much, wanting neither in freshness, nor in close and careful observation. The descriptions of popular features will also connect themselves with the views of particular localities: and here, too, there is no want of matter.

In my lectures, as a member of the Geographical Societies of Darmstadt and Frankfort, I have made allusion to much contained in the present work; and it will perhaps interest the esteemed audience, who were so indulgent towards my feeble endeavours, to find them here more extensively carried out, especially as they are illustrated by the excellent drawings of my friend Moritz Rugendas.

In conclusion I venture to remark, that I have read comparatively little of what has lately been published respecting Mexico; but much of that which I *have* read, is incorrect. It is far from my intention to criticise any of these works; should I, however, have shewn anything in a different light, I would fain request those who deem it necessary to support their views, to do so in a friendly spirit in the public journals, as I myself, in the interests of science, shall ever be ready to respond to whatever objections may be urged against mine.

Darmstadt.

C. Sartorius.

I.

FIRST IMPRESSIONS.

The uniform current of the trade-winds wafts the European traveller, desirous of visiting Mexico, first to the charming islands of the Antilles. If fortune favour him, he will perhaps obtain a glance of Montserrat and Antigua with their lovely villas, shaded by the cocoa-nut tree, or of the abrupt southern coast of St. Domingo, or of the picturesque outlines of the blue mountains of Jamaica; these visions, however, flit past him like the dreams of a tropical night, or like the Castles of the Fairy Morgana, whose quivering outline suddenly vanishes in the deep blue horizon. Until further progress has been made towards the west, it is impossible quietly to regard these appearances and to retain them.

On a fresh October morning we are roused by an unusual bustle on deck; the cry of "Land" is heard, and our destination is before us. To the left, on the level shore, is the port of Vera Cruz and its fort St. Juan de Ulua. Dark forests, gradually sloping upwards, enclose the sandy shore to the west; then follow several mountain-terraces, one commanding the other, till at length, towering above all, the magnificent cones and indented summits of the dark blue Andes seem to support the clear vault of heaven. Majestically rearing their heads over their fellows, are the snowy summits of the Peak of Orizava, glowing with the purple rays of the rising sun, and the wild jagged crater of Perote. From the latter the mountains branch off northwards to the sea, terminating in an abrupt rocky wall on the shores of the Gulf, whilst to the south, the Cordilleras extend in a huge semicircle in the distant horizon.

Regarded as a whole, the coast has the same features, whether we trace it to the south or north. Everywhere we find a narrow level tract of coast, not many miles in width, then a gradual ascent by gently inclining slopes to the spurs of the mountains, and finally to the highlands, which, almost uninterrupted, extend for many hundred miles from north to south, nearly parallel with the coast.

The ship has cast anchor between the fort and the town; a few minutes later we are on the quay. Everything is strange here, the language, dress and complexion of the inhabitants, and the town, with its Andalusian-Moorish trappings. Here we behold a group of negroes and mulattoes gesticulating in the most passionate manner,

there the copper-coloured Indian silently offering his fruit for sale; the clearer-skinned Mestins urges forward his horse, or trots on an ass after his well-laden mules, whilst the European or Creole dandy, puffing his cigar, examines the new-arrivals. On one side the Paris fashions, on the other the lightest possible clothing, consisting of a broad-brimmed straw-hat, coloured or white shirt and ample trowsers. The fair sex exhibits the same contrast: on one hand the greatest luxury, on the other half naked. What Northman can fail to be astonished at sight of the fat negress there, who seated comfortably at the door of her house, with a short clay-pipe in her mouth, caresses her perfectly naked offspring, clinging to and clambering about her like a very ape. Who would not cast a glance after that troop of Mestins girls, all mounted, with fluttering ribands in their straw-hats, as smoking their cigarettes, they jest with their brown admirer, who seated on his long-eared steed, thrums his *jarana*, and sings jocular songs.* The women and girls of the lower classes wear large four-cornered wrappers, much longer than broad, of striped cotton, which covers the head and is folded across the shoulders.

