vessels proceed fifteen miles up from its mouth, and from its bold shores bring down great quantities of wheat.—The Jacuý, often called the Rio Pardo, is a river of greater value, rising in the Province of St. Paul, at the Eastern border of the great Table-Land, collecting near its rise several other streams, bringing them down the Southern declivity, and then turning Eastward; afterwards joined by a number of smaller rivers, many of which are navigable for a short course; and entering the Lake near its Northern extremity. It is a fine, broad, and deep river, with lofty and diversified banks, and full of little islands. I was told by a Gentleman, with whom I once sailed on the Lake, that he had advanced up the Rio Pardo several hundred miles. Its various tributary streams retain, in general, their significant Indian appellations.

The extent of the Lake is estimated at a hundred and thirty miles in length, from Cangazú, and about forty or forty-five in breadth, from the mouth of the Camapuám. It is every where shallow; and its water continues fresh as far as the Island dos Marinheiros, near the port of St. Pedro. From a manuscript chart which I once saw, it appears to be much encumbered with sand banks; but though subject to violent gusts of wind, may be navigated without anxiety. I never heard of more than one vessel being lost upon it.

On the Northern bank of the Jacuý, and twenty-five miles from its mouth, stands the pleasant town of Porto Alegro. It is situated on a declivity, and commands a fine view of the river and the surrounding country. The houses are well built, whitened on the outside, and formed into streets, most of them broad and paved. Since 1773, it has been the Capital of the Province; the Government House and Public Offices are on the summit of the hill. Here reside the Governor of the Province, a Vicar General, an Ouvidor or Sheriff, a Judge, and a sort of Deputy Chancellor, who is the Guardian of Orphans. It has a dock yard, which is plentifully supplied with timber, growing on the banks of those streams, which convey it to its destination. As a Capital, its influence is wide; as a Seat of Commerce, it commands a large tract of country, and many navigable rivers. Several Englishmen have long been settled around this

favoured spot; but the country is not yet sufficiently advanced in the common arts of civilized life, to render it a desirable residence. One of them has endeavoured to improve its agriculture, by introducing the plough, on the banks of the Tacoarý, about ninety miles above Porto Alegro; I fear without much effect. This part of the Province is however daily and rapidly improving; though the people still want education, and are yet more destitute of moral and religious culture. This last want will hardly be matter of surprise, when it is considered that a district, extending over nearly six degrees of latitude, and four of longitude, comprising more than forty thousand square miles, is divided into five parishes, each containing five millions of acres; and all of them under the spiritual care of the Bishop of Rio de Janeiro, whose residence is not within five hundred miles of the nearest part of this his charge.

One great bar to improvement is, that much of the interior is still in the hands of the native Indians, whose animosity to white people is of the bitterest sort, and their purposes of vengeance for injuries received, so long bequeathed from father to son, as to be rooted in their hearts, as firmly as the colour is attached to their skin. Under the influence of this passion, they destroy every thing belonging to Europeans or their descendants, which falls in their way; even the cow and the dog are not spared. For such outrages they pay dearly; small forts, or military stations being placed around the colonized parts of the district, from whence a war of plunder and extermination is carried on against them. In this warfare not only are fire-arms made use of, but the lasso, dogs, and all the stratagems which are usually employed against beasts of prey.—This account I received chiefly from a fellow passenger to Rio de Janeiro, who had been forty years engaged against the Indians, and was proceeding to ask of the Sovereign some honorary distinction, as a reward for his services. He would ask it I am persuaded in vain; the King has no feelings which would accord with his.

Business requiring me to proceed from St. Pedro to the Brazilian Capital with the utmost speed; I determined to go by Laguna, and if no

more eligible conveyance could be found there, to advance over the mountains to St. Catharine's. This would give me an opportunity of seeing also a little of the Northern Part of Rio Grandé.

