough on the tongue; and is accounted a very wholesome fruit. This grows both in the East and West Indies, where I have seen and eaten of it.

The jennipah or jennipapah is a sort of fruit of the calabash or gourd kind. It is about the bigness of a duck-egg, and somewhat of an oval shape; and is of a grey colour. The shell is not altogether so thick nor hard as a calabash: it is full of whitish pulp mixed with small flat seeds; and both pulp and seeds must be taken into the mouth, where sucking out the pulp you spit out seeds. It is of a sharp and pleasing taste, and is very innocent. The tree that bears it is much like an ash, straight-bodied, and of a good height; clean from limbs till near the top, where there branches forth a small head. The rind is of a pale grey, and so is the fruit. We used of this tree to make helves or handles for axes (for which it is very proper) in the Bay of Campeachy; where I have seen of them, and nowhere else but here.

OF THEIR PECULIAR FRUITS, ARISAHS, MERICASAHS, PETANGOS, PETUMBOS, MUNGAROOS, MUCKISHAWS, INGWAS, OTEES, AND MUSTERAN DE OVAS.

Besides these here are many sorts of fruits which I have not met with anywhere but here; as arisahs, mericasahs, petangos, etc. Arisahs are an excellent fruit, not much bigger than a large cherry; shaped like a catherine-pear, being small at the stem, and swelling bigger towards the end. They are of a greenish colour, and have small seeds as big as mustard seeds; they are somewhat tart, yet pleasant, and very wholesome, and may be eaten by sick people.

Mericasahs are an excellent fruit, of which there are 2 sorts; one growing on a small tree or shrub, which is counted the best; the other growing on a kind of shrub like a vine, which they plant about arbors to make a shade, having many broad leaves. The fruit is as big as a small orange, round and green. When they are ripe they are soft and fit to eat; full of white pulp mixed thick with little black seeds, and there is no separating one from the other till they are in your mouth; when you suck in the white pulp and spit out the stones. They are tart, pleasant, and very wholesome.

Petangos are a small red fruit that grow also on small trees and are as big as cherries, but not so globular, having one flat side, and also 5 or 6 small protuberant ridges. It is a very pleasant tart fruit, and has a pretty large flattish stone in the middle.

Petumbos are a yellow fruit (growing on a shrub like a vine) bigger than cherries with a pretty large stone. These are sweet, but rough in the mouth.

Mungaroos are a fruit as big as cherries, red on one side and white on the other side: they are said to be full of small seeds, which are commonly swallowed in eating them.

Muckishaws are said to be a fruit as big as crab-apples, growing on large trees. They have also small seeds in the middle and are well tasted.

Ingwas are a fruit like the locust-fruit, 4 inches long and one broad. They grow on high trees.

Otee is a fruit as big as a large coconut. It hath a husk on the outside, and a large stone within, and is accounted a very fine fruit.

Musteran-de-ovas are a round fruit as big as large hazelnuts, covered with thin brittle shells of a blackish colour: they have a small stone in the middle, enclosed within a black pulpy substance, which is of a pleasant taste. The outside shell is chewed with the fruit, and spit out with the stone, when the pulp is sucked from them. The tree that bears this fruit is tall, large, and very hard wood. I have not seen any of these five last-named fruits, but had them thus described to me by an Irish inhabitant of Bahia; though as to this last I am apt to believe I may have both seen and eaten of them in Achin in Sumatra.

OF THE PALMBERRIES, PHYSICK-NUTS, MENDIBEES, ETC. AND THEIR ROOTS AND HERBS, ETC.

Palm-berries (called here dendees) grow plentifully about Bahia; the largest are as big as walnuts; they grow in bunches on the top of the body of the tree, among the roots of the branches or leaves, as all fruits of the palm kind do. These are the same kind of berries or nuts as those they make the palm-oil with on the coast of guinea, where they abound: and I was told that they make oil with them here also. They sometimes roast and eat them; but when I had one roasted to prove it I did not like it.

Physick-nuts, as our seamen called them, are called here pineon; and agnus castus is called here carrepat: these both grow here: so do mendibees, a fruit like physick-nuts. They scorch them in a pan over the fire before they eat them.

Here are also great plenty of cabbage-trees, and other fruits, which I did not get information about and which I had not the opportunity of seeing; because this was not the season, it being our spring, and consequently their autumn, when their best fruits were gone, though some were left. However I saw abundance of wild berries in the woods and fields, but I could not learn their names or nature.

They have withal good plenty of ground fruit, as callavances, pineapples, pumpkins, watermelons, musk-melons, cucumbers, and roots; as yams, potatoes, cassava, etc. Garden herbs also good store; as cabbages, turnips, onions, leeks, and abundance of other salading, and for the pot. Drugs of several sorts, namely sassafras, snake-root, etc. Beside the woods I mentioned for dyeing and other uses as fustick, speckled-wood, etc.

I brought home with me from hence a good number of plants, dried between the leaves of books; of some of the choicest of which that are not spoiled I may give a specimen at the end of the book.

OF THEIR WILDFOWL, MACAWS, PARROTS, ETC.

Here are said to be great plenty and variety of wildfowl, namely yemmas, macaws (which are called here jackoos, and are a larger sort of parrot, and scarcer) parrots, parakeets, flamingos, carrion-crows, chattering-crows, cockrecoes, bill-birds finely painted, corresoes, doves, pigeons, jenetees, clocking-hens, crab-catchers, galdens, currecoos, muscovy ducks, common ducks, widgeons, teal, curlews, men-of-war birds, boobies, noddies, pelicans, etc.

THE YEMMA, CARRION-CROW AND CHATTERING-CROW, BILL-BIRD, CURRESO, TURTLEDOVE AND WILD PIGEONS; THE JENETEE,

The yemma is bigger than a swan, grey-feathered, with a long thick sharp-pointed bill.

The carrion-crow and chattering-crows are called here mackeraws, and are like those I described in the West Indies. The bill of the chattering-crow is black, and the upper bill is round, bending downwards like a hawk's bill, rising up in a ridge almost semi-circular, and very sharp, both at the ridge or convexity, and at the point or extremity: the lower bill is flat and shuts even with it. I was told by a Portuguese here that their negro wenches make love potions with these birds. And the

Portuguese care not to let them have any of these birds, to keep them from that superstition: as I found one afternoon when I was in the fields with a padre and another, who shot two of them, and hid them, as they said, for that reason. They are not good food, but their bills are reckoned a good antidote against poison.

The bill-birds are so called by the English from their monstrous bills, which are as big as their bodies. I saw none of these birds here, but saw several of the breasts flayed off and dried for the beauty of them; the feathers were curiously coloured with red, yellow, and orange-colour.

The curresos (called here mackeraws) are such as are in the Bay of Campeachy.

Turtledoves are in great plenty here; and two sorts of wild pigeons; the one sort blackish, the other a light grey: the blackish or dark grey are the bigger, being as large as our wood-quests, or wood-pigeons in England. Both sorts are very good meat; and are in such plenty from May till September that a man may shoot 8 or 10 dozen in several shots at one standing, in a close misty morning, when they come to feed on berries that grow in the woods.

The jenetee is a bird as big as a lark with black feathers, and yellow legs and feet. It is accounted very wholesome food.

CLOCKING-HEN, CRAB-CATCHER, GALDEN, AND BLACK HERON: THE DUCKS, WIDGEON AND TEAL; AND OSTRICHES TO THE SOUTHWARD, AND OF THE DUNGHILL-FOWLS.

Clocking-hens are much like the crab-catchers which I have described, but the legs are not altogether so long. They keep always in swampy wet places, though their claws are like land-fowls' claws. They make a noise or cluck like our brood-hens, or dunghill-hens, when they have chickens, and for that reason they are called by the English clocking-hens. There are many of them in the Bay of Campeachy (though I omitted to speak of them there) and elsewhere in the West Indies. There are both here and

there four sorts of these long-legged fowls, near akin to each other as so many sub-species of the same kind; namely crab-catchers, clocking-hens, galdens (which three are in shape and colour like herons in England, but less; the galden, the biggest of the three, the crab-catcher the smallest) and a fourth sort which are black, but shaped like the other, having long legs and short tails; these are about the bigness of crab-catchers, and feed as they do.

Currecoos are waterfowls, as big as pretty large chickens, of a bluish colour, with short legs and tail; they feed also in swampy ground and are very good meat. I have not seen of them elsewhere.

The wild ducks here are said to be of two sorts, the muscovy and the common ducks. In the wet season here are abundance of them, but in the dry time but few. Widgeon and teal also are said to be in great plenty here in the wet season.

To the southward of Bahia there are also ostriches in great plenty, though it is said they are not so large as those of Africa: they are found chiefly in the southern parts of Brazil, especially among the large savannahs near the river of Plate; and from thence further south towards the Straits of Magellan.

As for tame fowl at Bahia the chief beside their ducks are dunghill-fowls, of which they have two sorts; one sort much of the size of our cocks and hens; the other very large: and the feathers of these last are a long time coming forth: so that you see them very naked when half grown; but when they are full-grown and well feathered they appear very large fowls, as indeed they are; neither do they want for price; for they are sold at Bahia for half-a-crown or three shillings apiece, just as they are brought first to market out of the country, when they are so lean as to be scarce fit to eat.

OF THEIR CATTLE, HORSES, ETC.

The land animals here are horses, black cattle, sheep, goats, rabbits, hogs, leopards, tigers, foxes, monkeys, peccary (a sort of wild hogs called here pica) armadillo, alligators, iguanas (called quittee) lizards, serpents, toads, frogs, and a sort of amphibious creatures called by the Portuguese cachoras-de-agua, in English water-dogs.

LEOPARDS AND TIGERS.

The leopards and tigers of this country are said to be large and very fierce: but here on the coast they are either destroyed or driven back towards the heart of the country; and therefore are seldom found but in the borders and out-plantations, where they oftentimes do mischief. Here are three or four sorts of monkeys, of different sizes and colours. One sort is very large; and another sort is very small: these last are ugly in shape and feature and have a strong scent of musk.

OF THEIR SERPENTS; THE RATTLESNAKE, SMALL GREEN SNAKE. AMPHISBAENA, SMALL BLACK AND SMALL GREY SNAKE; THE GREAT LAND-SNAKE, AND THE GREAT WATERSNAKE; AND OF THE WATER-DOG.

They have here also the amphisbaena, or two-headed snake, of a grey colour, mixed with blackish stripes, whose bite is reckoned to be incurable. It is said to be blind, though it has two small specks in each head like eyes: but whether it sees or not I cannot tell. They say it lives like a mole, mostly underground; and that when it is found above ground it is easily killed, because it moves but slowly: neither is its sight (if it hath any) so good as to discern anyone that comes near to kill it: as few of these creatures fly at a man or hurt him but when he comes in their way. It is about 14 inches long and about the bigness of the inner joint of a man's middle finger; being of one and the same bigness from one end to the other, with a head at each end (as they said; for I cannot vouch it, for one I had was cut short at one end) and both alike in shape

and bigness; and it is said to move with either head foremost, indifferently; whence it is called by the Portuguese cobra-de-dos-cabesas, the snake with two heads.

The small black snake is a very venomous creature.

There is also a grey snake, with red and brown spots all over its back. It is as big as a man's arm and about 3 foot long, and is said to be venomous. I saw one of these.

