A

VOYAGE

TO

SOUTH-AMERICA:

Describing at Large

The SPANISH Cities, Towns, Provinces, &c. on that extensive Continent,

THE

Genius, Customs, Manners, and Trade of the Inhabitants;

Together with the

NATURAL HISTORY of the Country,

And an Account of

Their GOLD and SILVER Mines.

Undertaken by Command of

His Majesty the KING of SPAIN,

BY

Don GEORGE JUAN,

AND

Don ANTONIO DE ULLOA,

Both Captains of the SPANISH Navy, Members of the Royal Societies of London and Berlin,

And Corresponding Members of the Royal Academy at PARIS.

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PREFACE.

IT is certainly a very true, as well as trite obſervation, that knowledge is the food of the mind; and if this be ſo, then certainly that ought to have the preference, which is at once equally nutritive and pleaſant. On this account, books of voyages and travels, have been in ſuch general eſteem; and at the ſame time, have been commended by perſons of the greateſt ſagacity, and in the higheſt reputation, for ſuperior underſtanding. The pleaſantneſs of this kind of reading has attracted many, who had before no reliſh for learning, and brought them by degrees, to enter upon ſeverer enquiries, in order more effectually to gratify that curioſity, which this kind of ſtudy naturally excites. Men of higher abilities, have turned their thoughts on this ſubject, from the conſideration of its real utility; this induced the ingenious Hakluyt, to make that noble collection, which procured him the patronage of queen Elizabeth's ableſt miniſter; this led the elder Thevenot, to enrich the French language, with a very copious collection, of the ſame kind; and not to multiply examples, this made voyages and travels the favourite ſtudy of the judicious Locke; who looked upon it, as the beſt method of acquiring thoſe uſeful and practical lights that ſerve moſt effectually to ſtrengthen, and alſo to enlarge the human underſtanding.

IT is indeed true, that in reſpect to this, as well as other branches of ſcience, there have been many productions, which for a time, were applauded and admired, and which, notwithſtanding, have ſerved rather to miſlead, than to inſtruct men's minds, by a diſplay of ſpecious falſehoods, highly acceptable to ſuch as read merely for amuſement. But theſe authors of marvellous, and very often incredible relations; ſtrange and ſurprizing adventures; and pompous deſcribers of wonderful curioſities, that men of more penetration, but of ſounder judgments, could never afterwards, tho' purſuing the ſame routes, with their utmoſt diligence, diſcover; have quickly loſt that credit, which novelty only gave them; and being once exploded by ſenſible judges, have gradually ſunk, firſt into the contempt, and then into the oblivion, they deſerved.

THESE books however, are thus far uſeful, that they ſerve to give us a clearer idea of our wants, and a more juſt notion,

than perhaps we could otherwise obtain, of the qualities requisite to render voyages and travels truly worthy of esteem. They demonstrate very fully, that in the first place, it is of great consequence, to know the characters of the authors we peruse, that we may judge of the credit, that is due to their reports; and this as well in point of abilities, as of veracity, for many writers impose on the world, not through any evil intention of deceiving others, but because they have been deceived themselves. They relate falsehoods, but they believe them; we cannot therefore justly accuse them of want of candour, the fault properly to be laid to their charge, is credulity. We are most in danger of suffering by those authors, who have either lived in, or passed through countries, that are rarely visited, and into which, few are permitted to come. This protects their mistakes for a great length of time, and we know that prescription is a fortress, in which error often holds out a long siege. There cannot therefore be a more acceptable tribute, offered to the republic of letters, than voyages or travels, composed by persons of established reputation for learning, and in equal esteem for their probity. But the value of the present is much enhanced, if these voyages or travels respect countries little known, the coasts of which only, perhaps, have been accidentally visited by seamen, or harrassed and plundered by privateers, persons often of suspected faith, and almost always, of very limited capacities. Some few exceptions indeed there may be, to this general rule, but even in regard to these, there will be necessarily great defects, and allowing them their highest merit, they can only report truly, what little they have seen: and what idea can we form of a Turkey carpet, if we look only at the border, or it may be, at the selvidge.

THE authors whose writings are now offered to the public, in an English dress, are men of the most respectable characters, men distinguished for their parts and learning, and yet more for their candour and integrity. Men who did not travel thro' accident, but by choice, and this not barely their own, but approved by authority, and approved, because they were known to be equal to the task they undertook; and that task was the examining every thing, they went to see, with all possible care and scrupulous attention, in order to furnish the public, with such lights as might be entirely, and safely depended upon. This was the design, which they undertook; this design they executed with the circumspection that it deserved; and the punctuality with which they discharged it, has procured them the just returns of favour, from their royal master, and the applause and approbation of the best judges,

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in their own and other countries. These are circumstances, that distinguish in a very singular degree, the sheets that are now offered to the reader's perusal. Circumstances that no doubt will have their proper weight, and which it would be entirely needless for us to enforce, though it would have been inexcusable not to have mentioned them.

THERE is however one other circumstance, that deserves particular notice, which is, that with respect to the characters and abilities of these gentlemen, all does not rest, either upon their writings or foreign authorities; they have been both in this country, have been seen and known, by those who were best able to judge of their merit, and in consequence of that, are both of them members of our royal society. They were here some time, conversed indifferently with all sorts of people, and were unanimously allowed, by all who did converse with them, to have had very extensive views, in respect to science; great sagacity, much application, were very assiduous, and very accurate in their enquiries as well as very candid and very communicative, in relation to the discoveries and observations, which they had made in their travels. Men of such talents, and such dispositions, must render themselves agreeable every where, much more in a country of liberty, and where without partiality, we may have leave to say, the sciences are as deeply rooted, and flourish in as high a degree, as in any other in Europe. We will add, that from a knowledge of their merit and candour, they not only received the greatest civilities, but the most seasonable protection, to which, in some measure, the world is indebted for this very performance, as the reader will learn in the perusal of it, accompanied with those marks of gratitude, and respect, which were due to their kind benefactors, more especially the late worthy president of the royal society, whose memory is justly dear to all, who had the honour of being in the least acquainted with him; and that humane and polite patron, of every useful branch of literature, earl Stanhope; whose noble qualities, reflect honour on his titles, and who inherits the virtues of his illustrious father, one of the bravest men, and one of the most disinterested ministers, this nation could ever boast.

AFTER doing justice to the authors, let us now come to the work itself. In pieces of this kind, there is generally speaking, no part so tedious and unpleasant, at least to the generality of readers, as what regards occurrences at sea; and yet these are allowed to have their utility. In the following sheets however, tho' they are found pretty copiously, we shall find them without those defects. If these writers mention the variation of the compass, they explain the nature, enquire into the cause, and shew

the uses that arise, from observing this Phænomenon. In the same manner, they treat of calms, winds, currents, and other incidents, in so succinct and scientific a method, that at the same time they are very instructive, and not unentertaining. In this respect we may look upon their narratives, as a sort of practical introduction to the art of navigation, which we not only read without disgust, but which when read with any tolerable attention, will enable us to understand many passages, in other voyage writers, which we should otherwise pass over, as utterly uninteresting and unintelligible. This observation, the reader will find so fully verified, from his own experience, that I am confident he will think it no small recommendation, to the book; and the more so, because though very necessary, and much wanted, the difficulties attending it, had hitherto in a great measure, discouraged any such attempt.

THE geographical descriptions we have of the country about Carthagena, the Isthmus of Darien, the Terra Firma, the countries of Peru and Chili, those watered by the vast river of the Amazons, and in a word, of the greatest part of South America, are not only perfectly accurate, very methodical, and in all respects, full, clear and satisfactory; but also what we greatly wanted, and what we never had, at least in any comparison with what we now have, before this work appeared. These are countries, that from the time of their being discovered, have maintained the reputation, of being as pleasant, as fertile, and as valuable, as any upon the globe, but though we knew this in general, and from the Spanish descriptions and histories, were not altogether unacquainted with many particulars relating to them, yet with respect to any distinct and precise delineation, of their several provinces, their divisions and subdivisions, the distribution of mountains, rivers, plains and other circumstances, with their relations to each other, and comparative values in all respects, they were things not barely unknown, but such as we could never expect to know, from the nature of the Spanish government, with any degree of certainty. But by this accident of these gentlemen so well qualified in all respects, going thither with no other view, than the improvement of knowledge, pursuing that view with the most lively zeal and assiduous application, and founding their reputation, upon a plain and candid communication of all that knowledge, which, with so much pains and labour they had acquired, we have now as clear, concise and correct a representation of these extensive regions, as we can possibly desire. At least, such a one, as will answer all the ends of information and instruction, enable

us

us to discover the errors and partialities in former accounts, and prevent our being amused or misled by any erroneous relations for the future; which are certainly circumstances, of very great consequence.

THE natural history of these countries, will be likewise found in the following sheets, in a manner no less perfect and pleasing. These gentlemen went about it in a proper method, and with the talents requisite to the compleat accomplishment of their design. They saw things with their own eyes, they enquired carefully, but they took nothing upon trust; on the contrary they discovered, and they have disclosed many errors, of an old standing, exploded various common notions, that were ill founded, and have left others in the state in which they ought to be left, as things not thoroughly proved, or absolutely disproved; but which are reserved to farther examination. It is chiefly from the natural history, that we collect the value and importance of any country, because from thence we learn its produce of every kind. In these sheets we find the greatest care taken in this particular, all the riches of the mineral, vegetable, and animal kingdoms, exhibited to our view, their places exactly assigned, their respective natures described, the methods of using, improving and manufacturing them, pointed out; and exclusive of a multitude of vulgar errors exposed, and mistaken notions refuted, an infinity of new curious and important remarks are made, all tending to explain and illustrate the respective subjects. Of these many instances might be given, but that would be to anticipate the reader's pleasure, and arrogate to ourselves the merits of the authors we celebrate.

IN respect to the civil history, the world in general was yet more in the dark, than as to the natural; knowing much less of the inhabitants than of the commodities of these countries; and in this respect, our authors have been as candid, as circumstantial, and as copious as in the other. They not only acquain: us with the distribution and disposition of the Spanish governments, with the nature, extent, and subordination of those who preside in them, but have also given us a regular plan of their administration, and of the order and method in which justice is dispensed, and the civil policy maintained; the domestic œconomy of the Spaniards, their customs, manner of living, their way of treating the Indians, both subjects and savages, are stated with the same freedom and precision. In like manner they give us a succinct account of the Creoles, that is, such as are descended from the Spaniards, and have been longer or later settled in the Indies, with whatever is peculiar in respect to the genius,

humour, virtues, and vices of these people; and more especially the points in which they differ from the native Spaniards. The State and condition of the Indians who live in subjection to the Spaniards, their tempers, employments, good and ill qualities, labours and diversions. The habitations of the free Indians, their customs, dress, manner of spending their lives, exercises, talents, religion and method of preserving the remembrance of past transactions, as also the condition of the negroes and mulattoes, whether in the capacity of slaves, domestic servants, or in possession of their freedom, with whatever differences occur in the state of any of these people in different provinces.

But to the English reader perhaps nothing in the following pages will be more acceptable, as indeed nothing seems to have been more carefully considered by the authors, than the commercial history of these countries. We find here not only the principal commodities of every province distinctly enumerated, but we are also informed of the particular places where they grow, their different qualities and degrees in value, the method of collecting and curing most part of them, the manufactures of cotton, wool, and other materials, the produce of their mines, and different kinds of metal, their potteries, and whatever else is the object of industry or skill. The manner of conveying them from one province to another, the great roads, the inland and coasting navigation, their commerce with Spain, their contraband trade, the manner of introducing, and the great consumption of European commodities and manufactures, the advantages and disadvantages attending their present regulations, the discoveries that are yet to be made, and the improvements which may still take place in the management of affairs in those countries. The singular inventions of the natives for passing great rivers, transporting their goods by the help of vessels of their own construction, their adroitness in some respects, and their stupidity in others. From the due consideration of this part of the work, the reader will perceive, that in many things we have been imposed upon in former accounts; and that other things in a long course of years, are very much changed from what they were. But instead of old errors we shall find a substitution of many new truths, and some established from example and experience, that are of great consequence, to be frequently remembered and perfectly understood. Such as, that countries are not the better, and which is still stranger, are not the richer, for producing immense quantities of gold and silver; since this prevents their being cultivated, exposes the natives to pass their

lives

lives in the severest drudgery, and after all, makes the digging metal from the mine little more than drawing water in a sieve; since in such countries riches vanish almost as soon as they are revealed. Industry alone in the old world and in the new, has the power of acquiring and preserving wealth, and this too without the trouble of mining. Besides, tho' not insisted upon, it will be evidently seen that severity in government, and superstition in religion, subvert both liberty and morals, and are consequently in all respects destructive of the happiness of mankind.

THE account given by our authors of the missions which the Jesuits have established in Paraguay, is as interesting as it is entertaining; and may be very justly considered as one of the most curious and best written parts of the whole performance; since at the same time that it breathes all the deference and respect possible for the fathers, it informs us of a great variety of facts of so much the more consequence, as at the time it was written, nobody could foresee that the courts of Madrid and Lisbon would make so thorough a change as they have done in their sentiments in regard to this order; and therefore the informations these gentlemen give us are the more to be relied on. They shew us in what manner, and under what specious pretences the Jesuits acquired a kind of independant possession of so large a tract of country, and except their annual tribute, an almost absolute dominion over an immense number of people. They acquaint us that there is a civil government in every village after the model of the Spanish towns, but the magistrates are chosen by the people, subject only to the approbation of the father Jesuit, who resides in and at the bottom governs the village. We learn from them that the Jesuits draw from the people all the commodities and manufactures that are fit for foreign commerce, which are vended by a commissary of their appointing, and the returns in European commodities made to and distributed by them at their pleasure; they tell us, that the church in every village is spacious and elegantly adorned, that though they are stiled villages, they are in effect large towns, and the houses in them neat, commodious, and in comparison of the Spaniards, very well furnished. We learn from them that under pretence of the incursions of the Portuguese who used to seize these Indians, and make them work in the mines, and of the savage Indians who surround them in a manner on all sides, the fathers have taught them the use of arms, make them spend their holidays in military exercises, have a large body of well disciplined troops, magazines well furnished with military stores, together with mills and other

necessary machines for making their own gunpowder. They likewise let us know that to prevent the manners of their disciples from being corrupted, the Jesuits exclude them entirely from all communication with strangers, whether Europeans or Indians, and suffer none to enter into their missions, who may report either the strength or the weakness of their condition, or penetrate into the mysteries of their policy.

ANOTHER point worthy of notice, is, the account of the little island of Fernando de Noronna, which tho' so inconsiderable in itself, and so unfit for habitation, from its being sometimes three or four years without rain, was abandoned by the Portuguese; yet being within sixty or seventy leagues of the coast of Brasil, was occupied by the French East India company, which induced its former masters to repossess it, and to fortify it likewise, notwithstanding the before mentioned inconvenience. The building here no less than seven forts to cover and command three harbours, in the largest of which there is a garrison of a thousand regular troops, relieved constantly once in six months from Fernambuca, plainly proves that either the force of the Portuguse is much greater in those parts than we commonly apprehend in Europe; or which is more probably the truth, that they are to the last degree jealous and suspicious of that enterprizing nation, who in virtue of the great law of convenience, are for appropriating to their own use whatever they find themselves in a condition to seize and to secure. This gives us the true cause of that surprize and uneasiness which the Portuguese expressed last year, when a French squadron with a body of land troops on board intended against our settlements in the East Indies touched there, on account of an epidemic disease among their troops, which it seems the Portuguese mistook for the epidemic thirst of gold, and were so apprehensive of their making a visit to their mines, that though they could not well refuse them relief in their distress, yet they took almost the same precautions as if declared enemies had landed in their country.

ANOTHER point of great utility that will result from the perusal of this work, is the obtaining a clear and candid account of the flourishing state of the French colonies in St. Domingo; which, considering that the gentleman from whom we have it, is a Spaniard, and consequently unexceptionable in his testimony, will suffice to give us a just Idea of the prodigious advantages derived to France from their colony in that island. He observes with great fairness and freedom, that the French are well intitled to the riches they acquire, from their industry and œconomy; since though they occupy the worst

part

part of the island, they are out of all comparison in a better condition than the Spanish inhabitants who possess the better and more fertile part. He takes notice likewise, that though all correspondence between the two nations is forbid under the severest penalties, it is notwithstanding open almost in the same degreee as if there was no such prohibition; the reason is, because the French could scarce subsist, if they were not supplied with cattle by the Spaniards; and on the other hand, the Spaniards must go naked if they did not by this means obtain European commodities from the French; so idle a thing it is to think of making a law against necessity. By the balance of this trade the French acquire annually about two millions of pieces of eight, which returns in hard silver, with sugar, indigo, and the other commodities of the growth of their part of the island, which is admirably cultivated, to the ports of France; and is a very considerable addition to the value of their otherwise rich cargoes. The reader will perceive from other passages in his account, how very probable the common opinion is, that sooner or later the French must become masters of the remaining and most valuable part of this island, unless from motives of policy, and for the sake of the profits resulting from their contraband trade with the Spaniards, they should decline the entire possession, and content themselves with convenient encroachments. Taken in either light it is matter of melancholy reflection to us, whom they have in a great measure wormed out of the sugar trade; and in consequence of their farther acquisitions in this island may be rendered still more able to undersell us than they are already.