I agreed, as is usual in such cases, with a man who was to provide twenty horses for the journey, with a saddle and bridle for my own use, to act as a guide, and conduct me without delay, by a frequented route, in which the necessary supplies and accommodations might the most easily be found. The horses which are not mounted, are commonly driven before the travellers; a mare being selected for a leader, which being used to the task, will proceed steadily at the rate of seven or eight miles an hour, and from whom the drove will seldom stray. When the ridden or loaded horses are fatigued, the guide turns them loose and supplies their place with others; and travellers who can bear such exertion will sometimes tire four or five horses in a day. In this mode, it is said, the journey from St. Pedro to St. Catharine's has been performed in four days, a distance of as many hundred miles. The Governor was pleased to express much concern for my safety and comfort, and having repeatedly gone over this ground himself, rendered me essential service by his directions.

The horses were to be ready at the village of St. Pedro do Norte, on the other side of the harbour, between which and the town ferry boats are continually plying. These boats are good ones, yet the passage is not always safe; for there are no regular tides, and when the wind blows from the South-East, the water is heaped against the beach of the ocean in such a manner that a strong current sets up the harbour. When there has been much rain in the interior, considerable floods come downward, and the agitation produced in these different ways, changes the position of sand-banks. I was once upset in the surf; but the people on shore aware of the danger into which we were running, soon rendered us effectual assistance. A short time before I first saw this spot, a part of the shore, on the Eastern side, had been torn away in the night, several houses were thrown down, and their inhabitants perished. Where the houses had stood, there was the next morning thirty feet water.

St. Pedro do Norte consists of about a hundred miserable huts, placed irregularly among loose and lofty hills of sand; even in what are called the streets, the passengers are up to the ancles. Yet here is shipped the greater part of the produce of the country, from hence all outward-bound vessels must take their clearances, and here are the warehouses for the King's Fifths, a tax levied on all hides exported. Here too is an independent Civil Jurisdiction, a Governor, and subordinate Officers; but the Military are under the direction of the Governor on the Southern side of the harbour.

Having heard that there were some Indian Sepulchres to the North of the village, I set out to explore them, but could not discover the least trace of any thing of the kind; if they ever existed, they are probably overwhelmed by the sand. Some heaps of muscle shells, near Mustardos, are also pointed out as marks of the abode of the ancient inhabitants, near the spot. But I have so often been deceived by collections of marine remains in unnatural situations, as immediately to suspect the deductions drawn from them. In this instance, the muscle heaps are I believe, nothing more than the residue of shells collected by the early Portuguese Settlers, which they were accustomed to convert into lime, wherewith to whiten their churches and larger buildings.

To the East of the village appears an uniform, dreary desert of sand, blown up into hills, some of them two hundred feet high. They have generally rounded summits, are steepest on the windward side, and to the leeward throw out spurs, connected by a lower and curved ridge, exhibiting in miniature the contour of our micaceous sand-stone mountains.

The road proceeds Northward, along the Peninsula lying between the Lagoa dos Patos and the Ocean, one of which is almost constantly in sight. Having proceeded about twelve miles, the land narrows to a single league, and hence is called the Estreito. Near at hand is a village, the first, it is said, which the Portuguese built in this part of the country. It was the Capital until 1750, and seems to have been established a

century earlier; at which time it probably enjoyed the advantage of a port. As the neck of land afterwards widens, it becomes more solid, flat, and verdant, rich in herbage, and supporting large herds of cattle. Lakes are scattered in every direction; and in the wet season, the whole plain is covered with water, so that the cattle perish for want of sustenance, of which the numerous skeletons lying around are a melancholy evidence. On digging through the sandy soil, excellent clay is found in patches, which seems to indicate that the spot was once the bed of a Lake, which has been partially filled up by sand blown into it from the coast. On the sea shore still exists a long line of pools which will probably share the same fate.