Here are two sorts of very large snakes or serpents: one of them a land-snake, the other a water-snake. The land-snake is of a grey colour, and about 18 or 20 foot long: not very venomous, but ravenous. I was promised the sight of one of their skins but wanted opportunity.

The water-snake is said to be near 30 foot long. These live wholly in the water, either in large rivers or great lakes, and prey upon any creature that comes within their reach, be it man or beast. They draw their prey to them with their tails: for when they see anything on the banks of the river or lake where they lurk they swing about their tails 10 or 12 foot over the bank; and whatever stands within their sweep is snatched with great violence into the river, and drowned by them. Nay it is reported very credibly that if they see only a shade of any animal at all on the water, they will flourish their tails to bring in the man or beast whose shade they see and are oftentimes too successful in it. Wherefore men that have business near any place where these water-monsters are suspected to lurk are always provided with a gun, which they often fire, and that scares them away or keeps them quiet. They are said to have great heads and strong teeth about 6 inches long. I was told by an Irishman who lived here that his wife's father was very near being taken by one of them, about this time of my first arrival here, when his father was with him up in the country: for the beast flourished his tail for him, but came not nigh enough by a yard or two; however it scared him sufficiently.

The amphibious creatures here which I said are called by the Portuguese cachoras-de-agua or water-dogs, are said to be as big as small mastiffs, and are all hairy and shaggy from head to tail. They have 4 short legs, a pretty long head and short tail; and are of a blackish colour. They live in fresh-water ponds and oftentimes come ashore and sun themselves; but retire to the water if assaulted. They are eaten and said to be good food. Several of these creatures which I have now spoken of I have not seen, but informed myself about them while I was here at Bahia, from sober and sensible persons among the inhabitants, among whom I met with some that could speak English.

OF THEIR SEA-FISH AND TURTLE; AND OF ST. PAUL'S TOWN.

In the sea upon this coast there is great store and diversity of fish, namely jew-fish for which there is a great market at Bahia in Lent: tarpon, mullet, grouper, snook, garfish (called here goolions) gorasses, barramas, coquindas, cavallies, cachoras (or dogfish) conger eels, herring (as I was told) the serrew, the olio-de-boy (I write and spell them just as they were named to me) whales, etc.

Here is also shellfish (though in less plenty about Bahia than on other parts of the coast) namely lobsters, crawfish, shrimps, crabs, oysters of the common sort, conches, wilks, cockles, mussels, periwinkles, etc. Here are three sorts of sea-turtle, namely hawksbill, loggerhead, and green: but none of them are in any esteem, neither Spaniards nor Portuguese loving them: nay they have a great antipathy against them, and would much rather eat a porpoise, though our English count the green turtle very extraordinary food. The reason that is commonly given in the West Indies for the Spaniards not caring to eat of them is the fear they have lest, being usually foul-bodied and many of them poxed (lying, as they do, so promiscuously with their negrines and other she-slaves) they should break out loathsomely like lepers; which this sort of food, it is said, does much incline men to do, searching the body, and driving out any such gross humours: for which cause many of our English valetudinarians have gone from Jamaica (though there they have also

turtle) to the island Cayman, at the laying time, to live wholly upon turtle that then abound there; purposely to have their bodies scoured by this food, and their distempers driven out; and have been said to have found many of them good success in it. But this by the way. The hawksbill-turtle on this coast of Brazil is most sought after of any, for its shell; which by report of those I have conversed with at Bahia, is the clearest and best clouded tortoise-shell in the world. I had some of it shown me which was indeed as good as ever I saw. They get a pretty deal of it in some parts on this coast; but it is very dear.

Beside this port of Bahia de todos los Santos there are 2 more principal ports on Brazil where European ships trade, namely Pernambuco and Rio de Janeiro; and I was told that there go as many ships to each of these places as to Bahia, and 2 men-of-war to each place for their convoys. Of the other ports in this country none is of greater note than that of St. Paul's where they gather much gold; but the inhabitants are said to be a sort of banditti, or loose people that live under no government: but their gold brings them all sorts of commodities that they need, as clothes, arms, ammunition, etc. The town is said to be large and strong.

CHAPTER 3.

TWO OCEANS AND NEW HOLLAND.

THE AUTHOR'S STAY AND BUSINESS AT BAHIA: OF THE WINDS, AND SEASONS OF THE YEAR THERE.

My stay here at Bahia was about a month; during which time the viceroy of Goa came hither from thence in a great ship, said to be richly laden with all sorts of India goods; but she did not break bulk here, being bound home for Lisbon; only the viceroy intended to refresh his men (of whom he had lost many, and most of the rest were very sickly, having been 4 months in their voyage hither) and so to take in water, and depart for Europe in company with the other Portuguese ships thither bound;

who had orders to be ready to sail by the twentieth of May. He desired me to carry a letter for him, directed to his successor the new viceroy of Goa; which I did, sending it thither afterwards by Captain Hammond, whom I found near the Cape of Good Hope. The refreshing my men and taking in water was the main also of my business here; beside the having the better opportunity to compose the disorders among my crew: which, as I have before related, were grown to so great a height that they could not without great difficulty be appeased: however, finding opportunity during my stay in this place to allay in some measure the ferment that had been raised among my men, I now set myself to provide for the carrying on of my voyage with more heart than before, and put all hands to work, in order to it, as fast as the backwardness of my men would permit; who showed continually their unwillingness to proceed farther. Besides, their heads were generally filled with strange notions of southerly winds that were now setting in (and there had been already some flurries of them) which, as they surmised, would hinder any farther attempts of going on to the southward so long as they should last.

The winds begin to shift here in April and September, and the seasons of the year (the dry and the wet) alter with them. In April the southerly winds make their entrance on this coast, bringing in the wet season, with violent tornados, thunder and lightning, and much rain. In September the other coasting trade at east-north-east comes in and clears the sky, bringing fair weather. This, as to the change of wind, is what I have observed, but as to the change of weather accompanying it so exactly here at Bahia this is a particular exception to what I have experienced in all other places of south latitudes that I have been in between the tropics, or those I have heard of; for there the dry season sets in, in April, and the wet about October or November, sooner or later (as I have said that they are, in south latitudes, the reverse of the seasons, or weather, in the same months in north latitudes, whereas on this coast of Brazil the wet season comes in in April at the same time that it doth in north latitudes, and the dry (as I have said here) in September; the rains here not lasting so far in the year as in other places; for in September the weather is

usually so fair that in the latter part of that month they begin to cut their sugarcane here, as I was told; for I enquired particularly about the seasons: though this, as to the season of cutting of cane, which I was now assured to be in September, agrees not very well with that I was formerly told, that in Brazil they cut the cane in July. And so as to what is said a little lower in the same page, that in managing their cane they are not confined to the seasons, this ought to have been expressed only of planting them; for they never cut them but in the dry season.

But to return to the southerly winds, which came in (as I expected they would) while I was here: these daunted my ship's company very much, though I had told them they were to look for them: but they being ignorant as to what I told them farther, that these were only coasting winds, sweeping the shore to about 40 or 50 leagues in breadth from it, and imagining that they had blown so all the sea over, between America and Africa; and being confirmed in this their opinion by the Portuguese pilots of European ships, with whom several of my officers conversed much, and who were themselves as ignorant that these were only coasting tradewinds (themselves going away before them in their return homewards till they cross the Line, and so having no experience of the breadth of them) being thus possessed with a conceit that we could not sail from hence till September; this made them still the more remiss in their duties, and very listless to the getting things in a readiness for our departure. However I was the more diligent myself to have the ship scrubbed, and to send my water casks ashore to get them trimmed, my beer being now out. I went also to the governor to get my water filled; for here being but one watering-place (and the water running low, now at the end of the dry season) it was always so crowded with the European ships' boats, who were preparing to be gone, that my men could seldom come nigh it till the governor very kindly sent an officer to clear the watering-place for my men, and to stay there till my water-casks were all full, whom I satisfied for his pains. Here I also got aboard 9 or 10 ton of ballast, and made my boatswain fit the rigging that was amiss: and I enquired also of my particular officers, whose business it was, whether

they wanted any stores, especially pitch and tar; for that here I would supply myself before I proceeded any farther; but they said they had enough, though it did not afterwards prove so.

I commonly went ashore every day, either upon business, or to recreate myself in the fields, which were very pleasant, and the more for a shower of rain now and then, that ushers in the wet season. Several sorts of good fruits were also still remaining, especially oranges, which were in such plenty that I and all my company stocked ourselves for our voyage with them, and they did us a great kindness; and we took in also a good quantity of rum and sugar: but for fowls, they being here lean and dear, I was glad I had stocked myself at St. Jago. But, by the little care my officers took for fresh provisions, one might conclude they did not think of going much farther. Besides I had like to have been embroiled with the clergy here (of the Inquisition, as I suppose) and so my voyage might have been hindered. What was said to them of me by some of my company that went ashore I know not; but I was assured by a merchant there that if they got me into their clutches (and it seems when I was last ashore they had narrowly watched me) the governor himself could not release me. Besides I might either be murdered in the streets, as he sent me word, or poisoned, if I came ashore any more; and therefore he advised me to stay aboard. Indeed I had now no further business ashore but to take leave of the governor and therefore took his advice.

HIS DEPARTURE FOR NEW HOLLAND.

Our stay here was till the 23rd of April. I would have gone before if I could sooner have fitted myself; but was now earnest to be gone, because this harbour lies open to the south and south-south-west, which are raging winds here, and now was the season for them. We had 2 or 3 touches of them; and one pretty severe, and the ships ride there so near each other that, if a cable would fail or an anchor start, you are instantly aboard of one ship or other: and I was more afraid of being disabled he in harbour by these blustering winds than discouraged by them, as my

people were, from prosecuting the voyage; for at present I even wished for a brisk southerly wind, as soon as I should be once well out of the harbour, to set me the sooner into the true general tradewind.

The tide of flood being spent, and having a fine land-breeze on the 23rd in the morning, I went away from the anchoring place before it was light; and then lay by till daylight that we might see the better how to go out of the harbour. I had a pilot belonging to Mr. Cock who went out with me, to whom I gave 3 dollars; but I found I could as well have gone out myself by the soundings I made at coming in. The wind was east by north and fair weather. By 10 o'clock I was got past all danger and then sent away my pilot.

CAPE SALVADOR.

At 12 Cape Salvador bore north distant 6 leagues, and we had the winds between the east by north and south-east a considerable time, so that we kept along near the shore, commonly in sight of it. The southerly blasts had now left us again; for they come at first in short flurries, and shift to other points (for 10 or 12 days sometimes) before they are quite set in: and we had uncertain winds, between sea and land-breezes, and the coasting trade, which was itself unsettled.

THE WINDS ON THE BRAZILIAN COAST; AND ABROLHO SHOAL; FISH AND BIRDS: THE SHEARWATER BIRD, AND COOKING OF SHARKS.