But the Portuguese and French are not the only strangers into whose circumstances and management of affairs in America, our authors have enquired; the reader will find they took no less pains to make themselves well acquainted with the proceedings of the English. We have not only a very full and distinct account of the taking of Louisbourg, and of the conquest of the island of Cape Breton in the last war, but we have also a very copious memorial drawn from the papers of the marquis de la Maison Forte of the colony of New England, which he had an opportunity of framing while he remained a prisoner at Boston. It would have been more satisfactory if we had had the whole of his memoirs, for there is great reason to judge from this specimen, that he must have made much deeper researches than he communicated to his Spanish friend, or at least than he judged expedient to communicate to the world; otherwise it is very hard to conceive upon what he grounded his notion, that in the space of a century the people of New England would be as numerous as

those

those in Old England, and in a condition to give law to all the nations in North America. We have besides some very sensible remarks upon the cod fishery, and the advantages arising from it, as well as our disputes with the French in that part of the world. These speculations, though not always critically right, deserve our notice and even our strictest attention. For however we may be at liberty to conduct our own affairs, we cannot limit the humour, or controul the politics of our neighbours; and therefore, it is of great service, to be well acquainted with their notions. The great importance of this subject, might have been, and certainly was discovered long ago, by our politicians of the first order, but it is now become apparent to all ranks of people, and if the expression may be allowed, from being the object sometimes of discussions in the cabinet, is at present become the topic of vulgar politicians.

BESIDES those that have been already touched, there are a great variety of curious, instructive and pleasing incidents, in this performance, that cannot fail of giving satisfaction to the ingenious and intelligent reader. Such as the discussing the causes, why it never rains naturally at Lima, or the country of Valles in Peru. The inquiries into the frequency of volcanoes in South America, the materials, if we may so speak, of those subterraneous fires, the accidents by which they are kindled, and the consequences of their explosions. The authors sentiments as to earthquakes, their extent, and direction, the circumstances preceding and attending them, and their different effects in different places. On the whole, therefore, we hope it will sufficiently appear, that by the translation of this work, we have made a valuable acquisition of practical learning, and useful knowledge, by adding it to the number of good books, that we have already in our own tongue; and if in this preparatory discourse, we have done any thing, towards setting this point, and the merits of our authors, in a due light, it will effectually answer our end.

A VOY-

A

VOYAGE

TO

PERU.

BOOK I.

Reasons for this Voyage; Navigation from the Bay of CADIZ *to* CARTHAGENA *in* AMERICA, *and a Description of the latter.*

CHAP. I.

Motives of this Voyage to SOUTH AMERICA, *with Remarks on the Navigation between* CADIZ *and* CARTHAGENA.

THE heart of man is naturally inclined to attempt things, the advantages of which appear to increase in proportion to the difficulties which attend them. It spares no pains, it fears no danger in attaining them; and instead of being diverted from its purpose, is animated with fresh vigour by opposition. The glory, inseparable from arduous enterprises, is a powerful incentive, which raises the mind above itself; the hope of advantages determines the will, diminishes dangers, alleviates hardships, and levels obstacles, which otherwise would appear unsurmountable. Desire and resolution are not, however always sufficient to insure success, and the best concerted measures are not always prosperous. Divine providence, whose over-ruling and incomprehensible determinations direct the course of human actions, seems to have prescribed certain limits, beyond which all our attempts are vain. The causes his infinite wisdom has thought proper to conceal from us, and the result of such a conduct is rather an object of our reverence than speculation. The knowledge of the bounds of human understanding, a discreet amusement and exercise of our talents for the demonstration of truths which are only to be attained by a

continual

continual and extenſive ſtudy, which rewards the mind with tranquillity and pleaſure, are advantages worthy of our higheſt eſteem, and objects which cannot be too much recommended. In all times the deſire of enlightening others by ſome new diſcovery, has rouzed the induſtry of man, and engaged him in laborious reſearches, and by that means proved the principal ſource of the improvement of the ſciences.

THINGS which have long baffled ſagacity and application, have ſometimes been diſcovered by chance. The firmeſt reſolution has often been diſcouraged, by the inſuperable precipices, which, in appearance, incircle his inveſtigations. The reaſon of this is, becauſe the obſtacles are painted, by the imagination, in the moſt lively colours; but the methods of ſurmounting them eſcape our attention; till, ſmoothed by labour and application, a more eaſy paſſage is diſcovered.

AMONG the diſcoveries mentioned in hiſtory, whether owing to accident or reflection, that of the Indies is not the leaſt advantageous. Theſe parts were for many ages unknown to the Europeans; or, at leaſt, the remembrance of them was buried in oblivion. They were loſt through a long ſucceſſion of time, and disfigured by the confuſion and darkneſs in which they were found immerſed. At length the happy æra arrived, when induſtry blended with reſolution, was to remove all the difficulties, exaggerated by ignorance. This is the epocha which diſtinguiſhed the reign, in many other reſpects ſo glorious, of Ferdinand of Aragon, and Iſabella of Caſtile. Reaſon and experience at once exploded all the ideas of raſhneſs and ridicule which had hitherto prevailed. It ſeems as if providence permitted the refuſal of other nations, to augment the glory of our own; and to reward the zeal of our ſovereigns, who countenanced this important enterprize; the prudence of their ſubjects in the conduct of it, and the religious end propoſed by both. I mentioned accident or reflection, being not yet convinced, whether the confidence with which Chriſtopher Columbus maintained, that weſtward there were lands undiſcovered, was the reſult of his knowledge in coſmography and experience in navigation, or whether it was founded on the information of a pilot, who had actually diſcovered them, having been driven on the coaſts by ſtreſs of weather; and who, in return for the kind reception he had met with at Columbus's houſe, delivered to him, in his laſt moments, the papers and charts relating to them.

THE prodigious magnitude of this continent; the multitude and extent of its provinces; the variety of its climates, products and curious particulars; and, laſtly, the diſtance and difficulty

culty of one part communicating with another, and especially with Europe, have been the cause, that America, though discovered and inhabited in its principal parts by Europeans, is but imperfectly known by them: and at the same time kept them totally ignorant of many things, which would greatly contribute to give a more perfect idea of so considerable a part of our globe. But though investigations of this kind are doubtless worthy the attention of a great prince, and the studies of the most piercing genius among his subjects; yet this was not the principal intention of our voyage. His majesty's wise resolution of sending us to this continent, was principally owing to a more elevated and important design.

THE literary world are no strangers to the celebrated question that has lately produced so many treatises, on the figure and magnitude of the earth; which had hitherto been thought perfectly spherical. The prolixity of later observations had given rise to two opposite opinions among philosophers. Both supposed it to be elliptical, but one affirmed its transverse diameter was that of the poles, and the other, that it was that of the equator. The solution of this problem, in which not only geography and cosmography are interested, but also navigation, astronomy, and other arts and sciences of public utility, was what gave rise to our expedition. Who would have imagined that these countries, lately discovered, would have proved the means of our attaining a perfect knowledge of the old world; and that if the former owed its discovery to the latter, it would make it ample amends by determining its real figure, which had hitherto been unknown or controverted? who, I say, would have suspected that the sciences should in that country meet with treasures, not less valuable than the gold of its mines, which has so greatly enriched other countries! How many difficulties were to be surmounted in the execution! What a series of obstacles were to be overcome in such long operations, flowing from the inclemency of the climates; the disadvantageous situation of the places where they were to be made, and in fine, from the very nature of the enterprize! All these circumstances infinitely heighten the glory of the monarch, under whose auspices the enterprise has been so happily accomplished. This discovery was reserved for the present age, and for the two Spanish monarchs, the late Philip V. and Ferdinand VI. The former caused the enterprise to be carried into Execution, the latter honoured it with his countenance, and ordered the narrative of it to be published; not only for the information and instruction of his own subjects, but also for those of other nations, to whom these accounts will prove equally advantageous.

And

And that this narrative may be the more instructive, we shall introduce the particular circumstances which originally gave occasion to our voyage, and were in a manner, the basis and rule of the other enterprises, which will be mentioned in the sequel, each in its proper order.

THE attention of the royal academy of sciences at Paris, for the improvement of human knowledge, and its continual ardour to discover and apply the best methods for that noble end, could not sit down contented under the uncertainty concerning the real figure and magnitude of the earth; the investigation of which had, for several years past, employed the most eminent geniuses of Europe. This learned assembly represented to their sovereign, the necessity of determining a point, the exact decision of which was of such great moment, especially to geography and navigation; and at the same time laid before him a method of doing it. This was to measure some degrees of the meridian near the equator; and (as was done with great propriety after our departure) by measuring other degrees under the polar circle, in order to form a judgment of the different parts of its circumference, by their equality or inequality, and from thence to determine its magnitude and figure. No country seemed so proper for this as the province of Quito in South America. The other countries under the equinoctial line, both in Asia and Africa, were either inhabited by savages, or not of an extent sufficient for these operations; so that after the most mature reflection, that of Quito was judged to be the only place adapted to the plan in question.

HIS most christian majesty Lewis XV. applied, by his Ministers, to king Philip, that some members of his royal academy might pass over to Quito, in order to make there the necessary observations; at the same time shewing the intention and universal advantage of them, and how very remote they were from any thing which tends to awaken a political jealousy. His majesty, persuaded of the candour of this application, and desirous of concurring in so noble a design, as far as was consistent with the dignity of his crown and the safety of his subjects, referred the matter to the council of the Indies; and on their favourable report, the license was granted, with all the necessary recommendations and assurances of the royal protection to the persons who were to repair to America to make these observations. The patents which were made out for them on the 14th and 20th of August, 1734, contained the most precise orders to the vice-roys, governors, judges, and other officers in the countries through which they were to pass, to aid and assist them, to shew them all friendship and civility, and to see that no persons

ſons exacted of them for their carriages or labour more than the current price; to which his majeſty was pleaſed to add the higheſt proofs of his royal munificence, and of his zeal for the advancement of the ſciences, and eſteem for their profeſſors.

THIS general regard of his majeſty was followed by ſome meaſures, particularly deſigned to promote the honour of the Spaniſh nation, and to give his own ſubjects a taſte for the ſame ſciences. He appointed two officers of his navy, well ſkilled in mathematics, to join in the obſervations which were to be made, in order to give them a greater dignity, and a more extenſive advantage; and that the Spaniards might owe, only to themſelves the fruits and improvements expected from them. His majeſty alſo conceived, that the French academicians having theſe officers in their company, would be more regarded by the natives; and, in the places through which they were to paſs, all umbrage would be thus removed from perſons who might not be ſufficiently acquainted with the nature of their deſign. Accordingly the commanders and directors of the academy of the royal Guardias Marinas, received orders to ſelect and recommend two perſons, whoſe diſpoſitions, not only promiſed a perfect harmony and correſpondence with the French academicians, but who were capable of making equally with them, the experiments and operations that might be neceſſary in the courſe of the enterpriſe.

DON GEORGE JUAN, commander of Aliaga, of the order of Malta, ſub-brigadier in the Guardas Marinas, equally diſtinguiſhed by his application to the mathematics, and his faithful ſervices to the crown, was one of thoſe propoſed to his majeſty, as a perſon well qualified to contribute to the ſucceſs of ſuch an enterpriſe; and I, though, in this reſpect, much his inferior, was appointed for the ſame ſervice. We had commiſſions given us as lieutenants of men of war, and with all neceſſary inſtructions, were ordered to embark on board two ſhips fitting out at Cadiz, for carrying to Carthagena, and thence to Porto Bello, the marquis de Villa-garcia, appointed vice-roy of Peru, as about the ſame time the French academicians were to ſail in a ſhip of their nation, and by way of St. Domingo, to join us at Carthagena, in order to proceed from thence in company.

THE two men of war on board of which we had been ordered, were the Conquiſtador of 64 guns, and the Incendio of 50; the former commanded by Don Franciſco de Liano, of the order of Malta, commodore, and the latter by Don Auguſtin de Iturriaga, by whom it was agreed that Don George Juan ſhould go in the Conquiſtador, and myſelf in the Incendio.

On

On the 26th of May, 1735, we failed from Cadiz-bay, but the wind ſhifting, we were obliged to put back and come to an anchor about half a league without Las Puercas, and there remain all the 27th in very bad weather and a hollow ſea.

On the 28th the weather growing fair, and the wind coming about to the north-eaſt, we again ſet ſail, and continued our courſe in the manner related in the two following Journals.

Journal of Don GEORGE JUAN, *on board the* CONQUISTADOR.

THE ſecond of June, 1735, ſaw the Canary iſlands, and the winds, which are uſually very variable in this paſſage, were either N. W. by N. or N. E. Don George Juan, by his reckoning, found the difference of longitude between Cadiz and the Pico of Teneriffe 10° 30′.

According to father Feviliée's obſervations, made at Lorotava, ſix minutes and a half eaſt of the Pico, the difference of longitude betwixt the latter and the obſervatory at Paris is 18° 51′. Subtracting therefore 8° 27′, which according to the Connoiſſance des tems, is the difference of longitude between that obſervatory and Cadiz; the difference of longitude between that city and the Pico is 10° 24′, and conſequently differs 6 minutes from Don George's reckoning.

On the 7th we loſt ſight of the Canaries, and continued our courſe towards Martinico, ſteering ſouth, between 42 and 45 degrees weſterly, increaſing the angle every day, till, near the iſland, we ſteered due weſt under its parallel, and on the 26th of June diſcovering Martinico and Dominica.

The difference of longitude between Cadiz and Martinico, appeared from our reckoning to be 59° 55′, that is 3° 55′ more than the chart of Antonio de Matos makes it; which is however, generally followed in this voyage. According to the obſervations of father Laval, made at Martinico, the difference of longitude is 55° 8′ 45″; according to thoſe of father Feviliée, 55° 19′. This error in a great meaſure proceeds from a want of accuracy in the log-line; for had the pilot of the Conquiſtador, who found the ſame defect in his calculations, made the diſtance between the knots of the log-line 50 Engliſh feet, inſtead of 47 and a half, the difference of longitude by account would have been only 57°. This error in marking the log-line is common both to the pilots of Spain and other nations; and this, like many other faults in navigation, remains uncorrected for want of attention.]

The

THE distance between the knots on the log-line, should contain $\frac{1}{120}$ of a mile, supposing the glass to run exactly half a minute: and tho' all agree in this respect, yet not in the true length of the mile, which ought to be determined by the most exact mensurations, as those of Mr. Cassini in France, ours in the province of Quito, or those of M. Maupertuis in Lapland. If the length of the degree be computed according to Mr. Cassini's measures, at 57060 toises, a minute or geographical mile will contain 951 toises, or 5706 royal feet, of which $\frac{1}{120}$ is nearly equal to 47 feet $6\frac{1}{2}$ inches, and as the Paris foot is to that of London, as 16 to 15*, this when reduced to English measure, makes near 50 feet $8\frac{1}{4}$ inches. And this is the true distance between each knot on the log-line.

THIS mensuration which should have been hitherto the rule observed, is not entirely exact, when compared to that which has been found from investigating the figure of the earth, which is discovered to be very different from what it has been imagined; so that it is not at all surprizing that there should be found considerable differences in nautical calculations.

The author's JOURNAL, *on board the* INCENDIO.

HAVING set sail on the same day, namely, the 28th of May, 1735, and steered south between 52 and 56 degrees westerly, we perceived, on the second of June, about six in the evening, the island of Savages, one of the Canaries; and on the 3d we saw the isle of Teneriffe. I found the difference of longitude between Cadiz and Naga-point to be 11° 6′, which agrees with the English and Dutch charts, but differs a little from the true longitude determined by father Feviléé at Loratava, in the same island of Teneriffe.

ON the 4th, we had sight of the islands of Palma, Gomera and Fer, but again lost sight of them on the 5th. On the 29th, about noon, we made Martinico, and continuing our course, passed between that island and Dominica. The difference of longitude between Martinico and Cadiz bay, according to my reckoning, was 57° 5′, one degree more than San Telmo's chart makes it. But it is proper to observe, that in order to estimate my course, and avoid the danger of finding a great

 difference

* According to the late regulation of the royal society of London, and the measures sent by it to the academy of sciences at Paris, and with which I was favoured by Martin Folks, Esq; the worthy president of that society, the paris foot is to that of London, as 864 to 811, which shews how erroneous these are published by father Tosca.

difference at making land, I followed two different calculations, one according to the measures commonly given by pilots to the distance between the knots on the log-line, of 47 English feet and a half, and the other by reducing them to 47 royal feet; for tho', in strictness, it ought to have been 47½ of the latter, the difference being but small, I thought it best to omit the half foot, that my reckoning might be before the ship. According to the first method, the difference of longitude between Cadiz and this island, was between 60 and 61 degrees, which nearly agrees with the journal of Don George.