These cloths are worn throughout the whole country; they are becoming, and the brown beauties know well how to coquet with them. No gown or spenser covers the upper part of the body; nothing is worn save the fine chemise often embroidered and trimmed with lace, but scarcely sufficing to conceal the shape. From the hips to the feet however they wear a wide petticoat of bright calico or muslin, sometimes with a white under-petticoat, whilst the feet, innocent of stockings, are encased in light silk shoes. The Mexican women have a pretty foot; they are aware of it, and do not disfigure it with wooden shoes or similar elephantine pedestals, like the peasant-women of continental Europe. The dress of the wealthy Creole ladies is pretty, much the same as with Europeans, being regulated by the newest Paris fashions. For church-going, nevertheless, they adhere to the ancient Spanish black mantilla, falling from the head over the shoulders, and half way down the arms.

In all the originally Spanish colonies, the towns resemble those of the mother country. Straight streets with raised foot-pavements, massive stone houses with flat roofs, churches in the Italian architectural style of the seventeenth century, with low towers and high cupolas, covered for the most part with parti-coloured shining tiles, meet the eye. The interior of the houses is decidedly Moorish. You enter through an arched gateway into the first court, surrounded by a colonnade, which is repeated in the upper stories. The doors and windows of the apartments all open on this court. In some districts there is a pretty fountain in the centre, round which flowering plants are grouped in large vases. A second court is usually surrounded by the servants' offices, kitchen, stables etc. In Vera Cruz there are no fountains, the flat sandy soil rendering it impossible; good water for drinking is not even to

* The *Jarana* is a little instrument with 4 or 5 strings, something like a guitar. Most of the women on the coast ride on horseback like the men, without wearing trowsers.

be had (that from a pond near the town is bad), except that which the tropical storms afford, and which is collected in large stone cisterns.

A strange impression is made by the numerous black vultures, seated in long rows on the buildings, or disputing in the streets with the lean dogs for the refuse of the kitchens. Their exterior is not precisely attractive, but these harmless animals, unwearied in performing the duty of scavengers, prevent the noxious effects that must otherwise arise from the exhalations of so much putrefying animal and vegetable matter, which the people are too idle to remove. From the Mississippi to the La Plata Stream these Zopilotes or Gallinazos are of incalculable benefit in the warm countries they frequent; they cannot fail to strike the European immediately. Among the first impressions made by Vera Cruz, may also be mentioned the shrubless downs, which environ the town and give it a very dull appearance from the land side. The Gulf Stream coming from Yucatan, proceeds along the whole coast, and conveys the sand towards the shore; the waves wash it on to the flat beach, where the sun quickly dries it, enabling the impetuous north-wind in winter to waft it up to the dreary hills, as we now see them. Nature's indefatigable laboratory must however not be misappreciated. In the rainy season the moistened sand receives so much consistency, that the floating seeds of many a plant can germinate in it. Those that appear first are usually purslain and commelinaceæ which by their fat leaf and rapid vegetation form a mould, and thus prepare the soil for other plants. These are followed by convolvuli and creeping syngenesists, also by opuntias, whose seed is scattered by the birds. The dense shade of the climbing plants renders the ground firm, the falling leaves form a thin layer of virgin mould, enabling shrubs to take root, and subsequently affording sufficient nourishment for trees.

On the Mexican shore of the Gulf it is not difficult to observe, that the land constantly receives accessions; the succession of downs and the increase of vegetation may be easily distinguished, accordingly as they recede from the sea. The incessant action of the Gulf Stream maintains the supply of sand, the mouths of the brooks and rivers are raised by it, and the overflowing waters convey the rich soil of the mountains to the lowlands. Although this only takes place occasionally, at the period of the heaviest equinoctial rains, it may nevertheless easily be comprehended why the plains are inexhaustibly fertile, and equally so, why the beds of the rivers gradually rise and produce a corresponding general rise in the lowlands. This creative agency of nature is carried on with infinite slowness, but still so that the result of the labour of three centuries can be distinctly proved; for, to adduce an example, ranges of hills now lie round Vera Cruz, where in the sixteenth century was a tolerably extensive plain.