The easterly winds at present made me doubt I should not weather a great shoal which lies in latitude between 18 and 19 degrees south, and runs a great way into the sea, directly from the land, easterly. Indeed the weather was fair (and continued so a good while) so that I might the better avoid any danger from it: and if the wind came to the southward I knew I could stretch off to sea; so that I jogged on courageously. The 27th of April we saw a small brigantine under the shore plying to the southward. We also saw many men-of-war-birds and boobies, and

abundance of albicore-fish. Having still fair weather, small gales, and some calms, I had the opportunity of trying the current, which I found to set sometimes northerly and sometimes southerly: and therefore knew I was still within the verge of the tides. Being now in the latitude of the Abrolho Shoals, which I expected to meet with, I sounded, and had water lessening from 40 to 33 and so to 25 fathom: but then it rose again to 33, 35, 37, etc., all coral rocks. Whilst we were on this shoal (which we crossed towards the further part of it from land, where it lay deep, and so was not dangerous) we caught a great many fish with hook and line: and by evening amplitude we had 6 degrees 38 minutes east variation. This was the 27th of April; we were then in latitude 18 degrees 13 minutes south and east longitude from Cape Salvador 31 minutes. On the 29th, being then in latitude 18 degrees 39 minutes south, we had small gales from the west-north-west to the west-south-west often shifting. The 30th we had the winds from west to south-south-east, squalls and rain: and we saw some dolphins and other fish about us. We were now out of sight of land and had been so 4 or 5 days: but the winds now hanging in the south was an apparent sign that we were still too nigh the shore to receive the true general east trade; as the easterly winds we had before showed that we were too far off the land to have the benefit of the coasting south trade: and the faintness of both these winds, and their often shifting from the south-south-west to the south-east with squalls, rain and small gales, were a confirmation of our being between the verge of the south coasting trade and that of the true trade; which is here regularly south-east.

The 3rd of May, being in latitude 20 degrees 00 minutes and meridian distance west from Cape Salvador 234 miles, the variation was 7 degrees 00 minutes. We saw no fowl but shearwaters, as our seamen call them, being a small black fowl that sweep the water as they fly, and are much in the seas that lie without either of the tropics: they are not eaten. We caught 3 small sharks, each 6 foot 4 inches long; and they were very

good food for us. The next day we caught 3 more sharks of the same size, and we ate them also, esteeming them as good fish, boiled and pressed, and then stewed with vinegar and pepper.

EXCESSIVE NUMBER OF BIRDS ABOUT A DEAD WHALE; OF THE PINTADO BIRD, AND THE PETREL, ETC.

We had nothing of remark from the 3rd of May to the 10th, only now and then seeing a small whale spouting up the water. We had the wind easterly and we ran with it to the southward, running in this time from the latitude of 20 degrees 00 minutes to 29 degrees 5 minutes south, and having then 7 degrees 3 minutes east longitude from Cape Salvador; the variation increasing upon us at present, notwithstanding we went east. We had all along a great difference between the morning and evening amplitudes; usually a degree or two, and sometimes more. We were now in the true trade, and therefore made good way to the southward to get without the verge of the general tradewind into a westerly wind's way that might carry us towards the Cape of Good Hope. By the 12th of May, being in latitude 31 degrees 10 minutes we began to meet with westerly winds, which freshened on us, and did not leave us till a little before we made the Cape. Sometimes it blew so hard that it put us under a fore-course; especially in the night; but in the daytime we had commonly our main topsail reefed. We met with nothing of moment; only we passed by a dead whale, and saw millions (as I may say) of sea-fowls about the carcass (and as far round about it as we could see) some feeding, and the rest flying about, or sitting on the water, waiting to take their turns. We first discovered the whale by the fowls; for indeed I did never see so many fowls at once in my life before, their numbers being inconceivably great: they were of divers sorts, in bigness, shape and colour. Some were almost as big as geese, of a grey colour, with white breasts, and with such bills, wings, and tails. Some were pintado-birds, as big as ducks, and speckled black and white. Some were shearwaters; some petrels; and there were several sorts of large fowls. We saw of these birds, especially pintado-birds, all the sea over from about 200 leagues distant from the

coast of Brazil to within much the same distance of New Holland. The pintado is a southern bird, and of that temperate zone; for I never saw of them much to the northward of 30 degrees south. The pintado-bird is as big as a duck; but appears, as it flies, about the bigness of a tame pigeon, having a short tail, but the wings very long, as most sea-fowls have; especially such as these that fly far from the shore, and seldom come nigh it; for their resting is sitting afloat upon the water; but they lay, I suppose, ashore. There are three sorts of these birds, all of the same make and bigness, and are only different in colour. The first is black all over: the second sort are grey, with white bellies and breasts. The third sort, which is the true pintado, or painted-bird, is curiously spotted white and black. Their heads and the tips of their wings and tails are black for about an inch; and their wings are also edged quite round with such a small black list; only within the black on the tip of their wings there is a white spot seeming as they fly (for then their spots are best seen) as big as a half-crown. All this is on the outside of the tails and wings; and, as there is a white spot in the black tip of the wings, so there is in the middle of the wings which is white, a black spot; but this, towards the back of the bird, turns gradually to a dark grey. The back itself, from the head to the tip of the tail, and the edge of the wings next to the back, are all over spotted with fine small, round, white and black spots, as big as a silver twopence, and as close as they can stick one by another: the belly, thighs, sides, and inner part of the wings, are of a light grey. These birds, of all these sorts, fly many together, never high, but almost sweeping the water. We shot one a while after on the water in a calm, and a water-spaniel we had with us brought it in: I have given a picture of it, but it was so damaged that the picture doth not show it to advantage; and its spots are best seen when the feathers are spread as it flies.

BIRDS OF THE VOYAGE.

The petrel is a bird not much unlike a swallow, but smaller, and with a shorter tail. It is all over black, except a white spot on the rump. They fly sweeping like swallows, and very near the water. They are not so often seen in fair weather; being foul-weather birds, as our seamen call them, and presaging a storm when they come about a ship; who for that reason don't love to see them. In a storm they will hover close under the ship's stern in the wake of the ship (as it is called) or the smoothness which the ship's passing has made on the sea; and there as they fly (gently then) they pat the water alternately with their feet as if they walked upon it; though still upon the wing. And from hence the seamen give them the name of petrels in allusion to St. Peter's walking upon the Lake of Gennesareth.

We also saw many bunches of seaweeds in the latitude of 39 32 and, by judgment near, the meridian of the island Tristan d'Acunha: and then we had about 2 degrees 20 minutes east variation: which was now again decreasing as we ran to the eastward, till near the meridian of Ascension; where we found little or no variation: but from thence, as we ran farther to the east, our variation increased westerly.

OF A BIRD THAT SHOWS THE CAPE OF GOOD HOPE TO BE NEAR: OF THE SEA-RECKONINGS, AND VARIATIONS: AND A TABLE OF ALL THE VARIATIONS OBSERVED IN THIS VOYAGE.

Two days before I made the Cape of Good Hope my variation was 7 degrees 58 minutes west. I was then in 43 degrees 27 minutes east longitude from Cape Salvador, being in latitude 35 degrees 30 minutes, this was the first of June. The second of June I saw a large black fowl, with a whitish flat bill, fly by us; and took great notice of it, because in the East India Waggoner, pilot-book, there is mention made of large fowls, as big as ravens, with white flat bills and black feathers, that fly not above 30 leagues from the Cape, and are looked on as a sign of one's being near it. My reckoning made me then think myself above 90 leagues from the Cape, according to the longitude which the Cape hath in the common sea-charts: so that I was in some doubt whether these

were the right fowls spoken of in the Waggoner; or whether those fowls might not fly farther off shore than is there mentioned; or whether, as it proved, I might not be nearer the Cape than I reckoned myself to be; for I found, soon after, that I was not then above 25 or 30 leagues at most from the Cape. Whether the fault were in the charts laying down the Cape too much to the east from Brazil, or were rather in our reckoning, I could not tell: but our reckonings are liable to such uncertainties from steerage, log, currents, half-minute-glasses; and sometimes want of care, as in so long a run cause often a difference of many leagues in the whole account.

Most of my men that kept journals imputed it to the half-minute-glasses: and indeed we had not a good glass in the ship beside the half-watch or two-hour-glasses. As for our half-minute-glasses we tried them all at several times, and we found those that we had used from Brazil as much too short, as others we had used before were too long; which might well make great errors in those several reckonings. A ship ought therefore to have its glasses very exact; and besides, an extraordinary care ought to be used in heaving the log, for fear of giving too much stray line in a moderate gale; and also to stop quickly in a brisk gale, for when a ship runs 8, 9 or 10 knots, half a knot or a knot is soon run out, and not heeded: but to prevent danger, when a man thinks himself near land, the best way is to look out betimes, and lie by in the night, for a commander may err easily himself; beside the errors of those under him, though never so carefully eyed.

Another thing that stumbled me here was the variation, which, at this time, by the last amplitude I had found to be but 7 degrees 58 minutes west, whereas the variation at the Cape (from which I found myself not 30 leagues distant) was then computed, and truly, about 11 degrees or more: and yet a while after this, when I was got 10 leagues to the eastward of the Cape, I found the variation but 10 degrees 40 minutes west, whereas it should have been rather more than at the Cape. These things, I confess, did puzzle me: neither was I fully satisfied as to the

exactness of the taking the variation at sea: for in a great sea, which we often meet with, the compass will traverse with the motion of the ship; besides the ship may and will deviate somewhat in steering, even by the best helmsmen: and then when you come to take an azimuth there is often some difference between him that looks at the compass and the man that takes the altitude height of the sun; and a small error in each, if the error of both should be one way, will make it wide of any great exactness. But what was most shocking to me, I found that the variation did not always increase or decrease in proportion to the degrees of longitude east or west; as I had a notion they might do to a certain number of degrees of variation east or west, at such or such particular meridians. But, finding in this voyage that the difference of variation did not bear a regular proportion to the difference of longitude, I was much pleased to see it thus observed in a scheme shown me after my return home, wherein are represented the several variations in the Atlantic Sea, on both sides of the equator, and there the line of no variation in that sea is not a meridian line, but goes very oblique, as do those also which show the increase of variation on each side of it. In that chart there is so large an advance made as well towards the accounting for those seemingly irregular increases and decreases of variation towards the south-east coast of America as towards the fixing a general scheme or system of the variation everywhere, which would be of such great use in navigation, that I cannot but hope that the ingenious author, Captain Halley, who to his profound skill in all theories of these kinds, hath added and is adding continually personal experiments, will e'er long oblige the world with a fuller discovery of the course of the variation, which hath hitherto been a secret. For my part I profess myself unqualified for offering at anything of a general scheme; but since matter of fact, and whatever increases the history of the variation, may be of use towards the settling or confirming the theory of it, I shall here once for all insert a table of all the variations I observed beyond the equator in this voyage, both in going out and returning back; and what errors there may be in it I shall leave to be corrected by the observations of others.

(A TABLE OF VARIATIONS.)

OCCURRENCES NEAR THE CAPE; AND THE AUTHOR'S PASSING BY IT.