The people of this district have few accommodations, yet what they have they willingly communicate to a stranger. Their beef is good, and were it less to be commended, would seldom prove unwelcome after a hard day's ride. To each farm house, however small, an extensive portion of land is attached; but the great size of their farms, and the profusion of nature do little to mitigate the prevailing poverty, if he indeed can be called poor who has plenty to eat and no fear of future want.

Mustardos, one of the chief places in this route, is small, yet pleasantly situated. Near it an Englishman made a large purchase of land, hoping to sell it in smaller portions to his countrymen; but the speculation failed like most of the kind. About Palmeres the country becomes agreeably diversified. The road, after crossing the broad and deep river Capivarý, leads round the head of the lake to Porto Alegro; that to Laguna approaches the coast, through a swampy region, where there is nothing to amuse, and much to annoy, until we reach the large and often dangerous river, Tramendahý, where a ferry is established, kept like all the rest in this route, in a most wretched state. The name of the river, which according to the Tupi pronunciation, ought to be written Tamandua, is derived from the Armadillo, probably in allusion to its hard covering; of these animals there are many, not in this part alone, but through the whole Peninsula.

Quitting at this spot the most Southerly Provinces of Brazil, a few general notices relative to them, collected at different times, can hardly find a more suitable place.

The three Provinces of Paraná, Uruguaý, and Rio Grandé, may properly be called the Lowlands of Southern Brazil. The declivity of the table towards the East, is very abrupt, for the rivery Uruguaý rises within fifty miles of the Atlantic shore, and its sources are nearly six thousand feet above the level of the sea, nevertheless it runs Westward nearly a thousand miles, and falls into the great drains of the central waters. The Southern declivity which forms a considerable part of these three provinces, is much more gentle; along the sea-shore is a broad tract of comparatively level country; while the Northern and central parts, a great buttress of the table, are broken and stony. All the more elevated and rougher portions of this district are yet in the hands of the natives, who probably will long retain them. They are now called Itapés, from a serro of that name; formerly they were denominated Caarijos, from the nature of the country, then, as well as now, destitute of forest trees, except on the borders of rivers. The eye of the traveller is wearied with the view of downs, which seem interminable, and he is perpetually reminded how solitary and defenceless he is.

But these Downs were admirably fitted for the support and increase of neat cattle and horses; the first European settlers saw it, became breeders and graziers, and stocked the country with innumerable herds. Such was the abundance of provisions, that, as is reported, no part of the ox was sometimes eaten, but the tongue only of the calf. Lately there has been no such waste; Brazil and the neighbouring countries requiring a large supply, flesh is exported cured in different modes, as are hides, tallow, cheese, and butter, some horses, and a few sheep. Beef alone would not answer for the food of the inhabitants; they have accordingly cultivated with great success, though little care, various species of the Pumpkin, Mandioca, Milho, Mandubí a small eatable root, Wheat, and a little Barley; and of some of these have had enough to spare for distant sale. They raise also a variety of fruits, both native and foreign; which

when preserved, especially peaches and pears, are well received in more refined places. The viands found in the more considerable towns are thus abundant and various; nor does the country go without its share, though it may be a small one, of its own produce. Even the lower classes are not ill fed on beef, pulse, pumpkins, a preparation of a harmless species of Mandioca, and Milho boiled then dried, pounded, made into a paste with milk, and finally baked, thus forming no despicable substitute for bread. The peach-tree is so common as to furnish in some places, the chief material for fuel; but it does not flourish North of Porto Alegro.

The hope of the Farmer is often rendered, in a great measure, vain by Ants; and a species of Locust, abounding chiefly in the neighbourhood of Corrientes, is to be found throughout the country. The Ounce, here called the Jaguár, and others of the feline tribe, infest the whole district, and sometimes enter the towns. Cotias and Agoutis abound in the woods, Antas are found near the upper streams, and in the lower grounds are Deer, Pacas, Rabbits, Hares of an uncommon sort and a large size, Armadillos, and Wild Dogs. Around the marshes are thousands of water birds; among them some whose skins are covered with a fine down, collected on that account, and exported under the name of Swanskins. The Heron too, frequents such spots, from the diminutive bird which picks up the worm in a shallow pool, to the giant which overlooks an ox, and whose expanded wings when rising from the ground seem to hide a meadow. Here is also the Swan with a black neck, and a brown diving bird, much like a Puffin. Young Emus are sometimes kept in the house, for the purpose of catching flies and other insects, and follow their vocation with the most persevering and successful earnestness.