Whoever is not detained on the coast by commercial interests, leaves it as soon as possible; for the scorching sun, as everywhere in the tropics calls forth treacherous miasma and relaxes the whole system. The fever season is properly speaking only in the summer months, when heat and moisture operate conjointly. Even at this period, the European paying a short visit to the coast has nothing to

fear, provided he diets himself, and keeps in the shade during the mid-day heat. Altogether indeed the Mexican coast is far less unhealthy than the more northerly situated plains of the Mississippi and Lower Arkansas. One has also the great advantage, that higher regions may be arrived at in a few hours, where the tropical atmosphere can be breathed with impunity.

II.

PHYSIOGNOMY OF THE COAST-REGION.

Two great roads lead from the coast (Vera Cruz) to the interior; the one passing through Jalapa and Perote, the other through Cordova and Orizava; there are further several bridle-roads, which are only accessible for horses or mules. The mail-coach that leaves thrice a week, and the sedans borne by mules may suit very well the convenience of travellers desirous of seeing no more of the country than may be viewed from the dusty road; we prefer, however, mounted on our mettlesome little Mexican horses, riding now to the left, now to the right, to make ourselves better acquainted with the physiognomy of the land. In the cool morning air we ride pleasantly along the shore, first westwards by the high-road, which we leave in half an hour, taking a northerly direction. The way is uniform, but the sand, moistened by the sea-water is firm. It is ebb-tide (ebb and flood are inconsiderable in the Gulf of Mexico; usually there is a difference of three feet only in the height of the water), tho coral-reefs to the north of the fort are partially visible; the waves ripple melodiously on the low sandy beach; flocks of sand-pipers follow them as often as they recede, to obtain the little mollusca. Grey pelicans hover heavily immediately above the surface, and sometimes plunge noisily into the flood, to convey a fish into their capacious pouch; the fish-hawk, high in air, espies the finny prey, which once seen, rarely escapes his talons. Crabs run about on the dry sand, looking like huge spiders, and conceal themselves in little hollows, if they do not first fall a sacrifice to the great king-fisher waiting for them on a piece of drift-wood.

After a ride of three hours we come to the river Antigua, which miserably struggling through layers of sand, reluctantly espouses the ocean. Here the above-mentioned appearance is very distinct; we see the bar *(barra)*, which the Gulf Stream deposits along the coast, necessarily sanding up the mouths of all the streams. Ascending the river, we are soon shaded by the densest vegetation. The family of the Leguminosæ predominates, in the form of trees, shrubs and lianas; we are rejoiced by the delicate appearance of the various species of mimosa, acacia and robinia, and

cannot cease admiring the clustering blossoms of the ingas and bauhinias. Cæsalpinias of slender growth, tamarind-trees with their beautiful feathery foliage, attract the botanist equally with the countless wild beans and peas, of which the *dolchos pruriens* (cowhage) flings thousands of garlands across the road, and covers the curious traveller, who stretches forth his hand to pluck the pod, with a cloud of sharp hairs, which penetrate the skin, and cause an itching. Beware of handling unknown plants! The elegant leaves of two kinds of jatropha, *rhus radicans*, and different specimens of wolf's milk, do not look as if they would burn the incautious hands that approached them; and yet this is often the case. On a subsequent occasion I shall give a more detailed account of the inimical plants, and shall for the present confine myself to a general view of the vegetable world.

On the banks of the river, the fig-tree and mammee-tree form a close wall with their mighty stems; the dark foliage is reflected in the tranquil water, giving it the semblance of a perfectly black stream. Whole rows of grave tantalus (black and white), dazzling white herons, and red spoon-bills are perched on the almost horizontal branches of the *ficus americana*, viewing themselves in the dark mirror, or an old alligator suns himself on a dry log projecting from the water, looking like a log too. At some little distance from the river, are the gigantic reeds or bamboos, their slender stems rising to a height of thirty or forty feet, with fine branches and leaves, whose curved summits wave like great ostrich-feathers in the wind. *Tarros* or *caña vaquera* the Mexicans call it, and use it as rafters and laths for their houses and farms. In the damp soil where they grow, are plants with enormous leaves, the banana, the wild plantain and large aroideæ, and wherever there is a standing pool, we find water-lilies and the blue-blossomed pontederia. Here and there amidst the entangled mass of creeping plants we observe already occasional palm-groups of *acrocomia aculeata*, large bignomiæ or trumpet-flowers, cecropiæ, suitaneæ and laurineæ. Further on myrtles are intermixed with the forest-plants, the yucca becomes more frequent, the thick straight stems of the heveas, which yield the elastic gum, and mighty bombac trees, covered with thorns, are very striking.