FROM the island of Martinico we continued our course towards Curasao, which we had sight of on the 3d of July. The difference of meridians between that and Martinico, Don George Juan found to be 6° 49', whereas I made it 7° 56'. The cause of this disagreement was, that finding a sensible difference in the latitudes, I regulated myself by the currents, imagining, according to the opinion of all our navigators, that they set to the north-west, which Don George did not, and by that means his reckoning answered to the real distance betwixt these two islands, and mine was erroneous. But that the water was in motion is not to be questioned; for in all the latitudes from the 30th of June to the 3d of July, those found by observation exceeded those by account, 10, 13, and even 15 minutes; a sufficient proof that the currents run directly north, and not north-west.

FROM the 2d at six in the morning, till the day we made Curasao, and also Uruba, we had shallow water, of a greenish colour, which continued till about half an hour after seven in the evening, when we entered the gulph.

OUR course from Martinico to Curasao, during the two first days, was south 81° westerly; and the two last south 64 degrees westerly. From thence to Carthagena we kept at a proper distance from the coast, so as to distinguish its most noted capes, and inhabited places.

ON the 5th we discovered the mountains of St. Martha, so well known for their height, and being always covered with snow; and at six in the morning we crossed the current of thick water which issues with prodigious rapidity from the river de la Magdalena, and extends several leagues into the sea. About six in the evening we found ourselves to the northward of Cape de Canoa, where we lay to, and continued in that manner till seven in the morning, when we set all our sails, which at eight in the evening brought us under fort Boca Chica, where we came to an anchor in 34 fathom water, the bottom muddy. On the

the 8th we endeavoured to get into Carthagena bay, but could not before the 9th securely moor our ship.

DURING our passage betwixt the Canary islands, we had faint and variable winds, with some short calms; but after we had lost sight of them, the gales increased upon us but moderate, and continued in this manner till we arrived within 170 or 180 leagues of Martinico, when we had squalls accompanied with violent rains. After passing the Canaries, at about twenty leagues from these islands, we had the wind at north-west, and at the distance of near 80 leagues, it shifted to the east, and east-north-east. We had nearly the same in the middle of the Atlantic ocean, and afterwards the wind came about to the east, with different degrees of velocity; but the variation was not such as to occasion any inconveniency.

THESE are the winds generally met with in this voyage. Sometimes it veers away to the west, and west-north-west, tho' it is very seldom known to continue on these points. Sometimes long calms intervene, which lengthen the voyage beyond the usual time. All this depends on the seasons, and according to the time of the voyage, the weather and winds are more or less favourable. The winds above-mentioned are the most general, and the best time for making use of them, as they then are settled, is, when the sun approaches near the equator in his return from the tropic of Capricorn. For his approach to the autumnal equinox, is the time when the calms most prevail.

FROM the islands of Martinico and Dominica to that of Curasao and the coast of Carthagena, the winds continued the same as in the ocean, tho' more variable, and the weather less fair. I have said, that about 170 leagues before we reached Martinico the winds were interrupted by squalls, and these are more common beyond those islands, and are immediately succeeded by short calms, after which the wind freshens again for half an hour, an hour, two hours, and sometimes longer. From what quarter these tornadoes or squalls proceed I cannot positively affirm; but this is certain, that when they are over, the wind begins to blow from the same point as before, and nearly with the same force. And here it may be of use to observe, that on any appearance of these squalls in the atmosphere, the utmost expedition must be used in getting the ship in readiness, their impetuosity being so sudden as to admit of no time for preparatives, and therefore the least negligence may be attended with the most fatal consequences.

IN the voyage from Cadiz to the Canaries, in some parts, tho' the winds are otherways moderate, the sea is agitated by

those from the north and north-west; sometimes in large and long waves; sometimes in small but more frequent ones, which happens when the wind blows strongly along the coast of France and Spain; for in the ocean the winds are so mild, that the motion of the ship is hardly perceived, which renders the passage extremely quiet and agreeable. Within the windward islands, and even before we reach them, in the parts where these terrible squalls prevail, the sea is agitated in proportion to their violence and duration; but no sooner is the wind abated than the water becomes again clear and smooth.

The atmosphere of the ocean answers to the calmness of the winds and sea, so that it is very seldom an observation can be taken, either from the sun's being obscured, or the haziness of the horizon. This is to be understood of the fair season, for otherwise here are dark days, when the air is filled with vapours and the horizon very hazy. At all times it is seen filled with white and towering clouds, embellishing the sky with a variety of figures and ramifications, which amuse the eye, tired with being so long confined to two such similar objects as the sea and sky. Within the windward islands the variety is still greater, the quantity of vapours profusely exhaled, filling it in such a manner, that sometimes nothing but clouds are to be seen, tho' part of these are gradually dispersed by the heat of the sun, so that some parts are quite clear, others obscure; but a general darkness during the whole day is never seen.

It is well known and allowed, that through the whole extent of the ocean, not the least current is perceivable, till we arrive within the islands, where, in some parts they are so strong and irregular, that, without the greatest vigilance and precaution, a ship will be in great danger among this archipelago. This subject, together with the winds peculiar to this coast, shall hereafter be considered more at large.

In the tract to Martinico and Dominica, there is a space where the water, by its white colour, visibly distinguishes itself from the rest of the ocean. Don George, by his estimate, found this space to terminate 100 leagues from Martinico; whereas, according to my reckoning, it reached only to within 108 leagues; it may therefore at a medium be placed at 104. This small difference doubtless proceeds from the difficulty of discovering where this whitish colour of the water terminates, towards Martinico. It begins at about 140 leagues from that island, which must be understood of the place where the different colours of the water are evident; for if we reckon from where it begins to be just discernable, the distance is

not

not less than 180 leagues. This tract of water is a certain mark for directing one's course; because after leaving it we have the satisfaction of knowing the remaining distance. This tract is not delineated on any map, except the new one lately published in France; tho' it would doubtless be of great use if it were inserted in all.

NOTHING farther remains than to give an account of the variation of the needle in different parts in which we found the ship by her latitude and longitude; a point of the utmost consequence in navigation, not only with regard to the general advantage to mariners in knowing the number of degrees intercepted between the magnetic and true north of the world; but also, as by repeated observations of this kind, the longitude may be found, and we may know within a degree, or a degree and a half, the real place of the ship; and this is the nearest approximation to which this has been carried by those who revived it at the beginning of this century. Among these the chief was, that celebrated Englishman, Dr. Edmund Halley: In emulation of whom many others of the same nation, as also several Frenchmen, applied themselves to the improvement of it. We already enjoy the fruits of their labours in the variation charts lately published, though they are principally useful only in long voyages; where the difference of two, or of even three degrees is not accounted a considerable error, when there is a certainty that it cannot exceed that number. This system, tho' new with regard to the use it is now applied to, is far from being so among the Spaniards and Portuguese, very plain vestiges of it remaining in their old treatises of navigation. Maniel de Figueyredo, cosmographer to the king of Portugal, in his Hydrographia, or Examin de Pilotos, printed at Lisbon, in 1608, chap. ix. and x. proposes a method for finding, from the variation of the needle, the distance run in sailing east and west. And Don Lazaro de Flores, in his Arte de Navegar, printed in 1672 chap. i. part ii. quotes this author, as an authority to confirm the same remark made by himself; adding (chap. ix.) that the Portuguese, in all their regulations concerning navigation, recommend it as a certain method. It must however be acknowledged, that those antient writers have not handled this point with the penetration and accuracy of the English and French, assisted by a greater number of more recent observations. And that the observations made in this voyage may be of the most general use, I shall insert them in the two following tables, previously informing the reader, that the longitudes corresponding with each are the true, the error of the course with regard to the difference of meridians,

dians, being corrected from the obſervations of the fathers Laval and Feviléé.

Variations obſerved by Don GEORGE JUAN, *the longitude being reckoned weſt from* CADIZ.

Deg of Lat.		Deg of Lon.		Variation obſerved		Variation by the chart.		Difference	
27	30	11	00	8	00 W.	9	00 W.	1	00
25	30	14	30	6	20	7	20	1	00
24	00	17	00	4	30	6	00	1	30
23	20	18	30	3	30	5	00	1	30
22	30	20	00	2	30	4	30	2	00
21	50	22	00	1	30	4	00	2	30
21	35	26	00	0	30	3	00	2	30
16	20	43	00	4	30 E.	2	30 E.	2	00
15	40	45	00	5	00	3	20	1	40
Off Martinico				6	00	5	00	1	00

Variations obſerved by the author, the longitude being reckoned from the former meridian.

Deg. of Lat.		Deg. of Lon.		Variation obſerved.		Variation by the chart.		Difference.	
36	20	00	25	9	30 W.	13	00 W.	3	30
31	23	08	22	7	00	10	30	3	30
30	11	10	21	6	00	9	30	3	30
26	57	14	54	4	00	7	00	3	00
25	52	15	59	3	40	6	30	2	50
16	28	43	46	0	30 E.	2	00 E.	1	30
15	20	47	32	2	30	4	00	1	30
Off Cape de la Vela				6	00	7	30	1	30

To the above obſervations on the vatiation of the needle, compared with thoſe on the variation chart, firſt publiſhed by the great Dr. Halley in 1700, and corrected in 1744, from other obſervations and journals by Meſſ. Montaine and Dodſon of London, I ſhall add ſome reflections, in order to expoſe the negligence in conſtructing the magnetic needles. 1. It appears that the variations obſerved by Don George Juan do not agree with mine, which is not to be attributed to a defect in the obſervations. This is ſufficiently evident from comparing them. The differences between thoſe obſerved by Don George and thoſe on the chart, are nearly every where uniform; the moſt conſiderable being a degree and 30 minutes;

minutes; one making the variation 2° 30′, and the other a degree only. This probably arose from the motion of the ship, which hinders the needle from being entirely at rest; or from the disk of the sun, by reason of intervening vapours not being accurately determined, or some other unavoidable accident; the error when the difference is less than a degree, being scarce perceivable in these observations. Thus, on a medium, the rational conclusion is, that the needle used in these observations, varied a degree and forty minutes less than those when the map was constructed.

The same uniformity appears in the differences between my observations and the chart; but it must be observed, that having used two different needles, the particulars of each nearly correspond, so that between the five first, the greatest difference is of 40 minutes, which intervene between the smallest difference of 2° 50′, and the greatest of 3° 30′. Hence taking the medium between both, the difference between my observations and the chart, will be 3° 16′, the latter being so much less than the former. The three last do not want this operation, the difference of 1° 30′ being equal in all, and the variations resulting from these observations are also less than those delineated on the map; the variation having passed to a different species; namely, from north-west to north-east. This demonstrates, that the first needle I made use of, whether it had been ill touched or the steel not accurately placed, varied 1° 30′ westerly less than that used by Don George Juan; and as this officer continued his observations to the end of the voyage with the same needle, the difference, which at first was negative, on the variation changing its denomination became positive, and from my changing instruments the difference on my side continued always negative. The reason of this is, that the difference of the five first observations proceeded less from a real difference in the variation, than from the poles of the needle, which was so far from answering exactly with the meridian line on the compass card, that it inclined towards the north-west; the contrary happened in the second compass made use of, its inclination being towards the north-east; consequently, whatever the angle of that inclination was, it occasioned a proportionate diminution in the variation of a contrary species.

These observations, thus compared, shew the errors to which navigators are liable, for want of attention in making choice of proper needles, which they should be careful to procure, not only well made and exact, but also strictly tried with

regard to their inclination to the true meridian, before they venture to depend upon them in any voyage. In this point Spain is guilty of a notorious neglect, notwithstanding it is evidently the source of a thousand dangerous errors; for a pilot in correcting the course he has steered, in making use of a compass whose variation is different from the true, will consequently find a difference between the latitude by account and the latitude observed; and to make the necessary equation according to the rules most commonly received in sailing on points near the meridian, he must either increase or diminish the distance, till it agrees with the latitude; whereas in this case the principal error proceeded from the rhumb. The same thing happens in parts where it is apprehended there may be currents; which often occur in sailing when the latitude by account, and that by observation, disagree; tho' in reality the water has no motion, the difference proceeding entirely from making use of another variation in the course, than that of the needle by which the ship is steered; as was the case with me in sailing from Martinico to Curasao, and likewise of all the artists on board the ship. Another error incident to navigators, tho' not so much their own, is, to steer the ship by one needle, and observe the variation by another; for tho' they have been compared, and their differences carefully observed, their motions being unequal, tho' at the beginning of the voyage the difference was only a certain number of degrees, the continual friction of the former on the pivot, renders the point of the needle on which it is suspended, more dull than the other, which is only hung when they make observations, being at all other times kept with the greatest care; and hence proceeds the change observable in their differences. In order to remedy this evil, all needles intended to be used at sea should be equally proper for observing the variation; and the observation made with those before placed in the bittacle. And to improve the charts of variation, all needles should be touched in the same manner, and adjusted to the meridian of a place, where the exact variation is known. Thus the observations made in the same places by different ships, would not be found so considerably to vary, unless the interval of time between the two observations be such as to render sensible that difference in the variation, which has been observed for many years past, and is allowed of by all nations.

THESE are the causes of the manifest difference between needles; there may be others, but this is not the proper place for enumerating them.

CHAP.

CHAP. II.

Description of Carthagena.

ON the 9th of July 1735, we landed, and Don George Juan and myself immediately waited on the governor of the place. We were informed that the French academicians were not yet arrived, nor was there any advice of them. Upon this information, and being by our instructions obliged to wait for them, we agreed to make the best use of our time; but were unhappily destitute of instruments, those ordered by his majesty from Paris and London not being finished when we left Cadiz, but were forwarded to us at Quito soon after our arrival. We however fortunately received intelligence that there were some in the city, formerly belonging to brigadier Don Juan de Herrera, engineer of Carthagena, and which after his death became the property of his son and some other officers. These gentlemen very obligingly lent them to us, by which means we were enabled to make observations on the latitude, longitude, and variation of the needle. We also drew plans of the place and the bay from those of the said engineer, with the necessary additions and alterations.

IN these operations we employed ourselves till the middle of November 1735, but were impatient at the delay of the French academicians, and very uneasy that no account of them was arrived. At length on the 15th of the month, a French armed vessel came to an anchor, during the night, under Boca Chica, and to our great satisfaction we learned, that the long expected gentlemen were on board. On the 16th we visited them, and were received with all imaginable politeness by M. de Ricour, captain of a man of war, and king's lieutenant of Guarico, in the island of St. Domingo, and mess. Godin, Bouguer, and de la Condamine, academicians, who were accompanied by mess. Jussieu, botanist, Seniergues, surgeon, Verguin, Couplet, and Dessordonais, associates, Morenvile, draftsman, and Hugot, clockmaker. The three first, after presenting them to the governor, we carried to a house prepared for them; and the next day all the rest came on shore.

OUR intention being to go to the equator with all possible expedition, nothing remained but to fix on the most convenient and expeditious rout to Quito. Having agreed to go by the way of Porto-Bello, Panama, and Guayaquil, we prepared to sail in the same vessel for the first of these places, and, in the mean time, by help of the instruments brought by the aca-

academicians, we repeated our obſervations on the latitude, weight of the air, and the variation of the needle; the reſult of which will appear in the following deſcription.

THE city of Carthagena ſtands in 10 deg. 25 min. 48½ ſec. north latitude; and in the longitude of 282 deg. 28 min. 36 ſec. from the meridian of Paris; and 301 deg. 19 min. 36 ſec. from the meridian of Pico Teneriffe; as appeared from our obſervations. The variation of the needle we alſo, from ſeveral obſervations, found to be 8 deg. eaſterly.

THE bay, and the country, before called Calamari, were diſcovered in 1502 by Rodrigo de Baſtidas; and in 1504 Juan de la Coſa and Chriſtopher Guerra, began the war againſt the Indian inhabitants, from whom they met with greater reſiſtance than they expected; thoſe Indians being a martial people, and valour ſo natural to them, that even the women voluntarily ſhared in the fatigues and dangers of the war. Their uſual arms were arrows, which they poiſoned with the juice of certain herbs; whence the ſlighteſt wounds were mortal. Theſe were ſucceeded by Alonſo de Ojeda, who, ſome years after, landed in the country attended by the ſame Juan de la Coſa, his chief pilot, and Amerco Veſpucio, a celebrated geographer of thoſe times; but made no greater progreſs than the others, tho' he had ſeveral encounters with the Indians. Nor was Gregorio Hernandez de Oviedo more fortunate. But, at length, the conqueſt of the Indians was accompliſhed by Don Pedro de Heredia, who, after gaining ſeveral victories over them, peopled the city in the year 1533, under the title of a government.

THE advantageous ſituation of Carthagena, the extent and ſecurity of its bay, and the great ſhare it attained of the commerce of that ſouthern continent, ſoon cauſed it to be erected into an epiſcopal ſee. The ſame circumſtances contributed to its preſervation and increaſe, as the moſt eſteemed ſettlement and ſtaple of the Spaniards; but at the ſame time they alſo drew on it the hoſtilities of foreigners, who, thirſting after its riches, or induced by the importance of the place itſelf, have ſeveral times invaded, taken, and plundered it.