In the low grounds there is little Stone of any kind; in the upper, grey granite and gneise abound. A stone of the latter sort, brought from Rio Pardo, was full of small green crystals, looking like emeralds, but of no value, unless as a matter of curiosity. Chalk and Lime-stone are said to exist here, though none fell under my observation. Gold

and Silver also, are reported to have been found, but I saw no indications of them. Native Sulphur was shown to me, where it was produced I endeavoured in vain to discover.

This country is blessed with a fine Climate, more especially in those parts of the interior where there are few marshes. The Winter begins in May and ends in October; at this season the prevailing winds are from the East and South-East, frequently blowing with violence, and producing frost and snow. In summer the air, particularly in the immediate neighbourhood of lakes and watery ground, is sometimes intensely hot and distressing, owing to the great quantity of vapour and the want of ventilation; dense black clouds appear in the evenings, producing thunder storms with rain and hail.

Nature has here produced one of her slow, but irresistible operations. On a careful examination of the coast, it will convincingly appear, I think, that it has formerly proceeded from the Castilhos Grandes, by the West of the Lake Mirim, the River Gonzales, and the Lagoa dos Patos, to the Maro of St^{a}. Maria, near Laguna, and if so, all to the East of this line is made ground, formed by sand driven up from the ocean.

The two lakes which form the chief features of this part of the country, have probably been created by the rivers which flow into them, repelling the sand accumulated at their mouths, by the occasional impetuosity of their currents, until the bar was formed in the dead water produced by the stream and the ocean. There the bank would gradually rise above the high water mark, and compel the river to bend its course; and by constant acquisition, would grow broader and longer, and at length, form an estuary within it. Thus the Saboytý, the Ygaroon, and the Piratiním, were forced to join before they reached the ocean, and their united surplus waters to pass off Northward, forming in process of time the river Gonzales. In like manner, the Jacuý, the Camapuám, and other rivers, were compelled by accumulation of sand under the lee of St^{a}. Maria, to take a Southern course, and produced the larger lake; but this discharging the greater quantity of water, the stream has

carried with it that of the lesser lake, and formed the Rio Grandé, whose bar is still proceeding Southward.

At first the Estuary must consist of a number of pools, sometimes dry, and sometimes formed into one by an increase of water. Some of them would, by degrees, collect in their bottoms a quantity of mud, which, itself accumulating, and aided by the flying sand, would, at length, fill them up. Remnants of such lakes exist along both the peninsulas, and the frequent existence of clay beneath the sand is, to me, an evidence that they were once numerous. Had marine or fresh water vegetables been growing there, they would have been buried, but not destroyed, and, perhaps, in the course of ages, have been converted into different kinds of coal.

The manner in which the sand is urged forward by violent South-Easterly winds, has been already stated; and, indeed, if there be any wind at all, the smaller particles may always be observed in progress. More clearly to ascertain the effects produced in this way, I frequently laid down pieces of wood or lumps of clay, stuck up a dry bush, and dug holes in the sand; and, in a few hours, a line has been formed under the shelter of such substances, and the holes filled up. If the wind was gentle, the ridges were formed on one side only; if strong, a mass was accumulated all around. I have been astonished to see how soon a hillock was formed which buried the impeding article, and all traces of a considerable hole obliterated. The continual advancement of the hills once formed, is illustrated by that mass of sand which has been mentioned as existing near the church of St. Pedro. It has been fifty years in accumulating, as old people tell us, and its elevation is such as to indicate that it must have risen about a foot every year.