But to return from this digression: having fair weather and the winds hanging southerly I jogged on to the eastward to make the Cape. On the third of June we saw a sail to leeward of us, showing English colours. I bore away to speak with her, and found her to be the Antelope of London, commanded by Captain Hammond, and bound for the Bay of Bengal in the service of the New-East-India Company. There were many passengers aboard, going to settle there under Sir Edward Littleton, who was going chief thither: I went aboard and was known by Sir Edward and Mr. Hedges, and kindly received and treated by them and the commander; who had been afraid of us before, though I had sent one of my officers aboard. They had been in at the Cape, and came from thence the day before, having stocked themselves with refreshments. They told me that they were by reckoning 60 miles to the west of the Cape. While I was aboard them a fine small westerly wind sprang up; therefore I shortened my stay with them because I did not design to go in to the Cape. When I took leave I was presented with half a mutton, 12 cabbages, 12 pumpkins, 6 pound of butter, 6 couple of stock-fish, and a quantity of parsnips; sending them some oatmeal which they wanted.

From my first setting out from England I did not design to touch at the Cape; and that was one reason why I touched at Brazil, that there I might refresh my men and prepare them for a long run to New Holland. We had not yet seen the land, but about 2 in the afternoon we saw the Cape land bearing east at about 16 leagues distance: and, Captain Hammond being also bound to double the Cape, we jogged on together this afternoon and the next day, and had several fair sights of it; which may be seen.

OF THE WESTERLY WINDS BEYOND IT: A STORM, AND ITS PRESAGES.

To proceed: having still a westerly wind I jogged on in company with the Antelope till Sunday June the 4th, at 4 in the afternoon, when we parted; they steering away for the East Indies and I keeping an east-south-east course, the better to make my way for New Holland: for though New Holland lies north-easterly from the Cape yet all ships bound towards the coast, or the Straits of Sunda, ought to keep for a while in the same parallel, or in a latitude between 35 and 40, at least a little to the south of the east, that they may continue in a variable winds way; and not venture too soon to stand so far to the north as to be within the verge of the tradewind, which will put them by their easterly course. The wind increased upon us; but we had yet sight of the Antelope, and of the land too, till Tuesday the 6th June: and then we saw also by us an innumerable company of fowls of divers sorts; so that we looked about to see if there were not another dead whale, but saw none.

The night before, the sun set in a black cloud, which appeared just like land, and the clouds above it were gilded of a dark red colour. And on the Tuesday, as the sun drew near the horizon, the clouds were gilded very prettily to the eye, though at the same time my mind dreaded the consequences of it. When the sun was now not above 2 degrees high it entered into a dark smoky-coloured cloud that lay parallel with the horizon, from whence presently seemed to issue many dusky blackish beams. The sky was at this time covered with small hard clouds (as we call such a lie scattering about, not likely to rain) very thick one by another; and such of them as lay next to the bank of clouds at the horizon were of a pure gold colour to 3 or 4 degrees high above the bank. From these to about 10 degrees high they were redder and very bright; above them they were of a darker colour still, to about 60 or 70 degrees high, where the clouds began to be of their common colour. I took the more particular notice of all this because I have generally observed such coloured clouds to appear before an approaching storm: and, this being winter here and the time for bad weather, I expected and provided for a violent blast of wind by reefing our topsails, and giving a strict charge to my officers to hand them or take them in if the wind should grow

stronger. The wind was now at west-north-west a very brisk gale. About 12 o'clock at night we had a pale whitish glare in the north-west which was another sign, and intimated the storm be near at hand; and, the wind increasing upon it, we presently handed our topsails, furled the mainsail, and went away only with our foresail. Before 2 in the morning it came on very fierce, and we kept right before wind and sea, the wind still increasing: but the ship was very governable, and steered incomparably well. At 8 in the morning we settled our foreyard, lowering it 4 or 5 foot, and we ran very swiftly; especially when the squalls of rain or hail from a black cloud came overhead, for then it blew excessive hard. These, though they did not last long, yet came very thick and fast one after another. The sea also ran very high; but we running so violently before wind and sea we shipped little or no water; though a little washed into our upper deck ports; and with it a scuttle or cuttlefish was cast up on the carriage of a gun.

The wind blew extraordinary hard all Wednesday the 7th of June but abated of its fierceness before night: yet it continued a brisk gale till about the 16th, and still a moderate one till the 19th day; by which time we had run about 600 leagues: for the most part of which time the wind was in some point of the west, namely from the west-north-west to the south by west. It blew hardest when at west or between the west and south-west, but after it veered more southerly the foul weather broke up: this I observed at other times also in these seas, that when the storms at west veered to the southward they grew less; and that when the wind came to the east of the south we had still smaller gales, calms, and fair weather. As for the westerly winds on that side the Cape, we like them never the worse for being violent, for they drive us the faster to the eastward; and are therefore the only winds coveted by those who sail towards such parts of the East Indies as lie south of the equator; as Timor, Java, and Sumatra; and by the ships bound for China, or any other that are to pass through the Straits of Sunda. Those ships having once passed the Cape keep commonly pretty far southerly, on purpose to meet with these west winds, which in the winter season of these climates

they soon meet with; for then the winds are generally westerly at the Cape, and especially to the southward of it: but in their summer months they get to the southward of 40 degrees usually ere they meet with the westerly winds. I was not at this time in a higher latitude than 36 degrees 40 minutes, and oftentimes was more northerly, altering my latitude often as winds and weather required; for in such long runs it is best to shape one's course according to the winds. And if in steering to the east we should be obliged to bear a little to the north or south of it it is no great matter; for it is but sailing 2 or 3 points from the wind when it is either northerly or southerly; and this not only eases the ship from straining but shortens the way more than if a ship was kept close on a wind, as some men are fond of doing.

THE AUTHOR'S COURSE TO NEW HOLLAND; AND SIGNS OF APPROACHING IT.

The 19th of June we were in latitude 34 degrees 17 minutes south and longitude from the Cape 39 degrees 24 minutes east, and had small gales and calms. The winds were at north-east by east and continued in some part of the east till the 27th day. When it having been some time at north-north-east it came about at north and then to the west of the north, and continued in the west-board (between the north-north-west and south-south-west) till the 4th of July; in which time we ran 782 miles; then the winds came about again to the east, we reckoning ourselves to be in a meridian 1100 leagues east of the Cape; and, having fair weather, sounded, but had no ground.

We met with little of remark in this voyage, besides being accompanied with fowls all the way, especially pintado-birds, and seeing now and then a whale: but as we drew nigher the coast of New Holland we saw frequently 3 or 4 whales together. When we were about 90 leagues from the land we began to see seaweeds, all of one sort; and as we drew nigher the shore we saw them more frequently. At about 30 leagues distance we began to see some scuttle-bones floating on the water; and drawing still nigher the land we saw greater quantities of them.

July 25, being in latitude 26 degrees 14 minutes south and longitude east from the Cape of Good Hope 85 degrees 52 minutes, we saw a large garfish leap 4 times by us, which seemed to be as big as a porpoise. It was now very fair weather, and the sea was full of a sort of very small grass or moss, which as it floated in the water seemed to have been some spawn of fish; and there was among it some small fry. The next day the sea was full of small round things like pearl, some as big as white peas; they were very clear and transparent, and upon crushing any of them a drop of water would come forth: the skin that contained the water was so thin that it was but just discernable. Some weeds swam by us so that we did not doubt but we should quickly see land. On the 27th also some weeds swam by us, and the birds that had flown along with us all the way almost from Brazil now left us, except only 2 or 3 shearwaters. On the 28th we saw many weeds swim by us and some whales, blowing. On the 29th we had dark cloudy weather with much thunder, lightning, and violent rains in the morning; but in the evening it grew fair. We saw this day a scuttle-bone swim by us, and some of our young men a seal, as it should seem by their description of its head. I saw also some bonetas, and some skipjacks, a fish about 8 inches long, broad, and sizable, not much unlike a roach; which our seamen call so from their leaping about.

ANOTHER ABROLHO SHOAL AND STORM, AND THE AUTHOR'S ARRIVAL ON PART OF NEW HOLLAND.

The 30th of July, being still nearer the land, we saw abundance of scuttle-bones and seaweed, more tokens that we were not far from it; and saw also a sort of fowls, the like of which we had not seen in the whole voyage, all the other fowls having now left us. These were as big as lapwings; of a grey colour, black about their eyes, with red sharp bills, long wings, their tails long and forked like swallows; and they flew flapping their wings like lapwings. In the afternoon we met with a rippling tide or current, or the water of some shoal or overfall; but were

past it before we could sound. The birds last mentioned and this were further signs of land. In the evening we had fair weather and a small gale at west. At 8 o'clock we sounded again; but had no ground.

We kept on still to the eastward, with an easy sail looking out sharp: for by the many signs we had I did expect that we were near the land. At 12 o'clock in the night I sounded and had 45 fathom, coarse sand and small white shells. I presently clapped on a wind and stood to the south, with the wind at west, because I thought we were to the south of a shoal called the Abrolhos (an appellative name for shoals as it seems to me) which in a chart I had of that coast is laid down in 27 degrees 28 minutes latitude stretching about 7 leagues into the sea. I was the day before in 27 degrees 38 minutes by reckoning. And afterwards, steering east by south purposely to avoid it, I thought I must have been to the south of it: but sounding again at 1 o'clock in the morning August the first, we had but 25 fathom, coral rocks; and so found the shoal was to the south of us. We presently tacked again, and stood to the north, and then soon deepened our water; for at 2 in the morning we had 26 fathom coral still: at 3 we had 28 coral ground: at 4 we had 30 fathom, coarse sand, with some coral: at 5 we had 45 fathom, coarse sand and shells; being now off the shoal, as appeared by the sand and shells, and by having left the coral. By all this I knew we had fallen into the north of the shoal, and that it was laid down wrong in my sea-chart: for I found it lie in about 27 degrees latitude, and by our run in the next day I found that the outward edge of it, which I sounded on, lies 16 leagues off shore. When it was day we steered in east-north-east with a fine brisk gale; but did not see the land till 9 in the morning, when we saw it from our topmast-head, and were distant from it about 10 leagues; having then 40 fathom water, and clean sand. About 3 hours after we saw it on our quarter-deck, being by judgment about 6 leagues off, and we had then 40 fathom, clean sand. As we ran in this day and the next we took several sights of it, at different bearings and distances; from which it appeared as you see. And here I would note once for all that the latitudes marked in the draughts, or sights here given, are not the latitude of the land, but of the ship when

the sight was taken. This morning, August the first, as we were standing in, we saw several large seafowls, like our gannets on the coast of England, flying 3 or 4 together; and a sort of white seamews, but black about the eyes, and with forked tails. We strove to run in near the shore to seek for a harbour to refresh us after our tedious voyage; having made one continued stretch from Brazil hither of about 114 degrees designing from hence also to begin the discovery I had a mind to make on New Holland and New Guinea. The land was low, and appeared even, and as we drew nearer to it it made with some red and some white cliffs; these last in latitude 26 10 south, where you will find 54 fathom within 4 miles of the shore.

THAT PART DESCRIBED, AND SHARK'S BAY, WHERE HE FIRST ANCHORS.

About the latitude of 26 degrees south we saw an opening, and ran in, hoping to find a harbour there: but when we came to its mouth, which was about 2 leagues wide, we saw rocks and foul ground within, and therefore stood out again: there we had 20 fathom water within 2 mile of the shore. The land everywhere appeared pretty low, flat and even; but with steep cliffs to the sea; and when we came near it there were no trees, shrubs or grass to be seen. The soundings in the latitude of 26 degrees south, from about 8 or 9 leagues off till you come within a league of the shore, are generally about 40 fathom; differing but little, seldom above 3 or 4 fathom. But the lead brings up very different sorts of sand, some coarse, some fine; and of several colours, as yellow, white, grey, brown, bluish and reddish.