THE firſt invaſion was made ſoon after its eſtabliſhment in the year 1544, by certain French adventurers, conducted by a Corſican pilot, who having ſpent ſome time there, gave them an account of its ſituation, and the avenues leading to it, with every other particular, neceſſary to the ſucceſsful conduct of their enterprize; which they accordingly effected. The ſecond invader was Francis Drake, termed the deſtroyer of the new conqueſts, who after giving it up to pillage, ſet it

on

on fire, by which means half the place was laid in ashes; and its fatal destruction only prevented by a ransom of a hundred and twenty thousand silver ducats paid him by the neighbouring colonies.

It was invaded a third time in 1597, by the French, commanded by M. de Pointis, who came before the place with a large armament, consisting partly of filibousiers, little better than pirates; but as subjects to the king of France, were protected by that monarch. After obliging the fort of Boca Chica to surrender, whereby the entrance of the bay was laid open, he landed his men, and besieged Fort Lazaro, the taking of which was followed by the surrender of the city. But the capitulation was no security against the rage of avarice, which had consigned it to pillage.

The easy conquest of this place by the French, has by some been attributed to a private correspondence between the governor and Pointis; and what increases the suspicion is, that he embarked on board the French squadron at its departure, together with all his treasures and effects, none of which had shared in the general calamity.

The city is situated on a sandy island, which forming a narrow passage on the south-west, opens a communication with that part called Tierra Bomba, as far as Boca Chica. The neck of land which now joins them, was formerly the entrance of the bay; but it having been closed up by orders from Madrid, Boca Chica became the only entrance; and this also has been filled up since the last attempt of the English in the year 1741, who having made themselves masters of the forts which defended it, entered the bay with an intent of taking the city; but they miscarried in their attempt, and retired with considerable loss. This event caused orders to be dispatched for opening the old entrance, and by which all ships now enter the bay. On the north side the land is so narrow, that before the wall was begun, the distance from sea to sea was only 35 toises; but afterwards enlarging, forms another island on this side, and the whole city is, excepting these two places which are very narrow, entirely surrounded by the sea. Eastward it communicates by means of a wooden bridge, with a large suburb called Xexemani, built on another island, which has also a communication with the continent by means of another wooden bridge. The fortifications both of the city and suburb are constructed in the modern manner, and lined with free-stone. The garrison in times of peace consists of ten companies of regulars, each containing, officers included, 77 men; besides several companies of militia.

In

In the side of Xexemani, at a small distance from that suburb, on a hill, is a fort called St. Lazaro, commanding both the city and suburb. The height of the hill is between 20 and 21 toises, having been geometrically measured. It is joined to several higher hills, which run in an eastern direction. These terminate in another hill of considerable height, being 84 toises, called Monte de la Popa, and on the top of it is a convent of bare-footed Augustines, called Nuestra Senora de la Popa. Here is an inchanting prospect, extending over the country and coast to an immense distance.

The city and suburbs are well laid out, the streets being strait, broad, uniform, and well paved. The houses are built of stone, except a few of brick; but consist chiefly of only one story above the ground floor; the apartments well contrived. All the houses have balconies and lattices of wood, as more durable in this climate than iron, the latter being soon corroded and destroyed by the moisture and acrimonious quality of the nitrous air; from whence, and the smoaky colour of the walls, the outside of the buildings make but an indifferent appearance.

The churches and convents of this city, are the cathedral, that of the trinity in the suburbs, built by bishop Don Gregoria de Molleda, who also in the year 1734 founded in the city a chapel of ease dedicated to St. Toribio. The orders which have convents at Carthagena are those of St. Francis, in the suburbs, St. Dominic, St. Augustin, La Merced, also the Jacobines, and Recollets; a college of Jesuits, and an hospital of San Juan de Dios. The nunneries are those of St. Clara and St. Teresa. All the churches and convents are of a proper architecture, and sufficiently capacious; but there appears something of poverty in their ornaments of the churches, and some of them want what even decency requires. The communities, particularly that of St. Francis, are pretty numerous, and consist of Europeans, white Creoles, and native Indians.

Carthagena, together with its suburbs, is equal to a city of the third rank in Europe. It is well peopled, tho' most of its inhabitants are descended from the Indian tribes. It is not the most opulent in this country, for besides the pillages it has suffered, no mines are worked here; so that most of the money seen in it is sent from Sante Fe and Quito, to pay the salaries of the governor, and other civil and military officers, and the wages of the garrison; and even this makes no long stay here. It is not however unfrequent to find persons who have acquired handsome fortunes by commerce, whose houses are splendidly furnished, and who live, in every respect, agreeable

able to their wealth. The governor resides in the city, which till the year 1739 was independent of the military government. In civil affairs an appeal lies to the audience of Santa Fe; and a vice-roy of Santa Fe being that year created, under the title of vice-roy of new Granada, the government of Carthagena became subject to him also in military affairs. The first who filled this vice-royalty was lieutenant general Don Sebastian de Eslava; being the same who defended Carthagena against the powerful invasion of the English in 1741, when after a long siege they were obliged to retire.

CARTHAGENA has also a bishop, whose spiritual jurisdiction is of the same extent as the military and civil government. The ecclesiastical chapter is composed of the bishop and prebends. There is also a court of inquisition, whose power reaches to the three provinces of Isla Espanola, (where it was first settled) Terra Firma, and Santa Fe.

BESIDES these tribunals, the police and administration of justice in the city is under a secular magistracy, consisting of regidores, from whom every year are chosen two alcaldes, who are generally persons of the highest esteem and distinction. There is also at Carthagena an officer of revenue, under an accomptant and treasurer. Here all the taxes and monies belonging to the king are received, and the proper issues directed. Here is also a person of the law, with the title of auditor de la gente de guerra, who determines processes.

THE jurisdiction of the government of Carthagena reaches eastward to the great river de la Magdalena, and along it southward, till winding away, it borders on the provence of Antioquia; from thence it stretches westward to the river of Darien; and from thence northward to the ocean, all along the coasts between the mouths of these two rivers. The extent of this government from east to west is generally computed at 53 leagues; and from south to north 85. In this space are several fruitful vallies, called by the natives Savanahs; as those of Zamba, Zenu, Tolu, Mompox, Baranca, and others; and in them many settlements large and small, of Europeans, Spanish Creoles, and Indians. There is a tradition, that all these counties, together with that of Carthagena, whilst they continued in their native idolatry, abounded in gold, and some vestiges of the old mines of that metal are still to be seen in the neighbourhoods of Simiti, San Lucas, and Guamaco; but they are now neglected, being, as imagined, exhausted. But what equally contributed to the richness of this country was the trade it carried with Choco and Darien; from whence they brought in exchange for this metal, the several manufactures and works of

of art they ſtood in need of. Gold was the moſt common ornament of the Indians both men and women.

CHAP. III.

Deſcription of Carthagena bay.

CARTHAGENA bay is one of the beſt, not only on the coaſt, but alſo in all the known parts of this country. It extends two leagues and a half from north to ſouth; has a ſufficient depth of water and good anchorage; and ſo ſmooth, that the ſhips are no more agitated than on a river. The many ſhallows indeed, at the entrance, on ſome of which there is ſo little water that even ſmall veſſels ſtrike, render a careful ſteerage neceſſary. But this danger may be avoided, as it generally is, by taking on board a pilot; and for further ſecurity, his majeſty maintains one of ſufficient experience, part of whoſe employment is to fix marks on the dangerous places.

THE entrance to the bay, as I have already obſerved, was thro' the narrow ſtreight called Boca Chica, a name very properly adapted to its narrowneſs, ſignifying in Spaniſh Little Mouth, admitting only one ſhip at a time, and even ſhe muſt be obliged to keep cloſe to the ſhore. This entrance was defended on the eaſt by a fort called St. Lewis de Boca Chica, at the extremity of Tierra Bomba, and by fort St. Joſeph on the oppoſite ſide in the iſle of Baru. The former, after ſuſtaining, in the laſt ſiege by the Engliſh, a vigorous attack both by ſea and land, and a canonading of eleven days, its defences ruined, its parapets beat down, and all its artillery diſmounted, was relinquiſhed. The enemy being thus maſters of it, cleared the entrance, and with their whole ſquadron and armaments moved to the bottom of the bay. But by the diligence and induſtry of our people, they found all the artillery of fort Santa Cruz nailed up. This fort was alſo from its largeneſs called Caſtillo Grande, and commanded all the ſhips which anchor in the bay. This fort, together with that of Boca Chica, St. Joſeph, and two others which defended the bay, called Manzanillo and Paſtelillo, the enemy, enraged at their diſappointment, demoliſhed when they quitted the bay. The promiſing beginning of this invaſion, as I have already obſerved in the foregoing chapter, gave occaſion to the ſhutting up and rendering impracticable the entrance of Boca Chica, and of opening and fortifying the former ſtreight; ſo that an enemy would now find it much more difficult to force a paſſage.

THE

THE tides in this bay are very iregular, and the ſame may nearly be ſaid of the whole coaſt. It is often ſeen to flow a whole day, and afterwards ebbs away in four or five hours; yet the greateſt alteration obſerved in it's depth is two feet, or two feet and a half. Sometimes it is even leſs ſenſible, and only to be perceived by the current or flow of the water. This is one circumſtance which increaſes the danger of ſtriking, tho' a ſerenity continually reigns there. Another is, that the bottom being compoſed of a gravelly oze, whenever a ſhip is aground, it often happens that ſhe muſt be frequently lightened before ſhe can be made to float.

TOWARDS Boca Chica, and two leagues and a half diſtant from it ſea-wards, there is a ſhoal of gravel and coarſe ſand, on many parts of which there is not above a foot and a half of water. In the year 1735, the Conquiſtador man of war, bound from Carthagena to Porto-Bello, ſtruck on this ſhoal, and owed her ſafety entirely to a very extraordinary calm. Some pretended to ſay that the ſhoal was before known by the name of Salmedina; but the artiſts on board the ſhip, affirmed the contrary; and that the ſhoal on which ſhe ſtruck, had never been heard of before. From the obſervations of the pilots and others in the ſhip, Nueſtra Senora de la Popa bore E. N. E. two degrees North, diſtance two leagues; the caſtle of St. Lewis de Boca Chica, E. S. E. diſtance three leagues and a half; and the north part of Iſla Voſaria, ſouth one quarter weſterly. It muſt, however, be remembered that theſe obſervations were made on the apparent rhumbs of the needle.

THE bay abounds with great variety of fiſh both wholeſome and agreeable to the palate; the moſt common are the ſhad, the taſte of which cannot indeed be recommended as the moſt delicate. The turtles are large and well taſted. But it is greatly infeſted with ſharks, which are extremely dangerous to ſea-men, as they immediatly ſeize every perſon they diſcover in the water, and ſometimes even venture to attack them in their boats. It is a common diverſion for the crews of thoſe ſhips who ſtay any time in the bay, to fiſh for theſe rapacious monſters, with large hooks faſtened to a chain; though when they have caught one, there is no eating it, the fleſh being as it were a kind of liquid fat. Some of them have been ſeen with four rows of teeth; the younger have generally but two. The voracity of this fiſh is ſo prodigious, that it ſwallows all the filth either thrown out of ſhips, or caſt up by the ſea. I myſelf ſaw in the ſtomach of one, the intire body of a dog, the ſofter parts only having been digeſted. The natives affirm that they have alſo ſeen alligators; but this being

being a fresh water animal, it is very probable, that if any were ever seen in the sea, it must be something very extraordinary

In this bay it is that the galloons from Spain wait for the arrival of the Peru fleet at Panama; and on the first advice of this, they sail away for Porto Bello; but at the end of the fair held at that town, return into this bay, and after taking on board every necessary for their voyage, put to sea again as soon as possible. During their absence the bay is very little frequented, the country vessels, which are only a few billanders and felluccas, stay no longer than is necessary to carreen and fit out for prosecuting their voyage.

CHAP. IV.

Of the Inhabitants of Carthagena.

To the above circumstantial description of the city of Carthagena, it may not be amiss to add a short account of it's inhabitants, which may be divided into different casts or tribes, who derive their origin from a coalition of whites, negroes and Indians. We shall therefore treat of each particularly.

The whites may be divided into two classes, the Europeans and Creoles, or whites born in the country. The former are commonly called Chapetones, but are not numerous, most of them either return into Spain after acquiring a competent fortune, or remove up into inland provinces in order to increase it. Those who are settled at Carthagena, carry on the whole trade of that place, and live in opulence; whilst the other inhabitants are indigent and reduced to have recourse to mean and hard labour for subsistence. The families of the white Creoles compose the landed interest; some of them have large estates, and are highly respected, because their ancestors came into the country invested with honourable posts, bringing their families with them when they settled here. Some of these families, in order to keep up their original dignity, have either married their children to their equals in the country, or sent them as officers on board the gallions; but others have greatly declined. Besides these there are other whites, in mean circumstances, and either owe their origin to Indian families, or at least to an intermarriage with them, so that there is some mixture in their blood; but when this is not discoverable by their colour, the conceit of being whites, alleviates the pressure of every other calamity.

Among the other tribes which are derived from an intermarriage of the whites with the negroes, the first are the Mulattos,

lattos, so well known, that there is no necessity for saying any thing farther on this head. Next to these are the Tercerones, produced from a white and a Mulatto, with some approximation to the former, but not so near as to obliterate their origin. After these follow the Quarterones, proceeding from a white and a Terceron. The last are the Quinterones, who owe their origin to a White and a Quateron. This is the last gradation, there being no visible difference between them and the Whites, either in colour or features; nay they are often even fairer than the Spaniards themselves. The children of a White and Quinteron are also called Spaniards, and consider themselves as free from all taint of the Negro race. Every person is so jealous of the order of their tribe or cast, that if thro' inadvertence, without the least intention to affront, you call them by a degree lower than what they actually are, they are highly offended, never suffering themselves to be deprived of so valuable a gift of fortune.

BEFORE they attain the class of the Quinterones, there are several intervening circumstances which throw them back; for between the Mulatto and the Negro, there is an intermediate race, which they call Sambos, owing their origin to a mixture between one of these with an Indian, or among themselves. They are also distinguished according to the Casts their fathers were of. Betwixt the Tercerones and the Mulattos, the Quarterones, and the Teererones, &c. are those called Tente en el Ayre, suspended in the air, because they neither advance nor recede. Children whose parents are a Quarteron or Quinteron, and a Mulatto or Terceron, are Salto atras, retrogrades; because instead of advancing towards being Whites, they have gone backwards towards the Negro race. All the children between a Negro and a Quinteron are called Sambos de Negro, de Mulatto, de Terceron, &c.

THESE are the most known and common tribes or Castas; there are indeed several others proceeding from their intermarriages; but being so various even they themselves cannot easily distinguish them; and these are the only people one sees in the city, the estancias, * and the villages; for if any Whites, especially women, are met with, it is only accidental, these generally residing in their houses; at least, if they are of any rank or character.

THESE Casts from the Mulattos, all affect the Spanish dress, but wear very slight stuffs on account of the heat of the climate. These are the Mechanics of the city; the Whites, whether Creoles, or Chapitones, disdaining such mean occupation, follow

* Estancia properly signifies a mansion, or place where one stops to rest; but at Carthagena it implies a country house, which, by reason of the great number of slaves belonging to it, often equals a considerable village.

nothing below merchandize. But it being impossible for all to succeed, great numbers not being able to procure sufficient credit, they become poor and miserable from their aversion to those trades they follow in Europe; and instead of the riches, which they flattered themselves with possessing in the Indies, they experience the most complicated wretchedness.

THE class of Negroes is not the least numerous, and is divided into two parts; the free and the slaves. These are again subdivided into Creoles and Bozares, part of which are employed in the cultivation of the Haziandas,* or Estancias. Those in the city are obliged to perform the most laborious services, and pay out of their wages, a certain quota to their masters, subsisting themselves on the small remainder. The violence of the heat not permitting them to wear any cloaths, their only covering is a small piece of cotton stuff about their waist, the female slaves go in the same manner. Some of these live at the Estancias, being married to the slaves who work there; while those in the city sell in the markets all kinds of eatables, and cry fruits, sweetmeats, cakes made of maize and cassava, and several other things about the streets. Those who have children sucking at their breasts, which is the case of the generality, carry them on their shoulders, in order to have their arms at liberty; and when the infant is hungry, they give them the breast either under the arm or over the shoulder, without taking them from their backs. This will perhaps appear incredible, but their breasts being left to grow without any pressure on them, often hang down to their very waist, and are not therefore difficult to turn over their shoulders for the convenience of the infant.

THE dress of the Whites, both men and women, differs very little from that worn in Spain. The persons in grand employments wear the same habits as in Europe; but with this difference that all their cloaths are very light, the waistcoats and breeches being of fine Bretagne linen, and the coat of some other thin stuff. Wigs are not much worn here; and during our stay, the governor and two or three of the chief officers only appeared in them. Neckcloaths are also uncommon, the neck of the shirt being adorned with large gold buttons, and these generally suffered to hang loose. On their heads they wear a cap of very fine and white linen. Others go entirely bare-headed, having their hair cut from the nape of the neck. Fans are very commonly worn by men, and made of a very thin kind of palm in the form of a crescent, having a stick of the same wood in the middle.