Let us pause for an instant at a hut and refresh ourselves with some fruit; for the sun is high, and the road hot and dusty. How slight a shelter suffices for these natives of the tropics! A slanting roof covered with palm-leaves rests on piles driven into the ground. Beams, rafters and laths are neither mortised nor nailed, but everything is fastened with bindweed and bast. The walls are bamboo stems bound together, whilst the doors and shutters are of similar materials. The bench, too, is of bamboo staves, also the bedstead, and a sort of repository for a few pots and plates. A fire burns day and night in the middle of the hut, where a pot with beans *(fryoles)* slowly simmers; the stones for crushing the maize stand on one side. The brown inhabitant, of African origin, gladly sells his bananas, pine-apples and oranges, and also brings a draught of water from the river, or perhaps a calabash, with palm-wine, which is admirable for quenching the thirst. The *acrocomia* is employed for this drink: it is cut down, and a little trough hewn in the middle of the

trunk with the axe. Here the sap collects, which is removed morning and evening. It quickly ferments, effervesces considerably, and has besides the flavour and attributes of new wine. Several weeks elapse before the sap is exhausted. A little field of maize near the hut, some dozen of banana stalks, a few fruit-trees, such as the lemon, spondia, aguacate *(laurus)*, hilama *(anona)* or sapote *(achras)*, constitute all the farming. Hard labour is not approved of by the dweller on the coast, and over-bounteous nature seconds the innate inclination of the Jarocho. The river supplies him with fish and turtle, the forest with sufficient game; ready money is easily obtained by charcoal-burning, which is much in requisition at Vera Cruz. A few donkeys are included in the family, as without them there would be little comfort. The Jarocho (pronounced Tcharotcho, the general name for the natives of the east coast) would be ashamed to carry a *cantaro* of water on his back, although the river is scarcely fifty paces distant from his house; he ties his two large jars together, hangs them across Dapple's back, mounts behind, and steers for the stream. Arrived there, he rides so far in to the water, that the jars are filled of themselves, so that he has not even the trouble of dismounting. If fuel is wanting, the man rides out, to seek for a dry tree, already blown down by the wind, and which is precisely thick enough to be conveyed by his beast. By means of a strap he fastens the end of the wood to the horse's tail, which must now drag the wood, and of course carry his master besides. Arrived at the hut, the log is not cleft, but is passed in at the open door to the fire, and when the end is consumed it is gradually shoved in further, until at the expiration of some days, the house will hold it. This is the tropical *savoir faire*.

After a short rest, we journey on in excellent spirits, and soon reach a more open part of the river, where it is joined by a smaller stream coming from the south. A fine tropical picture lies before us, the tranquil sheet of water being surrounded by the most luxuriant vegetation; in the fore-ground are some huts beneath lofty trees, on the left bank of the river, in a forest of fruit-trees, the village of Antigua, whose ancient stone church is evidently one of the oldest in the country. The beautiful blue mountains of Misantla form the back-ground. Antigua was the first permanent settlement of Fernando Cortes; the mouth of the river was less choked up than at present, and the extremely fertile country offered every guarantee for the prosperity of the infant colony. Cortes had effected his first landing some leagues further to the north, and had erected the earliest dwellings at the mouth of a little river. The settlement received the appellation of Villa Rica de Veracruz. The situation was unfavourable for communicating with the interior, so that three years later, in 1521, the settlement was removed to where Antigua now stands, the original name being retained. It was not until the close of the sixteenth century, about seventy years later, that New Vera Cruz was founded by the Viceroy Count de Monterey, as the larger vessels were unable to cross the shallow bar at the mouth of the river. The new city, which was endowed by Philipp III. with civic

rights in 1615, soon eclipsed its predecessor *(la antigua Veracruz)*, which in course of time dwindled into a mere fishing-village.