My observations on this particular hillock will serve, also, to throw some light on the adhesion of the loose materials of which the neighbouring deserts are composed. Its encroachment on the street occasioned many men to be employed in clearing it away; and it was matter of no small surprise to me that, as they worked at the bottom, the heap did not slide downward, but the face of it remained nearly perpendicular.

On closer inspection I found that the whole mass was composed of Laminæ, which had acquired so much adhesion, that pieces might be taken out nearly as large as our half-crowns. I endeavoured next to find how and in what number these Laminæ were formed. By ascertaining how many of them were contained in an inch, I concluded that the mass must be, at least, equal to the number of days in fifty years, and that the accumulated sand of each day was consolidated by the calmness and the dews of the succeeding night; a variety of tints being observable in them, as in sand-stone in general, probably according to the measure of moisture employed in their formation. The appearance corresponded exactly with that of the micaceous laminated sand-stone of England; so that it seems that sand, gathered by wind alone, would produce this kind of stone, and in fifty years might acquire consistency enough to enable the mass to support a face of ninety degrees.

Dried branches of shrubs are frequently found upon the sandy wastes, which once enjoyed moisture enough to enable them to vegetate. These disappearing, as did the wood, clay, and twigs, with which my experiments were made, would continue to retain their form, if the congregated sand ever hardened into stone; this may account for the appearance of such substances embedded in rocks. On like principles the marks of foot-steps in the sand-stone of England may be accounted for. My horse's feet, in passing, frequently broke the strata to the depth of six inches; and should the surrounding part ever be consolidated, the impression of his foot would remain, to whatever depth it might afterward be buried. After rain, I observed the same kind of depressions, on the surface of these deserts, as are found in much of the Yorkshire sand-stone; these are overwhelmed as the sand dries, and begins again to move, but they are not obliterated, and remain to excite the curiosity of ages to come.

These resemblances between the phenomena of sand-hills, which are known to have been raised by the wind alone, and those which appear in the consolidated ridges of Europe, might be traced, I think, in the deserts of Africa and Asia. Perhaps enough has been said to stimulate

farther inquiry into the subject. He, who here marks his wish to promote such investigation, is ignorant of the systems of Geology, and professes no more than to see with his own eyes, and from what he sees to form his own deductions.

The journey from St. Pedro to Rio de Janeiro was broken off at the Tramendahý, which river, or rather the Mambitúba, the father of the line, is the boundary between Rio Grandé and the province of St. Catherine. Here the passports and luggage are examined, and the former endorsed, provided the officer on duty be able to write his name.

Laguna has a secure port for small vessels, but the bar renders its entrance difficult. It is a small town, prettily situated on the Eastern side of a bay, yielding abundance of fish, some of which is exported. It has some commerce with Rio de Janeiro, and attempts have been made to transfer to it that of Porto Alegro. But though the circuitous route of the Lagoa dos Patos and the Rio Grandé would thus be avoided, there is, on the other side, the serious obstacle of a land-carriage not to be completed in less than five days. At a small distance inward is the Morro of Santa Maria, called, in some English charts, the Morro of St. Martha, the last abutment of the mountains, at their Southern limit, which extends to the sea. A little beyond it is the great Eastern Serro skirting the ocean.

The distance hence to St. Catherine's is ninety miles, along a mountainous and woody road, through a country abounding in wild beasts, and occupied by Indians hardly less savage. In these journeys through the province of Rio Grandé travellers are usually well armed; the guide seldom carrying any weapon besides his knife or a kind of short sword. When meeting people unknown to us in the trackless plains, we contrive to pass at a distance, with mutual looks of suspicious scrutiny. When the parties are slightly acquainted, they advance slowly, and salute in a formal way; but when acknowledged friends are distinguished, they gallop eagerly towards each other, and are loud and extravagant in their compliments. What is doing, where going, and the general views of