* Hazianda here signifies a country house, with the lands belonging to it. Sometimes it has different imports, but they are foreign to our subject.

middle. Those who are not of the white class, or of any eminent family, wear a cloak and a hat flapped; tho' some Mulattos and Negroes dress like the Spaniards, and great men of the country.

THE Spanish women wear a kind of petticoat, which they call Pollera, made of a thin silk, without any lining; and on their body a very thin white waistcoat; but even this is only worn in what they call winter, it being insupportable in summer. They however always lace in such a manner as to conceal their breasts. When they go abroad they wear a mantelet; and on the days of precept, they go to mass at three in the morning, in order to discharge that duty, and return before the violent heat of the day, which begins with the dawn.

WOMEN, who are not perfectly of the white class, wear over their pollera, a taffety petticoat, of any colour they please, except black; this is pinked all over, to shew the other they wear under it. On the head is a cap of fine white linen, covered with lace, in the shape of a mitre, and being well starched, terminates forward in a point. This they call panito, and never appear abroad without it, and a mantelet on their shoulders. The ladies, and other native whites, use this as their undress, and it greatly becomes them; for having been used to it from their infancy, they wear it with a better air. Instead of shoes they only wear, both within and without doors, a kind of slippers, large enough only to contain the tip of their feet. In the house their whole exercise consists in sitting in their hammocks, and swinging themselves for air. This is so general a custom, that there is not a house without two or three, according to the number of the family. In these they pass the greatest part of the day; and often men as well as women, sleep in them, without minding the inconveniency of not stretching the body at full length.

BOTH sexes are observed to be possessed of a great deal of wit and penetration, and also of a genius proper to excel in all kinds of mechanic arts. This is particularly conspicuous in those who apply themselves to literature, and who, at a tender age, shew a judgment and perspicuity, which, in other climates, is attained only by a long series of years and the greatest application. This happy disposition and perspicacity, continues till they are between twenty and thirty years of age, after which they generally decline as fast as they rose; and frequently before they arrive at that age, when they should begin to reap the advantage of their studies, a natural indolence checks their farther progress, and they forsake the sciences, leaving the surprizing effects of their capacity imperfect.

THE principal cause of the short duration of such promising beginnings, and of the indolent turn so often seen in these bright geniusses, is doubtless the want of proper objects for exercising

their faculties, and the ſmall hopes of being preferred to any poſt anſwerable to the pains they have taken. For as there is in this country, neither army nor navy, and the civil employments very few, it is not at all ſurprizing, that the deſpair of making their fortunes by this method ſhould damp their ardor for excelling in the ſciences, and plunge them into idleneſs, the ſure forerunner of vice; where they loſe the uſe of their reaſon, and ſtifle thoſe good principles which fired them when young and under proper ſubjection. The ſame is evident in the mechanic arts, in which they demonſtrate a ſurprizing skill in a very little time; but ſoon leave theſe alſo imperfect, without attempting to improve on the methods of their maſters. Nothing indeed is more ſurprizing than the early advances of the mind in this country, children of two or three years of age, converſing with a regularity and ſerioufneſs, that is rarely ſeen in Europe at ſix or ſeven; and at an age when they can ſcarce ſee the light, are acquainted with all the depths of wickedneſs.

THE genius of the Americans being more forward than that of the Europeans, many have been willing to believe that it alſo ſooner decays; and that at ſixty years, or even before, they have outlived that ſolid judgment, penetration and comprehenſion, ſo general among us at that time of life; and it has been ſaid that their genius decays, whilſt that of the Europeans is haſtening to it's maturity and perfection. But this is a vulgar prejudice, confuted by numberleſs inſtances, and particularly by the celebrated father Fr. Benito Feyjoo in the 6th eſſay of the fourth vol. of his Theatro Critico. All who have travelled with any attention through theſe countries, have obſerved in the natives of all ages a permanent capacity, and uniform brightneſs of intellects; if they were not of that wretched number, who diſorder both their minds and bodies by their vices. And indeed one often ſees here perſons of eminent prudence and extenſive talents, both in the ſpeculative and practical ſciences, and who retain them, in all their vigour, to a very advanced age.

CHARITY is a virtue in which all the inhabitants of Carthagena without exception, may be ſaid particularly to excel; and did they not liberally exert it towards European ſtrangers, who generally come hither, as the phraſe is, to ſeek their fortune, they would often periſh with ſickneſs and poverty. This appears to me a ſubject of ſuch importance, tho' well known to all who have viſited this part of the world, that I ſhall add a word or two on it, in order to undeceive thoſe who, not contented, with perhaps a competent eſtate, in their own country, imagine that it is only ſetting their foot in the Indies, and their fortune is made.

THOSE

THOSE who on board of the gallions are called Pulizones, as being men without employment, ſtock or recommendation; who leaving their country as fugitives, and, without licence from the officers, come to ſeek their fortune in a country, where they are utterly unknown; and therefore, after traverſing the ſtreets till they have nothing left to procure them lodging or food, are reduced to have recourſe to the laſt extremity, the Franciſcan hoſpital, where they receive not in a quantity ſufficient to ſatisfy hunger, but barely to keep them alive, a kind of pap made of caſava, which, as the natives themſelves will not eat it, the taſte, to wretched mortals never uſed to ſuch food, may be eaſily conceived. As this is their food, ſo their lodging is the entrance of the ſquares and the portico's of churches, till their good fortune throws them in the way of hiring themſelves to ſome trader going up the country, and who wants a ſervant. For the city merchants, ſtanding in no need of them, ſhew no great countenance to theſe adventurers, as they may very juſtly be called. Affected by the difference of the climate, aggravated by bad food, dejected and tortured by the intire diſappointment of their romantic hopes, they fall into a thouſand evils, which cannot well be repreſented, and among others, that diſtemper called at Carthagena, Chapetonada, or the diſtemper of the Chapetones, without any other ſuccour to fly to than divine providence; for none find admitance into the hoſpital of St. Juan de Dios, but thoſe who are able to pay, and, conſequently, poverty becomes an abſolute excluſion. Now it is that the charity of theſe people becomes conſpicuous. The Negro and Mulatto free women, moved at their deplorable condition, carry them to their houſes, and nurſe them with the greateſt care and affection. If any one die, they bury him by the charity they procure, and even cauſe maſſes to be ſaid for him. The general iſſue of this endearing benevolence is, that the Chapitone, on his recovery, during the fervour of his gratitude, marries either his Negro or his Mulatto benefactreſs, or one of her daughters; and thus he is ſettled, but much more wretchedly than he could have been in his own country, though he had only his own labour to ſubſiſt on.

THE diſintereſtedneſs of theſe people is ſuch, that their compaſſion towards the Chapetones muſt not be imputed to the hopes of producing a marriage, it being very common for them to refuſe their offers either with regard to themſelves or their daughters, that their miſery may not be perpetual, but endeavour to find them a maſter whom they may attend up the country, to Santa Fe, Popayan, Quito and Peru, whither their inclination or the faireſt proſpects lead them.

THOSE who remain in the city, whether bound by one of the above marriages, or, which is but too common, are in another condition very dangerous to their future happineſs, turn Pulperos*, Canoeros, or ſuch like mean occupations: In all which, they are ſo harraſſed with labour, and their wages ſo ſmall, that their condition in their own country muſt have been miſerable indeed, if they have not reaſon to regret their quitting it. And the height of their enjoyment after toiling all day and part of the night, is to regale themſelves with ſome bananas, a cake of maize or caſava, which ſerves for bread, and a ſlice of caſajo, or hung beef; without ever taſting any wheat bread during the whole year.

OTHERS, and not a few, equally unfortunate with the former, retire to ſome ſmall Eſtancia, where in a Bujio, or ſtraw hut, they live little different from beaſts, cultivating, in a very ſmall ſpot, ſuch vegetables as are at hand, and ſubſiſting on the ſale of them.

WHAT has been obſerved with regard to the Negro and Mulatto women, and which may alſo be extended to the other caſts, is, as to the charitable part, applicable to all the women and whites; who, in every tribe, are of a very mild and amiable diſpoſition, and from their natural ſoftneſs and ſympathy excel the men, in the practice of that chriſtian virtue.

AMONG the reigning cuſtoms here, ſome are very different from thoſe of Spain, or the moſt known parts of Europe. The principal of theſe are the uſe of brandy, cacao, honey, ſweetmeats, and ſmoaking tobacco, which ſhall be taken notice of in their proper places.

THE uſe of brandy is ſo common, that the moſt regular and ſober perſons never omit drinking a glaſs of it every morning about eleven o'clock; alledging that this ſpirit ſtrengthens the ſtomach, weakened by copious and conſtant perſpiration, and ſharpens the appetite. Hacer las once, to do the eleven, that is to drink a glaſs of brandy, is the common invitation. This cuſtom, not eſteemed pernicious by theſe people when uſed with moderation, has degenerated into vice; many being ſo fond of it, that during the whole day, they do nothing but hacer las once. Perſons of diſtinction uſe Spaniſh brandy, but the lower claſs, and Negroes, very contentedly take up with that of the country, extracted from the juice of the ſugar cane, and thence called cane brandy, of which ſort the conſumption is much the greateſt.

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* Pulperos are men who work in a kind of tent, called in Spaniſh Pulperios, and the Canoeros, are watermen who carry goods in pirogues or canoes.

CHOCOLATE, here known only by the name of cacao, is so common, that there is not a Negro slave but constantly allows himself a regale of it after breakfast; and the Negro women sell it ready made about the streets, at the rate of a quarter of a real (about five farthings sterling) for a dish. This is however so far from being all cacao, that the principal ingredient is maize; but that used by the better sort is neat, and worked as in Spain. This they constantly repeat an hour after dinner, but never use it fasting, or without eating something with it.

THEY also make great use of sweetmeats and honey; never so much as drinking a glass of water without previously eating some sweetmeats. Honey is often preferred as the sweeter, to conserves or other sweetmeats either wet or dry. Their sweetmeats are eaten with wheat bread, which they use only with these and chocolate; the honey they spread on casava cakes.

THE passion for smoaking is no less universal, prevailing among persons of all ranks in both sexes. The ladies and other white women smoak in their houses, a decency not observed either by the women of the other Casts, nor by the men in general, who regard neither time nor place. The manner of using it is, by slender rolls composed of the leaves of that plant; and the women have a particular manner of inhaling the smoak. They put the lighted part of the roll into their mouths, and there continue it a long time without its being quenched, or the fire incommoding them. A compliment paid to those for whom they profess an intimacy and esteem, is, to light their tobacco for them, and to hand them around to those who visit them. To refuse the offer would be a mark of rudeness not easily digested, and accordingly they are very cautious of paying this compliment to any but those whom they previously know to be used to tobacco. This custom the ladies learn in their childhood, and doubtless from their nurses, who are Negro slaves; it is so common among persons of rank, that those who come from Europe easily join in it; especially if they intend to make any considerable stay in the country.

ONE of the most favourite amusements of the natives here, is a ball, or fandango, after the manner of the country. And these are the distinguished rejoicings on festivals and remarkable days. But while the gallions, garda costas, or other Spanish ships are here, they are most common, and at the same time conducted with the least order; the crews of the ships forcing themselves into their ball rooms. These diversions in houses of distinction, are conducted in a very regular manner; they open with Spanish dances, and are succeeded by those of

the country, which are not without ſpirit and gracefulneſs. Theſe are accompanied with ſinging, and the parties rarely break up before day light.

THE Fandangos, or balls of the populace, conſiſt principally in drinking brandy and wine, intermixed with indecent and ſcandalous motions and geſtures; and theſe continual rounds of drinking ſoon give riſe to quarrels, which often bring on miſfortunes. When any ſtrangers of rank viſit the city, they are generally at the expence of theſe balls; and as the entrance is free to all, and no want of liquor, they need give themſelves no concern about the want of company.

THEIR burials and mournings are alſo ſomething ſingular; as in this particular they endeavour to diſplay their grandeur and dignity, too often at the expence of their tranquillity. If the deceaſed be a perſon of condition, his body is placed on a pompous Catafalco, erected on the principal apartment of the houſe, amidſt a blaze of tapers. In this manner the corpſe lies twenty-four hours or longer, for the acquaintance of the family to viſit it at all hours; and likewiſe the lower claſs of women, among whom it is a cuſtom to come and lament the deceaſed.

THESE women who are generally dreſſed in black, come in the evening or during the night into the apartment where the corpſe lies, and having approached it, they throw themſelves on their knees, and then riſe and extend their arms as to embrace it; after which they begin their lamentations, in a doleful tone, mixed with horrid cries, which always conclude with the name of the deceaſed; afterwards they begin, in the ſame diſagreeable vociferations his hiſtory, rehearſing all his good and bad qualities, not even omitting his amours of any kind, and in ſo circumſtantial a narrative, that a general confeſſion can hardly be more particular; till at length, quite ſpent, they withdraw to a corner of the apartment ſtored with brandy and wine, on which they never fail plentifully to regale themſelves. No ſooner are theſe departed from the body than others ſucceed, till all the women have taken their turn. The ſame afterwards is repeated by the ſervants, ſlaves, and acquaintance of the family, which continues without intermiſſion, during the remainder of the night; whence may eaſily be imagined the confuſion and noiſe occaſioned by this doleful vociferous ceremony.

THE funeral alſo is accompanied with the like noiſy lamentations, and even after the corpſe is depoſited in the grave, the mourning is continued in the houſe for nine days, during which time the pacientes or mourners, whether men or women, never ſtir from the apartment, where they receive the peſanes, or compli-

compliments of condolance. During nine nights from sun set to sun rising, they are attended by their relations and intimate acquaintances; and it may be truly said of them that they are all sincerely sorrowful; the mourners for the loss of the deceased, and the visitors from the uneasiness and fatigue of so uncomfortable an attendance.

CHAP. V.

Of the climate of CARTHAGENA, *and the diseases incident to natives and foreigners.*

THE climate of Carthagena is excessively hot, for by observations we made on the 19th of November 1735, by a thermometer constructed according to M. Reamur, the spirit was elevated to 1025½, and in our several experiments made at different hours, varied only from 1024 to 1026. By experiments made the same year at Paris on a thermometer of the same gentleman, the spirit rose on the 16th of July, at 3 in the afternoon, and on the 10th of August at half an hour after 3, to 1025½, and this was the greatest degree of heat felt at Paris during that year: consequently the degree of heat in the hottest day at Paris, is continual at Carthagena.

BUT the nature of this climate chiefly displays itself from the month of May to the end of November, the season they call winter; because during that time there is almost a continual succession of thunder, rain, and tempests; the clouds precipitating the rain with such impetuosity, that the streets have the appearance of rivers, and the country of an ocean. The inhabitants make use of this opportunity, otherwise so dreadful, for filling their cisterns; this being the only sweet water they can procure. Besides the water saved for private uses, there are also large reservoirs on the bastions, that the town may not be reduced to the shocking consequence of wanting water. There are indeed wells in most houses; but the water being thick and brackish it is not fit to drink, tho' it serves very well for other uses.

FROM the middle of December to the end of April, the rains cease, and the weather becomes agreeable, the heat being something abated by the north-east winds which then set in. This season they call summer; besides which, there is another called the little summer of St. John, as about the festival of that saint, the rains are intermitted, and refreshing gales begin to blow, and continue about a month.

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THE invariable continuance of ſuch great heats, without any ſenſible difference between night and day, occaſions ſuch profuſe tranſpiration in the body, that the wan and livid complexion of the inhabitants, would make a ſtranger ſuſpect they were juſt recovered from ſome terrible diſtemper. Their actions are conformable to their colour; in all their motions there is ſomething relax and ſluggiſh; It even affects their ſpeech, which is ſoft and ſlow, and their words generally broken. But notwithſtanding all theſe appearances of ſickneſs and debility, they enjoy a good ſtate of health. Strangers from Europe retain their ſtrength and ruddy colour poſſibly for three or four months; but afterwards both ſuffer ſuch decays from the exceſſive perſpiration, that theſe new comers are no longer to be diſtinguiſhed by their countenances, from the old inhabitants. Young perſons are generally moſt affected by the climate, which ſpares the more aged, who preſerve their vivid countenance, and ſo confirmed a ſtate of health as even to reach their 80th year and upwards; and this is even common among all the claſſes of inhabitants.

THE ſingularity of the climate, in all probability, occaſions the ſingularity of ſome of the diſtempers which here affect the human race; and theſe may be conſidered in two different lights; one, as only attacking the Europeans newly landed, and the other, as common both to Creoles and Chapitones.