In order to become acquainted with tropical vegetation in all its luxuriance, we must leave the main stream, and strike off in a south-westerly direction, following as nearly as may be the course of the smaller river, but without approaching too near. We find ourselves in an extensive well-wooded plain of deep fertile virgin-mould, whose impenetrable vegetation distinctly proves that soil and climate act in concert. Here we remark tall cæsalpinias and slender cedrelas; the American fig is seen of the most singular form; the shapeless stems occasionally shooting forth long horizontal branches, from which descend perpendicular shoots, and taking firm hold of the soil, soon serve as pillars for the support of the long branches, affording to the whole the appearance of a vast arbour. The large dark leaves of the tree itself, cast a deep shade, besides which the descending shoots are entwined with every imaginable variety of creeping-plants, by bignonia, paullinia, aristolochia, convolvulus etc., which often form the most brilliant festoons. On the thick branches are masses of large-bulbed orchideæ, and epidendræ (for example *E. cavendishii*) with beautiful umbellate blossoms, and on the thinner branches all kinds of tillandsiæ, especially the *tillandsia usnevides*, which floats in the breeze like a grey veil. The ground is covered with dense groups of long-leaved bromeliæ (*bromelia pita* for example) the tough fibres of whose leaves furnish the best thread for leather articles.

Occasional palms have already shewn themselves, but here we meet with complete forests of them, and moreover of the handsomest which nature can produce. On tall smooth stems, fron 60 to 90 feet high, the fan-shaped leaves, which, unlike the generality of palms, are attached vertically instead of horizontally, form large pointed arches. This peculiar disposition of the leaf gives it so elegant a curve, light and shade are so accurately defined by it, that a temple of magical effect is formed. Once I beheld a forest of this kind, from which the brushwood had been removed, representing the grandest cupola; palms of all sizes constituted the proud vaulting, the capitals were represented by the blossoms and fruit which regularly appeared under the stipules, the dark gloomy forest forming the walls, the light of the deep blue sky penetrating solely through the feathery palm-foliage. A feeling of indescribable awe and reverence was given birth to in me, and too distinctly I recognized and bowed before the might of the All-Wise.

This beautiful species of palm belongs to the family *cocos*, has much smaller fruit than the *cocos nucifera*, which is also met with along the whole coast, but is much handsomer than this. It is termed in this country the royal palm *(palma real)*, the same name, in Cuba, being given to the *oreodoxa regia*.

For several miles we are forced to struggle onwards, on narrow paths which are often slippery and wet, through a most wondrous vegetation, which has here the chief conditions of development: a powerful sun, and moisture. The greatest humidity is of no benefit to the plants, if the water is not supplied with carbon, to dissolve the alkalies and earths. But where all these conditions for the development

of a primeval forest in the tropics are fulfilled, man himself is a mere vegetable, for the sultry, moist atmosphere produces not only all the bad fevers prevalent in tropical regions, but calls into existence countless armies of tormenting mosquitoes, ticks and blood-sucking insects, which render life a complete torment. Only here and there is a little settlement met with in the bush, where a rising ground affords a freer circulation of air. The forests would appear intolerably lonesome, were they not animated by the shrill noise of the cicadæ, the chirping of crickets and grasshoppers, the chattering of parrots, the tapping of the woodpeckers on the dry trees, and the cry of the apes. Herds of cattle, too, are frequently seen in these forests, where they find abundance of rich pasture-grounds They are not wild, but are intentionally driven thither by their owners, especially in winter. Large butterflies flit beneath the thick foliage, settling occasionally on the blossoms of the beautiful creepers, which ascend to the highest tree-tops; whilst flocks of toucans and grossbeaks *(Rhamphastos)* seek for the ripening berries of the eugenias.