When I saw there was no harbour here, nor good anchoring, I stood off to sea again, in the evening of the second of August, fearing a storm on a lee shore, in a place where there was no shelter, and desiring at least to have sea-room: for the clouds began to grow thick in the western board, and the wind was already there, and began to blow fresh almost upon the shore; which at this place lies along north-north-west and south-south-east. By 9 o'clock at night we had got a pretty good offing; but, the

wind still increasing, I took in my main topsail, being able to carry no more sail than two courses and the mizzen. At 2 in the morning August 3 it blew very hard, and the sea was much raised; so that I furled all my sails but my mainsail. Though the wind blew so hard we had pretty clear weather till noon: but then the whole sky was blackened with thick clouds, and we had some rain, which would last a quarter of an hour at a time, and then it would blow very fierce while the squalls of rain were over our heads; but as soon as they were gone the wind was by much abated, the stress of the storm being over. We sounded several times, but had no ground till 8 o'clock August the 4th in the evening; and then had 60 fathom water, coral ground. At 10 we had 56 fathom fine sand. At 12 we had 55 fathom, fine sand, of a pale bluish colour. It was now pretty moderate weather; yet I made no sail till morning; but then, the wind veering about to the south-west, I made sail and stood to the north: and at 11 o'clock the next day August 5 we saw land again, at about 10 leagues distance. This noon we were in latitude 25 degrees 30 minutes, and in the afternoon our cook died, an old man, who had been sick a great while, being infirm before we came out of England.

TABLE 4. NEW HOLLAND.

The 6th of August in the morning we saw an opening in the land and we ran into it, and anchored in 7 and a half fathom water, 2 miles from the shore, clean sand. It was somewhat difficult getting in here, by reason of many shoals we met with: but I sent my boat sounding before me. The mouth of this sound, which I called Shark's Bay, lies in about 25 degrees south latitude, and our reckoning made its longitude from the Cape of Good Hope to be about 87 degrees; which is less by 195 leagues than is usually laid down in our common charts, if our reckoning was right and our glasses did not deceive us. As soon as I came to anchor in this bay (of which I have given a plan) I sent my boat ashore to seek for fresh water: but in the evening my men returned, having found none. The next morning I went ashore myself, carrying pickaxes and shovels with me, to dig for water: and axes to cut wood. We tried in several places for water

but, finding none after several trials, nor in several miles compass, we left any farther search for it and, spending the rest of the day in cutting wood, we went aboard at night.

OF THE LAND THERE, VEGETABLES, BIRDS, ETC.

The land is of an indifferent height, so that it may be seen 9 or 10 leagues off. It appears at a distance very even; but as you come nigher you find there are many gentle risings, though none steep nor high. It is all a steep shore against the open sea: but in this bay or sound we were now in the land is low by the seaside, rising gradually in within the land. The mould is sand by the seaside, producing a large sort of samphire, which bears a white flower. Farther in the mould is reddish, a sort of sand producing some grass, plants, and shrubs. The grass grows in great tufts as big as a bushel, here and there a tuft: being intermixed with much heath, much of the kind we have growing on our commons in England. Of trees or shrubs here are divers sorts; but none above 10 foot high: their bodies about 3 foot about, and 5 or 6 foot high before you come to the branches, which are bushy and composed of small twigs there spreading abroad, though thick set, and full of leaves; which were mostly long and narrow. The colour of the leaves was on one side whitish, and on the other green; and the bark of the trees was generally of the same colour with the leaves, of a pale green. Some of these trees were sweet-scented, and reddish within the bark, like the sassafras, but redder. Most of the trees and shrubs had at this time either blossoms or berries on them. The blossoms of the different sort of trees were of several colours, as red, white, yellow, etc., but mostly blue: and these generally smelt very sweet and fragrant, as did some also of the rest. There were also beside some plants, herbs, and tall flowers, some very small flowers, growing on the ground, that were sweet and beautiful, and for the most part unlike any I had seen elsewhere.

A PARTICULAR SORT OF IGUANA: FISH, AND BEAUTIFUL SHELLS; TURTLE, LARGE SHARK, AND WATER-SERPENTS.

There were but few land-fowls; we saw none but eagles of the larger sorts of birds; but 5 or 6 sorts of small birds. The biggest sort of these were not bigger than larks; some no bigger than wrens, all singing with great variety of fine shrill notes; and we saw some of their nests with young ones in them. The water-fowls are ducks (which had young ones now, this being the beginning of the spring in these parts) curlews, galdens, crab-catchers, cormorants, gulls, pelicans; and some waterfowl, such as I have not seen anywhere besides. I have given the pictures of 4 several birds on this coast.

BIRDS OF NEW HOLLAND.

The land animals that we saw here were only a sort of raccoon, different from those of the West Indies, chiefly as to their legs; for these have very short forelegs; but go jumping upon them as the others do (and like them are very good meat) and a sort of iguana, of the same shape and size with other iguanas described, but differing from them in 3 remarkable particulars: for these had a larger and uglier head, and had no tail: and at the rump, instead of the tail there, they had a stump of a tail which appeared like another head; but not really such, being without mouth or eyes: yet this creature seemed by this means to have a head at each end; and, which may be reckoned a fourth difference, the legs also seemed all 4 of them to be forelegs, being all alike in shape and length, and seeming by the joints and bending to be made as if they were to go indifferently either head or tail foremost. They were speckled black and yellow like toads, and had scales or knobs on their backs like those of crocodiles, plated onto the skin, or stuck into it, as part of the skin. They are very slow in motion; and when a man comes nigh them they will stand still and hiss, not endeavouring to get away. Their livers are also spotted black and yellow: and the body when opened has a very unsavoury smell. I did never see such ugly creatures anywhere but here. The iguanas I have observed to be very good meat: and I have often eaten of them with pleasure; but though I have eaten of snakes, crocodiles and alligators, and many creatures that look frightfully

enough, and there are but few I should have been afraid to eat of if pressed by hunger, yet I think my stomach would scarce have served to venture upon these New Holland iguanas, both the looks and the smell of them being so offensive.

The sea-fish that we saw here (for here was no river, land, or pond of fresh water to be seen) are chiefly sharks. There are abundance of them in this particular sound, and I therefore give it the name of Shark's Bay. Here are also skates, thornbacks, and other fish of the ray kind (one sort especially like the sea-devil) and garfish, bonetas, etc. Of shellfish we got here mussels, periwinkles, limpets, oysters, both of the pearl kind and also eating-oysters, as well the common sort as long oysters; beside cockles, etc., the shore was lined thick with many other sorts of very strange and beautiful shells, for variety of colour and shape, most finely spotted with red, black, or yellow, etc., such as I have not seen anywhere but at this place. I brought away a great many of them; but lost all except a very few, and those not of the best.

There are also some green-turtle weighing about 200 pounds. Of these we caught 2 which the water ebbing had left behind a ledge of rock, which they could not creep over. These served all my company 2 days; and they were indifferent sweet meat. Of the sharks we caught a great many which our men eat very savourily. Among them we caught one which was 11 foot long. The space between its two eyes was 20 inches, and 18 inches from one corner of his mouth to the other. Its maw was like a leather sack, very thick, and so tough that a sharp knife could scarce cut it: in which we found the head and bones of a hippopotamus; the hairy lips of which were still sound and not putrefied, and the jaw was also firm, out of which we plucked a great many teeth, 2 of them 8 inches long and as big as a man's thumb, small at one end, and a little crooked; the rest not above half so long. The maw was full of jelly which stank extremely: however I saved for a while the teeth and the shark's jaw: the flesh of it was divided among my men; and they took care that no waste should be made of it.

It was the 7th of August when we came into Shark's Bay; in which we anchored at three several places, and stayed at the first of them (on the west side of the bay) till the 11th. During which time we searched about, as I said, for fresh water, digging wells, but to no purpose. However we cut good store of firewood at this first anchoring-place; and my company were all here very well refreshed with raccoons, turtle, shark, and other fish, and some fowls; so that we were now all much brisker than when we came in hither. Yet still I was for standing farther into the bay, partly because I had a mind to increase my stock of fresh water, which was began to be low; and partly for the sake of discovering this part of the coast. I was invited to go further by seeing from this anchoring-place all open before me; which therefore I designed to search before I left the bay. So on the 11th about noon I steered farther in, with an easy sail because we had but shallow water: we kept therefore good looking-out for fear of shoals; sometimes shortening, sometimes deepening the water. About 2 in the afternoon we saw the land ahead that makes the south of the bay, and before night we had again shoalings from that shore: and therefore shortened sail and stood off and on all night under, 2 topsails, continually sounding, having never more than 10 fathom, and seldom less than 7. The water deepened and shoaled so very gently that in heaving the lead 5 or 6 times we should scarce have a foot difference. When we came into 7 fathom either way we presently went about. From this south part of the bay we could not see the land from whence we came in the afternoon: and this land we found to be an island of 3 or 4 leagues long, as is seen in the plan, but it appearing barren I did not strive to go nearer it; and the rather because the winds would not permit us to do it without much trouble, and at the openings the water was generally shoal. I therefore made no farther attempts in this south-west and south part of the bay, but steered away to eastward to see if there was any land that way, for as yet we had seen none there. On the 12th in the morning we passed by the north point of that land and were confirmed in the persuasion of its being an island by seeing an opening to the east of it, as we had done on the west. Having fair weather, a small gale, and smooth water, we stood further on in the bay to see what land

was on the east of it. Our soundings at first were 7 fathom, which held so a great while, but at length it decreased to 6. Then we saw the land right ahead that in the plan makes the east of the bay. We could not come near it with the ship, having but shoal water; and it being dangerous lying there, and the land extraordinary low, very unlikely to have fresh water (though it had a few trees on it, seemingly mangroves) and much of it probably covered at high-water, I stood out again that afternoon, deepening the water, and before night anchored in 8 fathom, clean white sand, about the middle of the bay. The next day we got up our anchor; and that afternoon came to an anchor once more near 2 islands and a shoal of coral rocks that face the bay. Here I scrubbed my ship; and, finding it very improbable I should get anything further here, I made the best of my way out to sea again, sounding all the way: but, finding by the shallowness of the water that there was no going out to sea to the east of the two islands that face the bay, nor between them, I returned to the west entrance, going out by the same way I came in at, only on the east instead of the west side of the small shoal to be seen in the plan; in which channel we had 10, 12, and 13 fathom water, still deepening upon us till we were out at sea. The day before we came out I sent a boat ashore to the most northerly of the 2 islands, which is the least of them, catching many small fish in the meanwhile with hook and line. The boat's crew returning told me that the isle produces nothing but a sort of green, short, hard, prickly grass, affording neither wood nor fresh water; and that a sea broke between the 2 islands, a sign that the water was shallow. They saw a large turtle and many skates and thornbacks, but caught none.

THE AUTHOR'S REMOVING TO ANOTHER PART OF NEW HOLLAND: DOLPHINS, WHALES, AND MORE SEA-SERPENTS: AND OF A PASSAGE OR STRAIT SUSPECTED HERE: OF THE VEGETABLES, BIRDS, AND FISH.