THOSE of the firſt kind, are in the country, commonly called Chapatonadas, alluding to the name given there to the Europeans. Theſe diſtempers are ſo very deleterious, that they carry off a multitude of people, and extremely thin the crews of European ſhips; but they ſeldom laſt above three or four days, in which time the patient is either dead or out of danger. The nature of this diſtemper is but little known, being cauſed in ſome perſons by cold, and others by indigeſtions; and ſoon brings on the vomito prieto, or black vomit, which is the fatal ſymptom; very few being ever known to recover. Some, when the vomit attacks them, are ſeized with ſuch a delirium, that were they not tied down, they would tear themſelves to pieces, and thus expire in the midſt of their furious paroxiſms, as in the moſt terrible frenzy. It is remarkable that only the new comers from Europe are ſubject to this diſtemper, and that the natives and thoſe who have lived ſome time here, are never affected by it; but enjoy an uninterrupted ſtate of health, amidſt the dreadful havock it makes among others. It is alſo obſerved to rage more among the common ſeamen than thoſe who have been able to live on more

more wholesome food; from whence salt meat has been considered as pernicious in bringing on this distemper, and that the humours it produces, together with the labour and hardships of the seamen, incline their blood to putrifaction, and from this putrifaction, the vomito prieto is supposed to have its origin. Not that the sailors are its only victims, for even passengers who possibly have not tasted any salt meat during the voyage, often feel its effects. Another remarkable circumstance is, that persons who have been once in this climate, are never after, upon their return again, subject to this distemper; but enjoy the same state of health with the natives, even tho' they do not lead the most temperate lives.

THE investigation of the cause of this strange distemper has exercised the attention of all the surgeons in the gallions, as well as the physicians of the country; and the result of their researches is, that they impute it to the food, labour, and hardships of the seamen. Doubtless these are collateral causes; but the principal question is, why persons exempt from those inconveniencies, frequently die of the distemper? Unhappily, after all the experiments that have been made, no good method of treatment has been discovered; no specific for curing it, nor preservative against it. The symptoms are so very vague, that sometimes they are not to be distinguished from those of slight indispositions; and tho' the vomit be the determinate symptom, the fever preceding it, is observed to be very oppressive and extremely affecting to the head.

THIS distemper does not declare itself immediately after the arrival of the European ships in the bay; neither has it been long known in this country; for what was formerly called Chapetonadas, were only indigestions, which, tho' always dangerous in these climates, were with little difficulty cured by some remedies prepared by the women of the country, and which they still use with success, especially if taken in the beginning. The ships afterwards going to Porto Bello, were there first attacked by this terrible disease, which has always been attributed to the inclemency of the climate, and the fatigue of the seamen, in unloading the ships, and drawing the goods during the fair.

The vomito prieto was unknown at Carthagena, and all along the coast, till the years 1729, and 1730. In the first of these Don Domingo Justiniani, commodore of the guarda costas, lost so considerable a part of his ships companies at Santa Martha, that the survivors were struck with astonishment and horror, at the havock made among their comerades. In the second, namely 1730, when the gallions under

Don

Don Manuel Lopez Pintado, came to Carthagena, the seamen were seized with the same dreadful mortality, and so sudden were the attacks of the disease, that persons walking about one day, were the next carried to their graves.

THE inhabitants of Carthagena, together with those in the whole extent of its government, are very subject to the mal de San Lazaro, or leprosy, which seems still to gain ground. Some physicians attribute the prevalence of it to pork, which is here a very common food; but it may be objected that in other countries, where this flesh is as frequently eaten, no such effects are seen, whence it evidently appears, that some latent quality of the climate must also contribute to it. In order to stop the contagion of this distemper, there is without the city an hospital called San Lazaro, not far from the hill on which is a castle of the same name. In this hospital all persons of both sexes labouring under this distemper are confined, without any distinction to age, or rank; and if any refuse to go they are forcibly carried thither. But here the distemper increases among themselves, they being permitted to intermarry, by which means it is rendered perpetual. Besides, their allowance being here too scanty to subsist on, they are permitted to beg in the city; and from their intercourse with those in health, the number of lepers never decreases; and is at present so considerable, that their hospital resembles a little town. Every person at his entering this structure, where he is to continue during life, builds a cottage called in the country bujio, proportioned to his ability, where he lives, in the same manner as before in his house, the prohibition of not going beyond the limits prescribed him, unless to ask alms in the city, only excepted. The ground on which the hospital stands is surrounded by a wall, and has only one gate, and that always carefully guarded.

AMIDST all the inconveniencies attending this distemper, they live a long time under it, and some even attain to an advanced age. It also greatly increases the natural desire of coition, and intercourse of the sexes, so that to avoid the disorders which would result from indulging this passion, now almost impossible to be controuled, they are permitted to marry.

IF the leprosy be so common and contagious in this climate, the itch and harpes are equally frequent, especially among Europeans, who are not seasoned to the climate; and, if neglected in the beginning, it is dangerous to attempt a cure when custom has rendered them natural. The most effectual remedy against them, in the first stage, is a kind of earth called maqui-

maquimaqui, found in the neighbourhood of Carthagena, and on account of this virtue, exported to other parts.

ANOTHER very singular distemper, tho' not so common, is the culebrilla, or little snake, being as the most skilful think, a tumour caused by certain malignant humours settled longitudinally between the membrane of the skin, and daily increasing in length, till the swelling quite surrounds the part affected, which is usually the arm, thigh, and leg; tho' sometimes it has been known to spread itself all over these parts. The external indications of it are a round inflamed tumour, of the thickness of a quarter of an inch, attended with pain, but not vehement, and a numbness of the part, which often terminates in a mortification. The natives are very skilful in removing it by the following process. They first examine where, (according to their phrase) the head is, to which they apply a small suppurative plaister, and gently foment the whole tumour with oil. The next day the skin under the plaister is found divided, and thro' the orifice appears a kind of a white fibre, about the size of a coarse sewing thread; and this, according to them is the culebrilla's head, which they carefully fasten to a thread of silk, and wind the other end of it about a card, rolled up like a cylinder. After this they repeat the fomentation with oil, and the following day continue to wind about the cylindric card the part of this small fibre which appears in sight. In this manner they proceed till the whole is extracted, and the patient entirely cured. During this operation their chief care is not to break the culebrilla; because they say, it would then cause a humour to spread through the body, and produce a great quantity of such little snakes, as they will have them to be, whence the cure would become extremely difficult. It is a current notion among them, that when it has, for want of care in the beginning, compleated the circle, and according to them, joined its head with its tail, the disease generally proves fatal. But this, I think, is very seldom the case, the pain warning the patient immediately to apply a remedy, which should be accompanied with some emollients for dispersing the humour.

THESE people firmly believe it to be a real culebrilla or small snake, and accordingly have called it by that name. At its first appearance, a small slow motion may indeed be perceived; but this is soon over, and possibly proceeds from the compression or extention of the nervous fibres which compose it, without its having any animal life. I do not, however, pretend to determine absolutely on this point.

BESIDES

BESIDES these, another distemper common in this country is the spasm or convulsion, which always proves mortal, but seldom comes alone. This distemper I shall however defer till I come to describe other parts of America, where it is equally dangerous and more common.

CHAP. VI.

Description of the country, and of the trees and vegetables in the neighbourhood of Carthagena.

THE country about Carthagena is so luxuriant, that it is impossible to view, without admiration, the rich and perpetual verdure of the woods, and plants it naturally produces. But these are advantages of which the natives make little use, their innate sloth and indolence, not allowing them to cultivate the gifts of nature, which here seem to have been dealt out with a lavish hand. The interwoven branches of the trees form a shelter impenetrable both to heat and light.

IF the trees here are large and lofty, their variety is also admirable, and entirely different from those of Europe. The principal of these for dimensions are the caobo, or acajou, the cedar, the maria, and the balsam tree. Of the first are made the canoes and champanes used for fishing, and the coast and river trade, within the jurisdiction of this government. These trees produce no eatable fruit; but their wood is compact, fragrant, and beautiful. The cedar is of two kinds, white and reddish; but the last most esteemed. The maria and the balsam trees, besides the usefulness of their timber, distil those admirable balsams called maria oil, and balsam of tolu, so called from a village in the neighbourhood of which it is found in the greatest quantity, and of a peculiar excellency.

BESIDES these trees, here are also the tamarind, the medlar, the sapote, the papayo, the guayabo, the cannafistolo, or cassia, the palm, the manzanillo, and several others, most of them producing a wholsome and palatable fruit, with a durable and variegated wood. The manzanillo is particularly remarkable; its name is derived from the Spanish word manzana, an apple, which the fruit of this tree exactly resembles in shape, colour, and flavour; but contains, under this beautiful appearance, such a subtil poison, that its effects are perceived before it is tasted. The tree is large, and its branches form near the top a kind of crown; its wood hard, and of a yellowish tinct. On being cut, there ouzes out of it a white juice,

juice, not unlike that of the fig-tree, except that it is less white and of a thinner consistence, but equally poisonous with the fruit itself; for if any happens to drop on any part of the flesh, it immediately causes an ulcer and inflammation, and unless speedy application be used, soon spreads through all the other parts of the body; so that it is necessary after felling it to leave it till thoroughly dried, in order to its being worked without danger, and then appears the beauty of this wood, which is exquisitely variegated and veined like marble on it's yellow ground. Upon tasting it's fruit, the body immediately swells, till the violence of the poison, wanting sufficient room, bursts it; as has been too fully confirmed by several melancholy instances of European sailors who have been sent on shore to cut wood. The same unhappy consequence also attended great numbers of Spaniards at the conquest of these countries, till, according to Herrera, common oil was found to be the powerful antidote to this subtile poison.

But such is the malignity of the manzanillo, that if a person happens to sleep under it, he is soon awaked, and finds his body swelled almost as much as if he had actually eat the fruit; and continues in great danger and tortures, till relieved by repeated anointings and the use of cooling draughts. The very beasts themselves, by their natural instinct, are so far from eating it's fruit, that they never approach the tree.

The palm-trees, rising with their tufted heads above the branches of the others, form a grand perspective on the mountains. These, notwithstanding the difference is scarce perceivable, are really of different kinds, as is evident from the diversity of their fruit. They distinguish four principal species, the first produce coco; the second dates, of a very pleasant taste; the third called palma real, whose fruit, though of the same figure, but something less than the date, is not at all palateable, but has a very disagreeable taste; and the fourth, which they call corozo, has a fruit larger than dates, of an exquisite taste, and proper for making cooling and wholesome draughts. The palmitos, or branches of the palma real, are agreeably tasted, and so large as frequently to weigh from two to three arrobas*. The other species also produce them, but neither in such plenty, nor so succulent. Palm-wine is also extracted from all the four; but that from the palma real, and corozo is much the best. The manner of making it, is either by cutting down the palm-tree, or boring a hole in the trunk, in which is placed a tap, with a vessel under it for receiving the liquor, which usually fermented five or six days more or less, and

* The arroba is 25 pounds.

and then is drank. The colour of it is whitiſh; the taſte racy: It bears a greater head than beer, and is of a very inebriating quality. The natives, however, reckon it cooling, and it is the favourite liquor of the Indians and Negroes. The guaiacum and ebony trees are equally common; and their hardneſs almoſt equal to that of iron. Theſe ſpecies of woods are ſometimes carried into Spain, where they are greatly eſteemed, but here they are diſregarded from their great plenty.

Among the variety of vegetables which grow under the ſhade of the trees, and along the ſunny borders of the woods, the moſt common is the ſenſitive; which alone, were other proofs wanting, ſufficiently demonſtrates the ſenſibility of plants; for on touching one of it's leaves, all thoſe on the ſame branch immediately cloſe againſt each other, ſo ſuddenly, as if all the ſprings had waited that inſtant, in order to act at the ſame time. After a ſhort interval they begin gradually to open and ſeparate from each other, till they are entirely expanded. The ſenſitive is a ſmall plant about a foot and a half or two feet in height, with a ſlender ſtem, and the branches proportionally weak and tender. The leaves are long and ſtand ſo cloſe together, that all on one branch may be conſidered as a ſingle leaf four or five inches in length, and ten lines in breadth; which being ſubdivided into the other ſtill ſmaller, forms in each of them the true leaf, which is about four or five lines in length, and not quite one in breadth. On touching one of theſe ſmall leaves, all of them immediately quit their horizontal poſition, and fly into a perpendicular direction, cloſing their inward ſuperficies, ſo that thoſe, which before this ſenſitive motion made two leaves, now ſeem as but one. The vulgar name of this plant at Carthagena being improper to be mentioned here we ſhall omit it; in other parts it is more decently called la vergonzoſa, the baſhful, and la doncella, the maiden. The common people imagine that this effect is cauſed by pronouncing its name at the inſtant of the touch, and are amazed that a plant ſhould have the wiſdom of ſhewing its obedience to what was ordered, or that it was too much affected by the injury offered it to conceal its reſentment.

We afterwards meet with this plant at Guayaquil, where the climate ſeems to be better adapted to it than that of Carthagena, for it is not only more common, but grows to three or four feet in height, the leaves and every part in proportion.

In the woods about Carthagena are found a great quantity of bejucos or willows, of a different magnitude, figure, and colour, and ſome of the ſtems flat. One ſpecies is particularly known on account of it's fruit called habilla de Carthagena, the

the bean of Carthagena. It is about an inch broad, and nine lines in length, flat and in the shape of a heart. The shell tho' thin, is hard, and on the outside scabrous. It contains a kernel resembling an almond, but less white, and extremely bitter. This is one of the most effectual antidotes known in that country against the bites of vipers and serpents; for a little of it being eaten immediately after the bite, it presently stops the effects of the poison; and accordingly all who frequent the woods, either for felling trees or hunting, never fail to eat a little of this habilla fasting, and repair to their work without any apprehension. I was informed by an European, who was a famous hunter, and also by several other persons worthy of credit, that with this precaution, if any one happened to be bit by a serpent, it was attended with no manner of ill consequence. The natives tell you, that this habilla being hot in the highest degree, much of it cannot be eaten, that the common dose of it is less than the fourth part of a kernel, and that no hot liquor, as wine, brandy, &c. must be drank immediately after taking it. In this case they doubtless derive their knowledge from experience. This valuable habilla is also known in other parts of America near Carthagena, and goes every where by it's name, as being the peculiar product of it's jurisdiction.

CHAP. VII.

Of the beasts, birds, reptiles and insects, in the territories of Carthagena.

FROM the trees and plants in this jurisdiction, we shall proceed to the different kinds of animals; some of which are tame, for the use and pleasure of it's inhabitants; others wild, and of such different qualities and kinds, as wonderfully display the diversity which the author of nature has shewn in the multitude of his works. The quadrupedes and reptiles, frequent the dry and desert places, and are distinguished by an endless variety of spots on their skins; whilst the vivid plumage of the feathered race, glows with exquisite beauty; and the brilliant scales of another kind, conceal the most active poisons.

THE only tame eatable animals are the cow and the hog, of which there are the greatest plenty. The beef, tho' not absolutely bad, cannot be said to be palatable; the constant heat of the climate preventing the beasts from fattening, and deprives their flesh of that succulency it would otherwise have acquired: but the pork is delicate, and allowed not only to be the best in all America, but even to exceed any in Europe. This, which is the usual food of Europeans and Creoles at Carthagena, besides its palatableness, is also looked upon to be so wholesome, that even sick persons are allowed it preferably to poultry, pigeons,

 partridges,

partridges, or geese, which are here very good and in great plenty.

I MUST not omit a singular stratagem practised here for taking wild geese, the extreme cheapness of which naturally inclined us to ask how they caught them in such quantities; in answer to our question we received the following account. Near Carthagena, to the eastward of Monte de la Popa, is a large lake called la Cienega de Tescas, abounding with fish but reckoned unwholsome. The water of this lake, communicating with the sea is salt, but without increase or decrease, the difference of the tides here being insignificant. Every evening vast flights of geese retire hither from all the neighbouring countries, as their natural place of rest during the night. The persons who catch these birds throw into the lake about 15 or 20 large calabashes, which they call totumos, and the geese being accustomed to see these calabashes floating on the water, never avoid them. In three or four days the persons return early in the morning to the lake, with another calabash, having holes in it for seeing and breathing. This calabash he places on his head, and walks in the water, with only the calabash above the surface. In this manner, with all possible stillness, he moves towards the geese, pulling them under water with one hand, and then seizing them with the other. When he has thus taken as many as he is able to carry, he returns towards the shore, and delivers them to his companion, who waits for him at a certain distance in the water. This done he renews his sport, either till he has taken as many as he desires, or the birds begin to disperse themselves over the country.

OTHER persons make it their business to procure different kinds of game, as deer, rabbits, and wild boars, called here sajones; but these are eaten only by the country Negroes and Indians, except the rabbits which meet with a good market in the city.

THE wild beasts are also of various kinds, as tigers, which make a great havock, not only among the cattle, but among the human species. Their skin is very beautiful, and some are as large as little horses. Here are also leopards, foxes, armadillos, a kind of scaly lizard; ardillas, or squirrels, and many others; besides innumerable kinds of monkeys living in the woods, some remarkable for their size, and others for their colour. The artifice generally observed by the fox, in defending itself against dogs or other animals, by whom it is pursued, by voiding it's urine on it's own tail and sprinkling it on them, effectually here answers the intention, the smell of it being so strong and fetid, that it throws the dogs into disorder and by that means the fox escapes. The stench of this urine is so great that it may be smelt a quarter of a league from the place; and very often for half an hour after. The

fox

fox here is not much bigger than a large cat; but delicately shaped; has a very fine coat, and of a cinnamon colour; but no large brush on its tail. The hair however is spungy, and forms a bunch proper for the above mentioned method of defence.