Although the tapir, the jaguar, and the *felis concolor* often frequent these forests, they are never met with by the passing traveller; occasionally, perhaps, a stag darts across the path, or an armadillo or aguti seeks a safer place of concealment. Even the snakes are found more towards the skirts of the forest, in the drier pasture-ground.

A few leagues more, and the plains with their palm-forests are in our rear, the country becomes undulated, the denser forest is seen in the valleys only; on the hills we find brushwood and tall grass. The climbing *combretum* covers the mimosa, with its long flame-coloured clusters; lime-trees appear among the acacias and ingas, and tree-like convolvuli with large white blossoms, reddish-brown within. —

The broad valley we have entered, opposite Antigua, conducts us by a gentle ascent to the main-road; a fine stone bridge across the stream assures us that we are approaching the habitations of our kind, and the different appearance of the country announces that we have entered another region.

III.

THE REGION OF THE SAVANNAHS OR PRAIRIES.

It is difficult to determine with any degree of precision where the forests of the tropics cease, and the prairies begin. This must in great measure depend on the nature of the soil; whether it consists of basaltic or volcanic remains, or of alluvial,

far-extending plains. In some parts of the coast, the grass commences within view of the sea; but on a more careful examination, we perceive that the country consists of extensive slopes, rising almost imperceptibly from the shore. There is little water here, and the whole district is covered with basaltic rubble, partly in smaller fragments, partly in larger blocks, and the soil consists of decomposed basalt. In general the savannahs are met with at the elevation of 800 to 1000 feet above the sea, and extend as high as 2500 feet. These districts form almost invariably a sloping plain, rent by fearful chasms, stretching from east to west, where the mountain-streams foam in their deep beds. The reader must not picture to himself fair lovely meadows, but rather dreary wildernesses, overgrown with low thorny mimosas, frequently varied with larger groups of trees and small forests. There is, however, nothing grand in the character of the vegetation; as far as the eye can reach, we see the umbellated spreading mimosas, the calabash-tree *(crescentia alata)* laden with its vast fruit, some lime-trees, convolvulus-trees, euphorbias, and a few myrtles and terebinths. Dark, pillar-shaped cacteæ with their white tops peep forth, opuntias and mamillarias, bromelias and agaves start up from heaps of stones, and accord well with the grey brushwood of various kinds of croton and syngenesists. More to the west are groups of queerly-shaped cordelineæ; the base of the tree forms a cone of four, six, or more feet in diameter, diminishing as it rises higher to a diameter of one foot, having at its summit a large bunch of long, soft, riband-shaped leaves. In spring it is adorned with a succession of white blossoms, towering to a considerable height.

At a similar elevation we find on the borders of the chasms, the cycas with rigid leaves and stout stems, mostly from four to six feet in height. They are of both sexes, and the female plant bears a woody capsule with some hundreds of fruit of the size of a walnut, filled with a pure farina (sago). The stem and the root also contain sago. Here too we meet with the zamias.

In the summer months, from June to October, the tropical rains call forth a lively green, thousands of cows pasture in the rich juicy grass, and afford variety to the uniformity of the landscape. With the cessation of the rains, the prairies fade, the soil dries up, the trees lose their foliage, the herds seek the forests and chasms, and in the cloudless skies, the sun scorches up the unsheltered plains. In this season the prairies are often set on fire, partly to destroy the clouds of tormenting ticks and tarantulas, partly to call forth a new crop from beneath the ashes. At night it is a wondrous spectacle, especially in a hilly country, to behold the long fiery streaks hurrying on like an interminable torch-procession. During the day flocks of grey buzzards assemble on the outskirts of the conflagration, to feast on the countless grasshoppers driven off by the smoke; the fox is also on the look out, to see if nothing in his way is to be picked up.

Not many animals are met with in the prairie regions; the stag (in size and colour resembling that of Virginia, but with straighter antlers), the coyote, or half-wolf, the fox, and the rabbit are most frequent. Large flocks of wild turkeys roam