It was August the 14th when I sailed out of this bay or sound, the mouth of which lies, as I said, in 25 degrees 5 minutes, designing to coast along to the north-east till I might commodiously put in at some other part of New Holland. In passing out we saw 3 water-serpents swimming about in the sea, of a yellow colour, spotted with dark brown spots. They were each about 4 foot long, and about the bigness of a man's wrist, and were the first I saw on this coast, which abounds with several sorts of them. We had the winds at our first coming out at north and the land lying north-easterly. We plied off and on, getting forward but little till the next day: when the wind coming at south-south-west and south we began to coast it along the shore to the northward, keeping at 6 or 7 leagues off shore; and sounding often, we had between 40 and 46 fathom water, brown sand with some white shells. This 15th of August we were in latitude 24 degrees 41 minutes. On the 16th day at noon we were in 23 degrees 22 minutes. The wind coming at east by north we could not keep the shore aboard, but were forced to go farther off, and lost sight of the land. Then sounding we had no ground with 80 fathom line; however the wind shortly after came about again to the southward, and then we jogged on again to the northward and saw many small dolphins and whales, and abundance of scuttle-shells swimming on the sea; and some water-snakes every day. The 17th we saw the land again, and took a sight of it.

The 18th in the afternoon, being 3 or 4 leagues offshore, I saw a shoal point, stretching from the land into the sea a league or more. The sea broke high on it; by which I saw plainly there was a shoal there. I stood farther off and coasted alongshore to about 7 or 8 leagues distance: and at 12 o'clock at night we sounded, and had but 20 fathom hard sand. By this I found I was upon another shoal, and so presently steered off west half an hour, and had then 40 fathom. At one in the morning of the 18th day we had 85 fathom: by two we could find no ground; and then I ventured to steer alongshore again, due north, which is two points wide of the coast (that lies north-north-east) for fear of another shoal. I would not be too far off from the land, being desirous to search into it wherever

I should find an opening or any convenience of searching about for water, etc. When we were off the shoal point I mentioned where we had but 20 fathom water, we had in the night abundance of whales about the ship, some ahead, others astern, and some on each side blowing and making a very dismal noise; but when we came out again into deeper water they left us. Indeed the noise that they made by blowing and dashing of the sea with their tails, making it all of a breach and foam, was very dreadful to us, like the breach of the waves in very shoal water, or among rocks. The shoal these whales were upon had depth of water sufficient, no less than 20 fathom, as I said; and it lies in latitude 22 degrees 22 minutes. The shore was generally bold all along; we had met with no shoal at sea since the Abrolho Shoal, when we first fell on the New Holland coast in the latitude of 28, till yesterday in the afternoon, and this night. This morning also when we expected by the chart we had with us to have been 11 leagues offshore we were but 4; so that either our charts were faulty, which yet hitherto and afterwards we found true enough as to the lying of the coast, or else here was a tide unknown to us that deceived us; though we had found very little of any tide on this coast hitherto. As to our winds in the coasting thus far, as we had been within the verge of the general trade (though interrupted by the storm I mentioned) from the latitude of 28, when we first fell in with the coast: and by that time we were in the latitude of 25 we had usually the regular tradewind (which is here south-south-east) when we were at any distance from shore: but we had often sea and land-breezes, especially when near shore, and when in Shark's Bay; and had a particular north-west wind, or storm, that set us in thither. On this 18th of August we coasted with a brisk gale of the true tradewind at south-south-east, very fair and clear weather; but, hauling off in the evening to sea, were next morning out of sight of land; and the land now trending away north-easterly, and we being to the northward of it, and the wind also shrinking from the south-south-east to the east-south-east (that is, from the true tradewind to the seabreeze, as the land now lay) we could not get in with the land again yet awhile, so as to see it, though we trimmed sharp and kept close on a wind. We were this 19th day in latitude 21

degrees 42 minutes. The 20th we were in latitude 19 degrees 37 minutes and kept close on a wind to get sight of the land again, but could not yet see it. We had very fair weather, and though we were so far from the land as to be out of sight of it, yet we had the sea and land-breezes. In the night we had the land-breeze at south-south-east, a small gentle gale; which in the morning about sunrising would shift about gradually (and withal increasing in strength) till about noon we should have it at east-south-east, which is the true sea breeze here. Then it would blow a brisk gale, so that we could scarce carry our topsails double reefed: and it would continue thus till 3 in the afternoon, when it would decrease again. The weather was fair all the while, not a cloud to be seen; but very hazy, especially nigh the horizon. We sounded several times this 20th day and at first had no ground; but had afterwards from 52 to 45 fathom, coarse brown sand, mixed with small brown and white stones, with dints besides in the tallow.

The 21st day also we had small land breezes in the night and seabreezes in the day: and as we saw some seasnakes every day, so this day we saw a great many, of two different sorts or shapes. One sort was yellow, and about the bigness of a man's wrist, about 4 foot long, having a flat tail about 4 fingers broad. The other sort was much smaller and shorter, round and spotted black and yellow. This day we sounded several times, and had 45 fathom sand. We did not make the land till noon, and then saw it first from our topmast-head. It bore south-east by east about 9 leagues distance; and it appeared like a cape or head of land. The seabreeze this day was not so strong as the day before, and it veered out more; so that we had a fair wind to run in with to the shore, and at sunset anchored in 20 fathom, clean sand, about 5 leagues from the bluff point; which was not a cape (as it appeared at a great distance) but the easternmost end of an island, about 5 or 6 leagues in length and 1 in breadth. There were 3 or 4 rocky islands about a league from us between us and the bluff point; and we saw many other islands both to the east and west of it, as far as we could see either way from our topmast-head: and all within them to the south there was nothing but islands of a pretty

height, that may be seen 8 or 9 leagues off. By what we saw of them they must have been a range of islands of about 20 leagues in length, stretching from east-north-east to west-south-west and, for ought I know, as far as to those of Shark's Bay; and to a considerable breadth also (for we could see 9 or 10 leagues in among them) towards the continent or mainland of New Holland, if there be any such thing hereabouts: and, by the great tides I met with a while afterwards, more to the north-east, I had a strong suspicion that here might be a kind of archipelago of islands and a passage possibly to the south of New Holland and New Guinea into the great South Sea eastward; which I had thoughts also of attempting in my return from New Guinea (had circumstances permitted) and told my officers so: but I would not attempt it at this time because we wanted water and could not depend upon finding it there. This place is in the latitude of 20 degrees 21 minutes, but in the chart that I had of this coast, which was Tasman's, it was laid down in 19 degrees 50 minutes, and the shore is laid down as all along joining in one body or continent, with some openings appearing like rivers; and not like islands, as really they are. See several sights of it, Table 4 Numbers 8, 9, and 10. This place lies more northerly by 40 minutes than is laid down in Mr. Tasman's chart: and beside its being made a firm, continued land, only with some openings like the mouths of rivers, I found the soundings also different from what the pricked line of his course shows them, and generally shallower than he makes them; which inclines me to think that he came not so near the shore as his line shows, and so had deeper soundings, and could not so well distinguish the islands. His meridian or difference of longitude from Shark's Bay agrees well enough with my account, which is 232 leagues, though we differ in latitude. And to confirm my conjecture that the line of his course is made too near the shore, at least not far to the east of this place, the water is there so shallow that he could not come there so nigh.

HE ANCHORS ON A THIRD PART OF NEW HOLLAND, AND DIGS WELLS, BUT BRACKISH.

But to proceed: in the night we had a small land-breeze, and in the morning I weighed anchor, designing to run in among the islands, for they had large channels between them, of a league wide at least, and some 2 or 3 leagues wide. I sent in my boat before to sound, and if they found shoal water to return again; but if they found water enough to go ashore on one of the islands and stay till the ship came in: where they might in the meantime search for water. So we followed after with the ship, sounding as we went in, and had 20 fathom, till within 2 leagues of the bluff head, and then we had shoal water, and very uncertain soundings: yet we ran in still with an easy sail, sounding and looking out well, for this was dangerous work. When we came abreast of the bluff head, and about 2 mile from it, we had but 7 fathom: then we edged away from it, but had no more water; and, running in a little farther, we had but 4 fathoms; so we anchored immediately; and yet when we had veered out a third of a cable we had 7 fathom water again; so uncertain was the water. My boat came immediately aboard, and told me that the island was very rocky and dry, and they had little hopes of finding water there. I sent them to sound, and bade them, if they found a channel of 8 or 10 fathom water to keep on, and we would follow with the ship. We were now about 4 leagues within the outer small rocky islands, but still could see nothing but islands within us; some 5 or 6 leagues long, others not above a mile round. The large islands were pretty high; but all appeared dry and mostly rocky and barren. The rocks looked of a rusty yellow colour, and therefore I despaired of getting water on any of them; but was in some hopes of finding a channel to run in beyond all these islands, could I have spent time here, and either get to the main of New Holland, or find out some other islands that might afford us water and other refreshments; besides, that among so many islands we might have found some sort of rich mineral or ambergris, it being a good latitude for both these. But we had not sailed above a league farther before our water grew shoaler again, and then we anchored in 6 fathom hard sand.

We were now on the inner side of the island, on whose outside is the bluff point. We rode a league from the island and I presently went ashore, and carried shovels to dig for water, but found none. There grow here 2 or three sorts of shrubs, one just like rosemary; and therefore I called this Rosemary Island. It grew in great plenty here, but had no smell. Some of the other shrubs had blue and yellow flowers; and we found 2 sorts of grain like beans: the one grew on bushes; the other on a sort of creeping vine that runs along on the ground, having very thick broad leaves and the blossom like a bean blossom, but much larger, and of a deep red colour, looking very beautiful. We saw here some cormorants, gulls, crab-catchers, etc., a few small land-birds, and a sort of white parrot, which flew a great many together. We found some shellfish, namely limpets, periwinkles, and abundance of small oysters, growing on the rocks, which were very sweet. In the sea we saw some green-turtle, a pretty many sharks, and abundance of water-snakes of several sorts and sizes. The stones were all of rusty colour, and ponderous.

We saw a smoke on an island 3 or 4 leagues off; and here also the bushes had been burned, but we found no other sign of inhabitants: it was probable that on the island where the smoke was there were inhabitants, and fresh water for them. In the evening I went aboard, and consulted with my officers whether it was best to send thither, or to search among any other of these islands with my boat; or else go from hence, and coast alongshore with the ship till we could find some better place than this was to ride in, where we had shoal water and lay exposed to winds and tides. They all agreed to go from hence; so I gave orders to weigh in the morning as soon as it should be light, and to get out with the land-breeze.

According, August the 23rd, at 5 in the morning we ran out, having a pretty fresh land-breeze at south-south-east. By 8 o'clock we were got out, and very seasonably; for before 9 the seabreeze came on us very strong, and increasing, we took in our topsails and stood off under 2

courses and a mizzen, this being as much sail as we could carry. The sky was clear, there being not one cloud to be seen; but the horizon appeared very hazy, and the sun at setting the night before, and this morning at rising, appeared very red. The wind continued very strong till 12, then it began to abate: I have seldom met with a stronger breeze. These strong seabreezes lasted thus in their turns 3 or 4 days. They sprang up with the sunrise; by 9 o'clock they were very strong, and so continued till noon, when they began to abate; and by sunset there was little wind, or a calm till the land-breezes came; which we should certainly have in the morning about 1 or 2 o'clock. The land-breezes were between the south-south-west and south-south-east. The seabreezes between the east-north-east and north-north-east. In the night while calm we fished with hook and line and caught good store of fish, namely, snapper, bream, old-wives, and dogfish. When these last came we seldom caught any others; for if they did not drive away the other fish, yet they would be sure to keep them from taking our hooks, for they would first have them themselves, biting very greedily. We caught also a monkfish, of which I brought home the picture. See Fish Figure 1.