NATURE, which has furnished the fox with such an effectual defence, has not forgot the armadillo, the name of which partly describes it. The size of it is about that of a common rabbit, tho' of a very different shape; the snout, legs, and tail, resembling those of a pig. His whole body is covered with a strong shell, which answering exactly every where to the irregularities of it's structure, protects it from the insults of other animals, without affecting it's activity. Besides this he has another, as a helmet, connected by a joint to the former; this guards his head, and thus he is every way safe.

THESE shells are variegated with several natural relievos, as it were, in chiaro oscuro, so that they are at once his defence, and a beautiful ornament. The Negroes and Indians who eat it's flesh, give a high character of it.

AMONG the monkeys of this country, the most common are the micos, which are also the smallest. They are generally about the size of a cat, and of a brownish colour; but too well known to need any further description. The larger kind, which are less known, I shall describe in another place.

THE birds seen in this hot climate, are so numerous, that it is impossible to give a full idea of them; particularly of the beauty and brilliancy of their various plumage. The cries and croakings of some, mixed with the warblings of others, disturb the pleasure which would flow from the melody of the latter, and render it impossible to distinguish the different cries of the former; but are another instance of the equity observed by nature in distributing her favours; the plumage of those birds being the most beautiful, whose croakings are the most offensive; while, on the other hand, those whose appearance has nothing remarkable, excel in the sweetness of their notes. This is particularly evident in the guacamayo, the beauty and lustre of whose colours are absolutely inimitable by painting; and there is not a more shrill and disagreeable sound than the noise it makes: and this is in a great measure common to all other birds, whose bills are hard and crooked, and their tongue thicker than usual, as the parrots, the cotorras, and the periquitos. All these birds fly in troops, so that often the air sounds with their cries.

ALL the singularities in the preceding birds seem concentered in the bill of that called the tulcan, or preacher. It is about the size of a common pigeon, but its legs much larger;

its tail is ſhort, and its plumage of a dark colour but ſpotted with blue, purple, yellow, and other colours; which have a beautiful effect on the dark ground. Its head is beyond all proportion to its body, but otherwiſe he would not be able to ſupport his bill, which from the root to the point is, at leaſt, ſix or eight inches, and the upper mandible, has at its root a baſe of at leaſt an inch and an half, of a triangular figure, whoſe apex is at the point of the bill. The two lateral ſuperficies, form a kind of elevation on the upper part, and the third receives the lower mandible, which cloſes with the upper thro' the whole length, ſo that the two parts are every where perfectly equal, and from their root narrows inſenſibly, till near the top, where it ſuddenly becomes incurvated, and terminates in a ſtrong and ſharp point. The tongue is formed like a feather, and of a deep red colour, like the whole inſide of its mouth. The bill is variegated with all thoſe bright colours, which adorn the plumage of other birds. At the baſe, and alſo at the convexity, it is generally of a light yellow, forming a kind of ribband half an inch in breadth. The reſt is of a fine deep purple, except two ſtreaks near the root, of a rich ſcarlet, at an inch diſtant from each other. The inward fleſhy parts, which touch when the bill is cloſed, are furniſhed with teeth, which form the ſurface of its two ſerrated mandibles. The name of preacher has been given to this bird from it's cuſtom of perching on the top of a tree above his companions, whilſt they are aſleep, and making a noiſe reſembling ill-articulated ſounds, moving his head to the right and left, in order to keep off the birds of prey from ſeizing on the others. They are eaſily rendered ſo very tame as to run about in houſes, and come when called. Their uſual food is fruit, but the tame eat other things, and in general whatever is given them.

To deſcribe all the other extraordinary birds would engage me in a prolixity of little entertainment or uſe; but I hope a word or two on the gallinazos, will be excuſed. This bird is about the ſize of a pea-hen, but the neck and head ſomething larger. From the crop to the baſe of the bill, inſtead of feathers, it has a wrinkled glandulous and rough ſkin, covered with ſmall warts and tubercles. Its feathers are black, which is alſo the colour of this skin, but uſually with ſomething of a brownish tinct. Its bill is well proportioned, ſtrong and a little crooked. They are ſo numerous and tame in the city, that it is not uncommon to ſee the ridges of the houſes covered with them. They are alſo very ſerviceable, for they clean the city from all kinds of filth and ordure, greedily devouring any dead animal, and when theſe are wanting, ſeek other filth. They have ſo quick a ſcent, that they will ſmell

at

at the diſtance of three or four leagues, a dead carcaſe, and never leave it till they have entirely reduced it to a ſkeleton. The infinite number of theſe birds found in ſuch hot climates, is an excellent proviſion of nature, as otherwiſe, the putrefaction cauſed by the conſtant and exceſſive heat, would render the air inſupportable to human life. At firſt they fly heavily, but afterwards dart up out of ſight. On the ground they hop along with a kind of torpor, tho' their legs are ſtrong and well proportioned. They have three toes forward turning inwards, and one in the inſide, turned a little backwards; ſo that the feet interfering they cannot walk with any agility, but are obliged to hop or ſkip. Each toe has a long and thick claw.

When the gallinazos find no food in the city, their hunger drives them into the country among the beaſts in the paſtures, and on ſeeing any one with a ſore on the back, they immediately alight on it, and attack the part affected. It is in vain for the poor beaſt to endeavour to free itſelf from theſe devourers, either by rolling on the ground or hideous cries; for they never quit their hold, but with their bills ſo widen the wound, that the creature ſoon expires.

There is an other kind of gallinazos, ſomewhat larger than theſe, only to be met with in the country. In ſome of theſe the head and part of the neck are white, in ſome red, and in others a mixture of both theſe colours. A little above the beginning of the crop they have a ruff of white feathers. Theſe are equally fierce and carnivorous with the former; and called the kings of the gallinazos; probably becauſe the number of them is but few, and it is obſerved, that when one of theſe has faſtened on a dead beaſt, none of the others approach till he has eaten the eyes, with which he generally begins, and is gone to an other part, when they all flock to the prey.

Bats are very common all over the country; but Carthagena is infeſted with ſuch multitudes of them, that after ſun-ſet, when they begin to fly, they may without any hyperbole be ſaid to cover the ſtreets like clouds. They are the moſt dexterous bleeders both of men and cattle; for the inhabitants being obliged by the exceſſive heats to leave open the doors and windows of the chambers where they ſleep, the bats get in, and if the happen to find the foot of any one bare, they inſinuate their tooth into a vein, with all the art of the moſt expert ſurgeon, ſucking the blood till they are ſatiated and withdraw their tooth; after which the blood flows out at the orifice. I have been aſſured by perſons of the ſtricteſt veracity, that ſuch an accident has happened to them; and that had they not providentially

awaked ſoon, their ſleep would have been their paſſage into eternity; they having loſt ſo large a quantity of blood, as hardly to be able to bind up the orifice. The reaſon why the puncture is not felt, is (beſides the great precaution with which it is made) attributed to the gentle and refreſhing agitation of the air by the bat's wings, hindering the perſon from feeling this ſlight puncture by throwing him into a deeper ſleep. Nearly the ſame thing happens to horſes, mules, and aſſes; but beaſts of a thick and hard ſkin are not expoſed to this inconveniency.

We ſhall next proceed to the inſects and reptiles, in which nature has no leſs diſplayed its infinite power. The great number of them is not only an inconvenience to the inhabitants, but health and even life itſelf often ſuffers from the malignity of their poiſon. The principal are the ſnakes, the cientopies, the ſcorpions, and the ſpiders; of all which there are different kinds, and their poiſons of different activity.

Of the ſnakes the moſt common, and at the ſame time the moſt poiſonous are the corales, or coral ſnakes, the caſcabeles, or rattle-ſnakes, and the culebras de bejuco, or willow-ſnakes. The firſt are generally between four and five feet in length, and an inch in diameter. They make a very beautiful appearance, their ſkin being all over variegated with a vivid crimſon, yellow and green. The head is flat and long, like that of the European viper. Each mandible is furniſhed with a row of pointed teeth, thro' which during the bite they inſinuate the poiſon; the perſon bit immediately ſwells to ſuch a degree, that the blood guſhes out, tho' all the organs of ſenſe, and even the coats of the veins at the extremities of the fingers burſt, ſo that he ſoon expires. The caſcabele or rattle-ſnake, ſeldom exceeds two feet or two feet and a half in length; tho' there are ſome of another ſpecies which are three and a half. Its colour is brown, variegated with deeper ſhades of the ſame tinct; and at the end of its tail is the caſcabel or rattle, in the form of a garvanzo or French-bean pod, when dried on the plant, and like that has five or ſix diviſions, in each of which are ſeveral ſmall round bones; theſe at every motion of the ſnake, rattle, and from thence give riſe to its name. Thus nature, which has painted the coral ſnake with ſuch ſhining colours, that it may be perceived at a diſtance, has formed the latter in ſuch a manner, that, as it scolours render it difficult to diſtinguiſh it from the ground, the rattle might give notice of its approach.

The culebras de bejuco, or willow ſnakes, which are very numerous, haveing their name from their colour and ſhape reſembling the rods of that tree; and as they often hang down from its boughs, they ſeem real bejucos, till a too near approach unhappily

unhappily discovers the mistake; and tho' their poison be not so very active as that of the others, without a speedy application of some specific, it proves mortal. These remedies are perfectly known to the Negroes, Mulattos, and Indians frequenting the woods, and called curanderos. But the safest antidote is the habilla, already mentioned.

It is not however often that these dangerous serpents bite any one, unless, from inadvertence or design, he has been the aggressor. Besides they are so far from having any extraordinary agility, that they are remarkably torpid, and, as it were, half dead; so that were it not for their motion in retiring to hide themselves among the leaves, it would be difficult to determine whether they were dead or alive.

There are few parts of Europe which do not produce the cientopes or scolopendra, but at Carthagena they not only swarm, but are of a monstrous size, and the more dangerous, as breeding more common in the houses than in the fields. They are generally a yard in length, and some a yard and a quarter, the breadth about five inches, more or less, according to the length. Their figure is nearly circular, the back and sides covered with hard scales, of a musk colour tinged with red; but these scales are so articulated, as not in the least to impede their motion, and at the same time so strong as to defend them against any blow; so that the head is the only place where you can strike them to any purpose. They are also very nimble, and their bite, without timely application, proves mortal; nor is the patient free from considerable torture, till the medicine has destroyed the malignity of the poison.

The alacranes, or scorpions, are not less common, and of different kinds, as black, red, musk colour, and some yellow. The first generally breed in dry rotten wood, and others in the corners of houses, in closets and cupboards. They are of different sizes, the largest about three inches long, exclusive of the tail. The sting also of some is less dangerous than that of others; that of the black is reckoned the most malignant, tho' timely care prevents its being fatal. The stings of the other kinds are productive of fevers, numbnesses in the hands and feet, forehead, ears, nose and lips, tumours in the tongue, dimness of sight, which last generally twenty-four or forty-eight hours, when by degrees the patient gradually recovers. The natives of the country, imagine that a scorpion falling into the water purifies it, and therefore drink it without any examination. They are so accustomed to these insects, that they do not fear them, but readily lay hold of them, taking care not to touch them only in the last vertebræ of the tail to avoid

being ſtung; ſometimes they cut their tails off and play with them. We more than once entertained ourſelves with an experiment of putting a ſcorpion into a glaſs veſſel, and injecting a little ſmoak of tobacco, and immediately by ſtopping it, found that its averſion to this ſmell is ſuch, that it falls into the moſt furious agitations, till giving itſelf ſeveral repeated ſtings on the head, finds relief by deſtroying itſelf. Hence we ſee that its poiſon has the ſame effect on itſelf as on others.

HERE is alſo another inſect called caracol ſoldado, or the ſoldier-ſnail. From the middle of the body to the poſterior extremity it is ſhaped like the common ſnail, of a whitiſh colour and a ſpiral form: but the other half of the body reſembles a crab, both in ſize and the diſpoſition of its claws. The colour of this, which is the principal part of its body, is of a light brown. The uſual length, excluſive of the tail, is about two inches, and the breadth one and a half. It is deſtitute both of ſhell and ſcale, and the body every where flexible. Its reſource againſt injuries is to ſeek a ſnail ſhell of a proper ſize, in which it takes up its habitation. Sometimes it drags this ſnail ſhell with it, and at other times quits it, while it goes out in queſt of food; but, on the leaſt appearance of danger, it haſtens back to the ſhell, and thruſts itſelf into it, beginning with its hind part, ſo that the fore part fills the entrance, while the two claws are employed in its defence, the gripe of which is attended with the ſame ſymptoms as the ſting of a ſcorpion. In both caſes the patient is carefully kept from drinking any water, which has been known to bring on convulſions, and theſe always prove fatal.

THE inhabitants relate, that when this creature grows too large for making its way into the ſhell, which was its retreat, it retires to the ſea-coaſt, in order to find there a larger, where killing the wilk, whoſe ſhell beſt ſuits him, he takes poſſeſſion of it, which is indeed the ſame method it took to obtain its firſt habitation. This laſt circumſtance and the deſire of ſeeing the form of ſuch a creature, induced Don George Juan and myſelf to deſire the inhabitants to procure us ſome; and upon examination, we found all the above mentioned particulars were really true; except the bite, which we did not chooſe to experience.

THERE are ſtill ſeveral other ſorts of inſects remaining, which tho' ſmaller, yet afford equal reaſon for admiration to a curious examiner; particularly the infinite variety of mariposas, or butterflies, which, tho' they differ viſibly in their figure, colours, and decorations, one is at a loſs to determine which are the moſt beautiful.

IF

If these are so entertaining to the sight, there are others no less troublesome; so that it would be more eligible to dispense with the pleasure of seeing the former, than to be continually tortured by the latter; as the moschetos, of which large clouds may be seen, especially among the savanahs and manglares, or plantations of mangrove trees, so that the one, as affording the herbage on which they feed, and the other, as the places where they produce their young, are rendered impassable.

There are four principal species of this insect; the first called zancudos, which are the largest; the second the moschetos, differing little or nothing from those of Spain; the third gegenes, which are very small and of a different shape, resembling the wevil, about the size of a grain of mustard-seed, and of an ash-colour. The fourth are the mantas blancas, or white cloaks, and so very minute that the inflammation of their bite is felt before the insect that caused it is seen. Their colour is known by the infinite numbers of them which fill the air, and from thence they had their name. From the two former few houses are free. Their sting is followed by a large tumour, the pain of which continues about two hours. The two last, which chiefly frequent fields and gardens, raise no tumour, but cause an unsupportable itching. Thus if the extreme heat renders the day troublesome, these imperceptible insects disturb the repose of the night. And tho' the mosquiteros, a kind of gause curtains, in some measure defend us from the three former, they are no safe-guard against the latter, which make their way between the threads; unless the stuff be of a closer texture, in which case the heat becomes insupportable.

The insect of Carthagena called nigua, and in Peru, pique, is shaped like a flea; but almost too small for sight. It is a great happiness that its legs have not the elasticity with those of fleas; for could this insect leap, every animal body would be filled with them; and consequently, both the brute and human species be soon extirpated by the multitude of these insects. They live among the dust; and therefore are most common in filthy places. They insinuate themselves into the legs, the soles of the feet, or toes, and pierce the skin with such subtility that there is no being aware of them, till they have made their way into the flesh. If they are perceived at the beginning, they are extracted with little pain; but if the head only has pierced through the skin, an incision must be made before it can be taken out. If they are not soon perceived, they make their way thro' the skin, and take up their lodging

lodging between that and the membrane of the flesh, and sucking the blood form a nidus or nest, covered with a white and fine tegument, resembling a flat pearl, and the insect is as it were inchased in one of the faces, with its head and feet outwards, for the convenience of feeding, while the hinder part of the body is within the tunic, where it deposites its eggs, and as the number of these increases, the nidus enlarges, even to the diameter of a line and half, or two lines, to which magnitude it generally attains in four or five days. There is an absolute necessity for extracting it, for otherwise it would burst of itself, and by that means scatter an infinite number of germs, resembling nits, in size, shape and colour, which becoming niguas, would, as it were, undermine the whole foot. They cause an extreme pain; especially during the operation of extracting them; for sometimes they penetrate even to the bone, and the pain, even after the foot is cleared of them, lasts till the flesh has filled up the cavities they had made, and the skin is again closed.

The manner of performing this operation is both tedious and troublesome; the flesh contiguous to the membrane, where the eggs of the insect are lodged is separated with the point of a needle, and those eggs so tenaciously adhere to the flesh and this membrane, that, to complete the operation without bursting the tegument, and putting the patient to the most acute pain, requires the greatest dexterity. After separating on every side, the small and almost imperceptible fibres, by which it was so closely connected with the membranes and muscles of the part, the perilla, as they term it, is extracted, the dimensions of which are proportional to the time it has existed. If unfortunately it should burst, the greatest care must be used to clear away all the roots, particularly not to leave the principal nigua, as before the wound could be healed, there would be a new brood, further within the flesh; and consequently the cure much more difficult and painful.