FISH OF NEW HOLLAND.

On the 25th of August we still coasted alongshore, that we might the better see any opening; kept sounding, and had about 20 fathom clean sand. The 26th day, being about 4 leagues offshore, the water began gradually to shoal from 20 to 14 fathom. I was edging in a little towards the land, thinking to have anchored; but presently after the water decreased almost at once, till we had but 5 fathom. I durst therefore adventure no farther, but steered out the same way that we came in; and in a short time had 10 fathom (being then about 4 leagues and a half from the shore) and even soundings. I steered away east-north-east coasting along as the land lies. This day the seabreezes began to be very moderate again, and we made the best of our way alongshore, only in the night edging off a little for fear of shoals. Ever since we left Shark's Bay we had fair clear weather, and so for a great while still.

The 27th day we had 20 fathom water all night, yet we could not see land till 1 in the afternoon from our topmast-head. By 3 we could just discern land from our quarter-deck; we had then 16 fathom. The wind was at north and we steered east by north, which is but one point in on the land; yet we decreased our water very fast; for at 4 we had but 9 fathom; the next cast but 7, which frighted us; and we then tacked instantly and stood off: but in a short time the wind coming at north-west and west-north-west we tacked again, and steered north-north-east and then deepened our water again, and had all night from 15 to 20 fathom.

The 28th day we had between 20 and 40 fathom. We saw no land this day but saw a great many snakes and some whales. We saw also some boobies and noddy-birds; and in the night caught one of these last. It was of another shape and colour than any I had seen before. It had a small long bill, as all of them have, flat feet like ducks' feet; its tail forked like a swallow, but longer and broader, and the fork deeper than that of the swallow, with very long wings; the top or crown of the head of this noddy was coal-black, having also small black streaks round about and close to the eyes; and round these streaks on each side a pretty broad white circle. The breast, belly, and underpart of the wings of this noddy were white; and the back and upper part of its wings of a faint black or smoke colour. See a picture of this and of the common one, Birds Figures 5 and 6. Noddies are seen in most places between the tropics, as well in the East Indies, and on the coast of Brazil, as in the West Indies. They rest ashore a-nights, and therefore we never see them far at sea, not above 20 or 30 leagues, unless driven off in a storm. When they come about a ship they commonly perch in the night, and will sit still till they are taken by the seamen. They build on cliffs against the sea, or rocks, as I have said.

OF THE INHABITANTS THERE, AND GREAT TIDES, THE VEGETABLES AND ANIMALS, ETC.

The 30th day being in latitude 18 degrees 21 minutes we made the land again, and saw many great smokes near the shore; and having fair weather and moderate breezes I steered in towards it. At 4 in the afternoon I anchored in 8 fathom water, clear sand, about 3 leagues and a half from the shore. I presently sent my boat to sound nearer in, and they found 10 fathom about a mile farther in; and from thence still farther in the water decreased gradually to 9, 8, 7, and 2 mile distance to 6 fathom. This evening we saw an eclipse of the moon, but it was abating before the moon appeared to us; for the horizon was very hazy, so that we could not see the moon till she had been half an hour above the horizon: and at 2 hours, 22 minutes after sunset, by the reckoning of our glasses, the eclipse was quite gone, which was not of many digits. The moon's centre was then 33 degrees 40 minutes high.

The 31st of August betimes in the morning I went ashore with 10 or 11 men to search for water. We went armed with muskets and cutlasses for our defence, expecting to see people there; and carried also shovels and pickaxes to dig wells. When we came near the shore we saw 3 tall black naked men on the sandy bay ahead of us: but as we rowed in they went away. When we were landed I sent the boat with two men in her to lie a little from the shore at an anchor, to prevent being seized; while the rest of us went after the 3 black men, who were now got on the top of a small hill about a quarter of a mile from us, with 8 or 9 men more in their company. They seeing us coming ran away. When we came on the top of the hill where they first stood we saw a plain savannah, about half a mile from us, farther in from the sea. There were several things like haycocks standing in the savannah; which at a distance we thought were houses, looking just like the Hottentots' houses at the Cape of Good Hope: but we found them to be so many rocks. We searched about these for water, but could find none, nor any houses, nor people, for they were all gone. Then we turned again to the place where we landed, and there we dug for water.

While we were at work there came nine or 10 of the natives to a small hill a little way from us, and stood there menacing and threatening of us, and making a great noise. At last one of them came towards us, and the rest followed at a distance. I went out to meet him, and came within 50 yards of him, making to him all the signs of peace and friendship I could; but then he ran away, neither would they any of them stay for us to come nigh them; for we tried two or three times. At last I took two men with me, and went in the afternoon along by the seaside, purposely to catch one of them, if I could, of whom I might learn where they got their fresh water. There were 10 or 12 natives a little way off, who seeing us three going away from the rest of our men, followed us at a distance. I thought they would follow us: but there being for a while a sandbank between us and them, that they could not then see us, we made a halt, and hid ourselves in a bending of the sandbank. They knew we must be thereabouts, and being 3 or 4 times our number, thought to seize us. So they dispersed themselves, some going to the seashore and others beating about the sandhills. We knew by what rencounter we had had with them in the morning that we could easily outrun them; so a nimble young man that was with me, seeing some of them near, ran towards them; and they for some time ran away before him. But he soon overtaking them, they faced about and fought him. He had a cutlass, and they had wooden lances; with which, being many of them, they were too hard for him. When he first ran towards them I chased two more that were by the shore; but fearing how it might be with my young man, I turned back quickly, and went up to the top of a sandhill, whence I saw him near me, closely engaged with them. Upon their seeing me, one of them threw a lance at me, that narrowly missed me. I discharged my gun to scare them but avoided shooting any of them; till finding the young man in great danger from them, and myself in some; and that though the gun had a little frighted them at first, yet they had soon learnt to despise it, tossing up their hands, and crying pooh, pooh, pooh; and coming on afresh with a great noise, I thought it high time to charge again, and shoot one of them, which I did. The rest, seeing him fall, made a stand again; and my young man took the opportunity to disengage himself,

and come off to me; my other man also was with me, who had done nothing all this while, having come out unarmed; and I returned back with my men, designing to attempt the natives no farther, being very sorry for what had happened already. They took up their wounded companion; and my young man, who had been struck through the cheek by one of their lances, was afraid it had been poisoned: but I did not think that likely. His wound was very painful to him, being made with a blunt weapon: but he soon recovered of it.

Among the New Hollanders whom we were thus engaged with, there was one who by his appearance and carriage, as well in the morning as this afternoon, seemed to be the chief of them, and a kind of prince or captain among them. He was a young brisk man, not very tall, nor so personable as some of the rest, though more active and courageous: he was painted (which none of the rest were at all) with a circle of white paste or pigment (a sort of lime, as we thought) about his eyes, and a white streak down his nose from his forehead to the tip of it. And his breast and some part of his arms were also made white with the same paint; not for beauty or ornament, one would think, but as some wild Indian warriors are said to do, he seemed thereby to design the looking more terrible; this his painting adding very much to his natural deformity; for they all of them have the most unpleasant looks and the worst features of any people that ever I saw, though I have seen great variety of savages. These New Hollanders were probably the same sort of people as those I met with on this coast in my Voyage round the World; for the place I then touched at was not above 40 or 50 leagues to the north-east of this: and these were much the same blinking creatures (here being also abundance of the same kind of flesh-flies teasing them) and with the same black skins, and hair frizzled, tall and thin, etc., as those were: but we had not the opportunity to see whether these, as the former, wanted two of their foreteeth.

We saw a great many places where they had made fires; and where there were commonly 3 or 4 boughs stuck up to windward of them; for the wind (which is the seabreeze) in the daytime blows always one way with them; and the land breeze is but small. By their fireplaces we should always find great heaps of fish-shells, of several sorts; and it is probable that these poor creatures here lived chiefly on the shellfish, as those I before described did on small fish, which they caught in wires or holes in the sand at low-water. These gathered their shellfish on the rocks at low-water; but had no wires (that we saw) whereby to get any other sorts of fish: as among the former I saw not any heaps of shells as here, though I know they also gathered some shellfish. The lances also of those were such as these had; however they being upon an island, with their women and children, and all in our power, they did not there use them against us, as here on the continent, where we saw none but some of the men under head, who come out purposely to observe us. We saw no houses at either place; and I believe they have none, since the former people on the island had none, though they had all their families with them.

Upon returning to my men I saw that though they had dug 8 or 9 foot deep yet found no water. So I returned aboard that evening, and the next day being September 1st I sent my boatswain ashore to dig deeper, and sent the seine with him to catch fish. While I stayed aboard I observed the flowing of the tide, which runs very swift here, so that our nun-buoy would not bear above the water to be seen. It flows here (as on that part of New Holland I described formerly) about 5 fathom: and here the flood runs south-east by south till the last quarter; then it sets right in towards the shore (which lies here south-south-west and north-north-east) and the ebb runs north-west by north. When the tides slackened we fished with hook and line, as we had already done in several places on this coast; on which in this voyage hitherto we had found but little tides: but by the height and strength and course of them hereabouts it should seem that if there be such a passage or strait going through eastward to the

great South Sea, as I said one might suspect, one would expect to find the mouth of it somewhere between this place and Rosemary Island, which was the part of New Holland I came last from.

Next morning my men came aboard and brought a rundlet of brackish water which they got out of another well that they dug in a place a mile off, and about half as far from the shore; but this water was not fit to drink. However we all concluded that it would serve to boil our oatmeal, for burgoo, whereby we might save the remains of our other water for drinking, till we should get more; and accordingly the next day we brought aboard 4 hogsheads of it: but while we were at work about the well we were sadly pestered with the flies, which were more troublesome to us than the sun, though it shone clear and strong upon us all the while, very hot. All this while we saw no more of the natives, but saw some of the smokes of some of their fires at 2 or 3 miles distance.

The land hereabouts was much like the part of New Holland that I formerly described, it is low but seemingly barricaded with a long chain of sandhills to the sea, that lets nothing be seen of what is farther within land. At high water, the tides rising so high as they do, the coast shows very low; but when it is low water it seems to be of an indifferent height. At low-watermark the shore is all rocky, so that then there is no landing with a boat: but at high water a boat may come in over those rocks to the sandy bay which runs all along on this coast. The land by the sea for about 5 or 600 yards is a dry sandy soil, bearing only shrubs and bushes of divers sorts. Some of these had them at this time of the year, yellow flowers or blossoms, some blue, and some white; most of them of a very fragrant smell. Some had fruit like peascods; in each of which there were just ten small peas; I opened many of them, and found no more nor less. There are also here some of that sort of bean which I saw at Rosemary Island: and another sort of small, red, hard pulse, growing in cods also, with little black eyes like beans. I know not their names, but have seen them used often in the East Indies for weighing gold; and they make the same use of them at Guinea, as I have heard, where the women also

make bracelets with them to wear about their arms. These grow on bushes; but here are also a fruit like beans growing on a creeping sort of shrub-like vine. There was great plenty of all these sorts of cod-fruit growing on the sandhills by the seaside, some of them green, some ripe, and some fallen on the ground: but I could not perceive that any of them had been gathered by the natives; and might not probably be wholesome food.

The land farther in, that is lower than what borders on the sea, was so much as we saw of it very plain and even; partly savannahs, and partly woodland. The savannahs bear a sort of thin coarse grass. The mould is also a coarser sand than that by the seaside, and in some places it is clay. Here are a great many rocks in the large savannah we were in, which are 5 or 6 foot high, and round at top like a haycock, very remarkable; some red, and some white. The woodland lies farther in still; where there were divers sorts of small trees, scarce any three foot in circumference; their bodies 12 or 14 foot high, with a head of small knibs or boughs. By the sides of the creeks, especially nigh the sea, there grow a few small black mangrove-trees.

There are but few land animals. I saw some lizards; and my men saw two or three beasts like hungry wolves, lean like so many skeletons, being nothing but skin and bones: it is probable that it was the foot of one of those beasts that I mentioned as seen by us in New Holland. We saw a raccoon or two, and one small speckled snake.

The land-fowls that we saw here were crows (just such as ours in England) small hawks, and kites; a few of each sort: but here are plenty of small turtledoves that are plump, fat and very good meat. Here are 2 or 3 sorts of smaller birds, some as big as larks, some less; but not many of either sort. The sea-fowl are pelicans, boobies, noddies, curlews, sea-pies, etc., and but few of these neither.

The sea is plentifully stocked with the largest whales that I ever saw; but not to compare with the vast ones of the northern seas. We saw also a great many green-turtle, but caught none; here being no place to set a turtle-net in; here being no channel for them, and the tides running so strong. We saw some sharks, and paracoots; and with hooks and lines we caught some rock-fish and old-wives. Of shellfish, here were oysters both of the common kind for eating, and of the pearl kind: and also wilks, conches, mussels, limpets, periwinkles, etc., and I gathered a few strange shells; chiefly a sort not large, and thick-set all about with rays or spikes growing in rows.

And thus having ranged about a considerable time upon this coast without finding any good fresh water, or any convenient place to clean the ship, as I had hoped for: and it being moreover the height of the dry season, and my men growing scorbutic for want of refreshments, so that I had little encouragement to search further, I resolved to leave this coast and accordingly in the beginning of September set sail towards Timor.

AN ACCOUNT OF SEVERAL PLANTS COLLECTED IN BRAZIL, NEW HOLLAND, TIMOR, AND NEW GUINEA, REFERRING TO THE FIGURES ENGRAVEN ON THE COPPER PLATES.

Table 1 Figure 1. Cotton-flower from Bahia in Brazil. The flower consists of a great many filaments, almost as small as hairs, betwixt three and four inches long, of a murrey-colour; on the top of them stand small ash-coloured apices. The pedicule of the flower is enclosed at the bottom with 5 narrow stiff leaves, about 6 inches long. There is one of this genus in Mr. Ray's Supplement, which agrees exactly with this in every respect, only that is twice larger at the least. It was sent from Surinam by the name of momoo.

Table 1 Figure 2. Jasminum Brasilanum luteum, mali limoniae folio nervoso, petalis crassis.

Table 1 Figure 3. Crista Pavonis Brasiliana Bardanae foliis. The leaves are very tender and like the top leaves of Bardana major, both as to shape and texture: in the figure they are represented too stiff and too much serrated.

Table 1 Figure 4. Filix Brasiliana Osmundae minori serrato folio. This fern is of that kind which bears its seed vessels in lines on the edge of the leaves.

PLANTS FOUND IN BRAZIL. TABLE 1 PLANTS.

Table 2 Figure 1. Rapuntium Novae Hollandiae, flore magno coccineo. The perianthium composed of five long-pointed parts, the form of the seed vessel and the smallness of the seeds, together with the irregular shape of the flower and thinness of the leaves, argue this plant to be a Rapuntium.

Table 2 Figure 2. Fucus foliis capillaceis brevissimis, vesiculis minimis donatis. This elegant fucus is of the Erica Marina or Sargazo kind, but has much finer parts than that. It was collected on this coast of New Holland.

Table 2 Figure 3. Ricinoides Novae Hollandiae anguloso crasso folio. This plant is shrubby, has thick woolly leaves, especially on the underside. Its fruit is tricoccous, hoary on the outside with a calix divided into 5 parts. It comes near Ricini fructu parvo frucosa Curassavica, folio Phylli, P.B. pr.

Table 2 Figure 4. Solanum spinosum Novae Hollandiae Phylli foliis subrotundis. This new Solanum bears a bluish flower like the others of the same tribe; the leaves are of a whitish colour, thick and woolly on both sides, scarce an inch long and near as broad. The thorns are very sharp and thick set, of a deep orange colour, especially towards the points.

PLANTS FOUND IN NEW HOLLAND. TABLE 2 PLANTS.

Table 3 Figure 1. Scabiosa (forte) Novae Hollandiae, statices foliis subtus argenteis. The flower stands on a foot-stalk 4 inches long, included in a rough calix of a yellowish colour. The leaves are not above an inch long, very narrow like Thrift, green on the upper and hoary on the underside, growing in tufts. Whether this plant be a Scabious, Thrift or Helichrysum is hard to judge from the imperfect flower of the dried specimen.

Table 3 Figure 2. Alcea Novae Hollandiae foliis angustis utrinque villosis. The leaves, stalk, and underside of the perianthium of this plant are all woolly. The petala are very tender, 5 in number, scarce so large as the calix: in the middle stands a columella thick set with thrummy apiculae, which argue this plant to belong to the Malvaceous kind.

Table 3 Figure 3. Of what genus this shrub or tree is is uncertain, agreeing with none yet described, as far as can be judged by the state it is in. It has a very beautiful flower, of a red colour, as far as can be guessed by the dry specimen, consisting of 10 large petala, hoary on both sides, especially underneath; the middle of the flower is thick set with stamina, which are woolly at the bottom, the length of the petala, each of them crowned with its apex. The calix is divided into 5 round pointed parts. The leaves are like those of Amelanchier Lob., green at top and very woolly underneath, not running to a point, as is common in others, but with an indenture at the upper end.

Table 3 Figure 4. Dammara ex Nova-Hollandia, Sanamundae secundae Chysii foliis. This new genus was first sent from Amboina by Mr. Rumphius, by the name of Dammara, of which he transmitted 2 kinds; one with narrow and long stiff leaves, the other with shorter and broader. The first of them is mentioned in Mr. Petiver's Centuria, page 350, by the name of Arbor Hortensis Javanorum foliis visce angustioribus aromaticis floribus, spicatis flameneis lutescentibus; Mus. Pet. As also in Mr. Ray's Supplement to his History of Plants now in the press. This is of the same genus with them, agreeing both in flower and fruit, though very much differing in leaves. The flowers are stamineous and seem to be of an herbaceous colour, growing among the leaves, which are short and almost round, very stiff and ribbed on the underside, of a dark green above, and a pale colour underneath, thick set on by pairs, answering one another crossways so that they cover the stalk. The fruit is as big as a peppercorn, almost round, of a whitish

colour, dry and tough, with a hole on the top, containing small seeds. Anyone that sees this plant without its seed vessels would take it for an Erica or Sanamunda. The leaves of this plant are of a very aromatic taste.

PLANTS FOUND IN NEW HOLLAND. TABLE 3 PLANTS.

Table 4 Figure 1. Equisetum Novae Hollandiae frutescens foliis longissimis. It is doubtful whether this be an Equisetum or not; the textures of the leaves agree best with that genus of any, being articulated one within another at each joint, which is only proper to this tribe. The longest of them are about 9 inches.

Table 4 Figure 2. Colutea Novae Hollandiae floribus amplis coccineis, umbellatim dispositis macula purpurea notatis. There being no leaves to this plant, it is hard to say what genus it properly belongs to. The flowers are very like to the Colutea Barbae Jovis folio flore coccineo Breynii; of the same scarlet colour, with a large deep purple spot in the vexillum, but much bigger, coming all from the same point after the manner of an umbel. The rudiment of the pod is very woolly, and terminates in a filament near 2 inches long.

Table 4 Figure 3. Conyza Novae Hollandiae angustis rorismarini foliis. This plant is very much branched and seems to be woody. The flowers stand on very short pedicules, arising from the sinus of the leaves, which are exactly like rosemary, only less. It tastes very bitter now dry.

Table 4 Figure 4. Mohoh Insulae Timor. This is a very odd plant, agreeing with no described genus. The leaf is almost round, green on the upper side and whitish underneath, with several fibres running from the insertion of the pedicule towards the circumference, it is umbilicated as Cotyledon aquatica and Faba Aegyptia. The flowers are white, standing on single foot-stalks, of the shape of a Stramonium, but divided into 4 points only, as is the perianthium.

PLANTS FOUND IN NEW HOLLAND AND TIMOR. TABLE 4 PLANTS.

Table 5 Figure 1. Fucus ex Nova Guinea uva marina dictus, foliis variis. This beautiful Fucus is thick set with very small short tufts of leaves, which by the help of a magnifying glass seem to be round and articulated, as if they were seed vessels; besides these there are other broad leaves, chiefly at the extremity of the branches, serrated on the edges. The vesiculae are round, of the bigness expressed in the figure.

Table 5 Figure 2. Fucus ex Nova Guinea Fluviatilis Pisanae J.B. foliis. These plants are so apt to vary in their leaves, according to their different states, that it is hard to say this is distinct from the last. It has in several places (not all expressed in the figure) some of the small short leaves, or seed vessels mentioned in the former; which makes me apt to believe it the same, gathered in a different state; besides the broad leaves of that and this agree as to their shape and indentures.

PLANTS FOUND IN THE SEA NEAR NEW GUINEA. TABLE 5 PLANTS.

AN ACCOUNT OF SOME FISHES THAT ARE FIGURED IN PLATES 2 AND 3 FISHES.

Plate 3 Figure 5. This is a fish of the tunny kind, and agrees well enough with the figure in Table 3 of the Appendix to Mr. Willughby's History of Fishes under the name of gurabuca; it differs something, in the fins especially, from Piso's figure of the guarapuca.

Plate 3 Figure 4. This resembles the figure of the Guaperva maxima caudata in Willughby's Ichthyol. Table 9.23 and the guaparva of Piso, but does not answer their figures in every particular.

FISH OF NEW HOLLAND. PLATE 3 FISHES.

Plate 2 Figure 2. There are 2 sorts of porpoises: the one the long-snouted porpoise, as the seamen call it; and this is the dolphin of the Greeks. The other is the bottle-nose porpoise, which is generally thought to be the phaecena of Aristotle.

Plate 2 Figure 7. This is the guaracapema of Piso and Marcgrave, by others called the dorado. It is figured in Willughby's Ichthyol. Table 0.2 under the name of Delphin Belgis.

DOLPHINS. PLATE 2 FISHES.

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THE END

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