The cavity left by the removal of the nidus must be immediately filled either with tobacco ashes, tobacco chewed, or snuff; and in hot countries as Carthagena, great care must be taken not to wet the foot for the two first days, as convulsions would ensue; a distemper seldom got over; this consequence has possibly been observed in some, and from thence considered as general.

The first entrance of this insect, is attended with no sensible pain; but the next day, it brings on a fiery itching, extremely painful, but more so in some parts than in others; and this is also the case in extracting it, as with regard to the nails, when

when the Insect is betwixt them and the flesh of the toes, or at their extremity. In the sole of the foot and other parts where the skin is callous, they cause little or no pain.

This insect shews an implacable hatred to some animals, particularly the hog; which it preys on with such voracity, that when their feet come to be scalded, after being killed, they are found full of cavities made by this corroding insect.

Minute as this creature is, there are two kinds of it; one venomous and the other not. The latter perfectly resembles the flea in colour, and gives a whiteness to the membrane where it deposites its eggs. This causes no pain, but what is common in such cases. The former is yellowish, its nidus of an ash-colour, and its effects more extraordinary; as, when lodged at the extremity of the toes, it violently inflames the glands of the groin, and the pain continues without abatement till the nigua is extracted, that being the only remedy; after which the swelling subsides, and pain ceases, those glands corresponding with the foot, where the cause of the pain resided. The true cause of this apparently strange effect, I shall not undertake to investigate; the general opinion is, that some small muscles extending from those glands to the feet, being affected by the poison of the bite, communicate it to the glands, from whence proceed the pain and inflammation. All I can affirm is, that I have often experienced it, and at first with no small concern; till having frequently observed, that these effects ceased on extracting the nigua, I thence concluded it to be the true cause of the disorder. The same thing happened to all the French academicians, who accompanied us in this expedition, and particularly to M. de Jussieu, botanist to the king of France, whom frequent experience of these kind of accidents, taught to divide these insects into two kinds.

As the preceding animals and insects chiefly exercise their malignant qualities on the human species, so there are others which damage and destroy the furniture of houses, particularly all kind of hangings, whether of cloth, linen, silk, gold or silver stuffs, or laces; and indeed every thing except those of solid metal, where their voracity seems to be wearied out by the resistance. This insect, called comegen, is nothing more than a kind of moth or maggot; but so expeditious in its depredations, that, in a very short time, it entirely reduces to dust, one or more bails of merchandize where it happens to fasten, and without altering the form, perforates it through and through, with a subtilty which is not perceived till it comes to be handled, and then instead of thick cloth or linen, one finds only small shreds and dust. At all times the strictest attention is requisite

ſite to prevent ſuch accidents, but chiefly at the arrival of the gallions; for then it may do immenſe damage among the vaſt quantity of goods, landed for warehouſes and for ſale in the ſhops. The beſt, and indeed the only method, is of laying the bails on benches, about half a yard from the ground, and to cover the feet of them with alquitran, or naphtha, the only preſervative againſt this ſpecies of vermin; for with regard to wood, it eats into that as eaſily as into the goods, but will not come near it when covered with naphtha as above.

NEITHER would this precaution be ſufficient for the ſafety of the goods, without a method of keeping them from touching the walls; and then they are ſufficiently ſecured. This inſect is ſo ſmall as to be ſcarce viſible to the naked eye; but of ſuch activity as to deſtroy all the goods in a warehouſe, where it has got footing, in one night's time. Accordingly it is uſual that in running the riſques of commerce, in goods conſigned to Carthagena, the circumſtances are ſpecified, and in theſe, are underſtood to be included the loſſes that may happen in that city by the comegen. It is not unworthy of notice, that this inſect infeſts neither Porto Bello, nor even places nearer Carthagena, tho' they have ſo many other things in common with that city; nor is it ſo much as known among them.

WHAT has been ſaid will, I hope, be ſufficient to give an adequate idea of this country, without ſwelling the work with trivial obſervations, or ſuch as have been already publiſhed by others. We ſhall now proceed to treat diſtinctly of other equally wonderful works of omnipotence, in this country.

CHAP. VIII.

Of the eſculent vegetables produced in the territories of Carthagena, *and the food of the inhabitants of that city.*

THO' Carthagena has not the convenience of being furniſhed by its ſoil with the different kinds of European vegetables, it does not want for others, far from being contemptible, and of which the inhabitants eat with pleaſure. Even the Europeans, who at their firſt coming, cannot eaſily take up with them, are not long before they like them ſo well as to forget thoſe of their own country.

THE conſtant moiſture and heat of this climate, will not admit of barley, wheat, and other grain of that kind, but produces excellent maize and rice in ſuch abundance, that a buſhel of maize, ſown, uſually produces an hundred, at harveſt. From this grain they make the bollo, or bread, uſed in all

all this country; they alſo uſe it in feeding hogs and fattening poultry. The maize bollo has no reſemblance to the bread made of wheat, either in ſhape, or taſte. It is made in form of a cake; is of a white colour and an inſipid taſte. The method of making it is to ſoak the maize and afterwards bruiſe it between two ſtones; it is then put into large bins filled with water, where, by rubbing and ſhifting it from one veſſel into another, they clear it from its huſk; after this it is ground into a paſte, of which the bollos are made. Theſe bollos being wrapped up in plantain or vijahua leaves, are boiled in water, and uſed as bread; but after twenty-four hours becomes tough and of a diſagreeable taſte. In families of diſtinction the bollo is kneaded with milk which greatly improves it; but being not thoroughly penetrated by the liquids it never riſes, nor changes its natural colour, ſo that inſtead of a pleaſing taſte, it has only that of the flour of maize.

Besides the bollo here is alſo the caſava bread very common among the Negroes, made from the roots of yuca, names, and moniatos. After carefully taking off the upper ſkin of the root, they grate it, and ſteep it in water, in order to free it from a ſtrong acrid juice, which is a real poiſon, particularly that of the moniato. The water being ſeveral times ſhifted, that nothing of this acrimony may remain, the dough is made into round cakes, about two feet diameter, and about three or four lines in thickneſs. Theſe cakes are baked in ovens, on large plates of copper, or a kind of brick made for that purpoſe. This is a very nouriſhing and ſtrengthening food, but very inſipid. It will keep ſo well that at the end of two months it has the ſame taſte as the firſt day, except being more dry.

Wheat bread is not entirely uncommon at Carthagena; but as the flour comes from Spain, the price of it may well be conceived to be above the reach of the generality. Accordingly it is uſed only by the Europeans ſettled at Carthagena, and ſome few Creoles; and by theſe only with their chocolate and conſerves. At all other meals, ſo ſtrong is the force of a cuſtom imbibed in their infancy, they prefer bollos to wheat bread, and eat honey with caſava.

They alſo make of the flour of maize ſeveral kinds of paſtry, and a variety of foods equally palatable and wholſome; bollo itſelf being never known to diſagree with thoſe who uſe it.

Besides theſe roots the ſoil produces plenty of camotes, reſembling, in taſte, Malaga potatoes; but ſomething different in ſhape, the camotes being generally roundiſh and uneven. They are both pickled and uſed as roots with the meat; but, conſidering the goodneſs and plenty of this root, they do not improve

improve it as they might; it being very probable, that if it was made an ingredient in the casava, it would give it a much better taste, than made as it is of roots naturally insipid.

PLANTATIONS of sugar canes abound to such a degree in this country, as extremely to lower the price of honey; and a great part of the juice of these canes is converted into spirit for the disposing of it. They grow so quick as to be cut twice in a year, and the variety of their verdure is a beautiful ornament to the country.

HERE are also great numbers of cotton trees, some planted and cultivated, and these are the best; others spontaneously produced by the great fertility of the country. The cotton of both is spun, and made into several sorts of stuffs, which are worn by the Negroes of the Haciendas, and the country Indians.

CACAO trees also grow in great plenty on the banks of the river Magdalena, and in other situations which that tree delights in; but those in the jurisdiction of Carthagena excel those of the Caracas, Maracaybo, Guayaquil, and other parts, both in size and the goodness of the fruit. The Carthagena cacao or chocolate is little known in Spain, being only sent as presents; for as it is more esteemed than that of other countries, the greatest part of it is consumed in this jurisdiction, or sent to other parts of America. It is also imported from the Caracas, and sent up the country, that of the Magdalena not being sufficient to answer the great demand there is for it in these parts. Nor is it amiss to mix the former with the latter, as correcting the extreme oiliness of the chocolate when made only with the cacao of the Magdalena. The latter, by way of distinction from the former, is sold at Carthagena by Millares, whereas the former is disposed of by the bushel, each weighing 110 pounds; but that of Maracaybo weighs only 96 pounds. This is the most valuable treasure which nature could have bestowed on this country; tho' it has carried its bounty still farther in adding a vast number of delicious fruits, which evidently display the exuberance of the soil. Nothing strikes a spectator with greater admiration, than to see such a variety of pompous trees, in a manner emulating each other, through the whole year, in producing the most beautiful and delicious fruits. Some resemble those of Spain; but others are peculiar to the country. Among the former some are indeed cultivated; but the latter flourish spontaneously.

THOSE of the same kind with the Spanish fruits are melons, water-melons, called here patillas, grapes, oranges, medlars and dates. The grapes are not equal to those of Spain; but the medlars

medlars as far exceed them; with regard to the reſt there is no great difference.

Among thoſe peculiar to the country, the preference doubtleſs belongs to the pine-apple; and accordingly its beauty, ſmell, and taſte have acquired it the appellation of queen of fruits. The others are the papayas, guanabanas, guayabas, ſapotes, mameis, platanos, cocos, and many others which it would be tedious to enumerate; eſpecially as theſe are the principal, and therefore it will be ſufficient to confine our deſcriptions to them.

The ananas or pine-apple, ſo called from it's reſembling the fruit or the cones of the European pine-tree, is produced by a plant nearly reſembling the aloe, except that the leaves of the pine-apple are longer but not ſo thick, and moſt of them ſtand near the ground in a horizontal poſition; but as they approach nearer the fruit they diminiſh in length, and become leſs expanded. This plant ſeldom grows to above three feet in height, and terminates in a flower reſembling a lilly, but of ſo elegant a crimſon, as even to dazzle the eye. The pine-apple makes its firſt appearance in the center of the flower, about the ſize of a nut; and as this increaſes the luſtre of the flower fades, and the leaves expand themſelves to make room for it and ſecure it both as a baſe and ornament. On the top of the apple itſelf is a crown or tuft of leaves, like thoſe of the plant, and of a very lively green. This crown grows in proportion with the fruit, till both have attained their utmoſt magnitude, and hitherto differ very little in colour. As ſoon as it ceaſes to grow it begins to ripen, and its green changes to a bright ſtraw colour; during this gradual alteration of colour, the fruit exhales ſuch a fragrancy as diſcovers it, tho' concealed from ſight. While it continues to grow, it ſhoots forth on all ſides little thorns, which as it approaches towards maturity, dry, and ſoften, ſo that the fruit is gathered without the leaſt inconvenience. The ſingularities which concenter in this product of nature, cannot fail of ſtriking a contemplative mind with admiration. The crown which was to it a kind of apex, while growing in the woods, becomes itſelf when ſown a new plant; and the ſtem, after the fruit is cut, dies away, as if ſatisfied with having anſwered the intention of nature in ſuch a product; but the roots ſhoot forth freſh ſtalks for the farther increaſe of ſo valuable a ſpecies.

The pine-apple, tho' ſeparated from the plant, retains its fragrancy for a conſiderable time, when it begins to decay. The odour of it, not only fills the apartment where the fruit is kept, but even extends to the contiguous rooms. The general

general length of this delicious fruit is from five to ſeven inches, and the diameter near its baſis three or four, diminiſhing regularly, as it approaches to its apex. For eating, it is peeled and cut into round ſlices, and is ſo full of juice, that it entirely diſſolves in the mouth. Its flavour is ſweet, blended with a delightful acidity. The rind, infuſed in water, after a proper fermentation, produces a very cooling liquor, and ſtill retains all the properties of the fruit.

THE other fruits of this country are equally valuable in their ſeveral kinds, and ſome of them alſo diſtinguiſhed for their fragrancy, as the guayaba, which is, beſides, both pectoral and aſtringent.

THE moſt common of all are the platanos, the name of which, if not its figure and taſte, is known in all parts of Europe. Theſe are of three kinds. The firſt is the banana, which is ſo large as to want but little of a foot in length. These are greatly uſed, being not only eaten as bread, but alſo an ingredient in many made diſhes. Both the ſtone and kernel are very hard; but the latter has no noxious quality. The ſecond kind are the dominicos which are neither ſo long, nor ſo large as the bananas, but of a better taſte; they are uſed as the former.

THE third kind are the guineos, leſs than either of the former, but far more palatable, tho' not reckoned ſo wholſome by the natives, on account of their ſuppoſed heat. They ſeldom exceed four inches in length, and their rind, when ripe, is yellower, ſmoother and brighter, than that of the two other kinds; the kernel is equally good and pleaſant with the pulp. The cuſtom of the country is to drink water after eating them; but the European ſailors, a ſet of people who will not be confined in their diet, but drink brandy with every thing they eat, make no difference between this fruit and any other; and to this intemperance may in ſome meaſure be attributed the many diſeaſes with which they are attacked in this country, and not a few ſudden deaths; which are, indeed, apt to raiſe, in the ſurvivors concern for their companions for the preſent; but they ſoon return to the ſame exceſſes, not remembring or rather chooſing to forget the melancholy conſequences.

BY what we could diſcover, it is not the quality of the brandy, which proves ſo pernicious, but the quantity; ſome of our company making the experiment of drinking ſparingly of this liquor after eating the guineos, and repeating it ſeveral times without the leaſt inconvenience. One method of dreſſing them, among ſeveral others, is to roaſt them in their rind,

rind, and afterwards ſlice them, adding a little brandy and ſugar to give them a firmneſs. In this manner we had them every day at our table, and the Creoles themſelves approved of them.

THE papayas are from ſix to eight inches in length, and reſemble a lemon in ſhape, except that towards the ſtalk they are ſomewhat leſs than at the other extremity. Their rind is always green, the pulp white, very juicy but ſtringy, and the taſte a gentle acid, but not pungent. This is the fruit of a tree, and not like the pine-apple and platano, the product of a plant. The guayaba and the following are alſo the fruit of trees.

THE guanabana approaches very near the melon, but its rind is much ſmoother, and of a greeniſh colour. Its pulp is of a yellowiſh caſt like that of ſome melons, and not very different in taſte. But the greateſt diſtinction between theſe two fruits is a nauſeous ſmell in the guanabana. The ſeed is round, of a ſhining dark colour, and about two lines in diameter. It conſiſts of a very fine tranſparent pellicle, and a kernel ſolid and juicy. The ſmell of this little ſeed is much ſtronger and more nauſeous. The natives ſay, that by eating this ſeed nothing is to be apprehended from the fruit, which is otherwiſe accounted heavy and hard of digeſtion; but tho' the ſeed has no ill taſte, the ſtomach is offended at its ſmell.

The ſapotes are round, and about two inches in circumference, the rind very thin and eaſy detached from the fruit. The colour of it is brown, ſtreaked with red. The fleſh is of a bright red with little juice, viſcid, fibrous and compact. It cannot be claſſed among the moſt delicious fruits, tho' its taſte is not diſagreeable. It contains a few ſeeds, which are hard and oblong.

THE mameis are of the ſame colour with the ſapotes, except that the brown is ſomething lighter. Their rind alſo requires the aſſiſtance of a knife to ſeparate it. The fruit is very much like the brunion plum, but more ſolid, leſs juicy, and in colour more lively. The ſtone is proportioned to the largeneſs of the fruit, which is betwixt three or four inches in diameter, almoſt circular in ſhape, but with ſome irregularities. The ſtone is an inch and a half in length, and its breadth in the middle where it is round, one inch. Its external ſurface is ſmooth and of a brown colour, except on one ſide where it is vertically croſſed by a ſtreak reſembling the ſlice of a melon in colour and ſhape. This ſtreak has neither the hardneſs nor ſmooothneſs of the reſt of the ſurface of the ſtone, which ſeems in this place covered and ſomething ſcabrous.

THE coco is a very common fruit and but little esteemed, all the use made of it being to drink the juice whilst fluid before it begins to curdle. It is, when first gathered, full of a whitish liquor as fluid as water, very pleasant and refreshing. The shell which covers the coco nut, is green on the outside and white within; full of strong fibres, traversing it on all sides in a longitudinal direction, but are easily separated with a knife. The coco is also whitish at that time, and not hard; but as the consistency of its pulp increases, the green colour of its shell degenerates into yellow. As soon as the kernel has attained its maturity, this dries, and changes to a brown colour; then becomes fibrous, and so compact as not to be easily opened and separated from the coco, to which some of those fibres adhere. From the pulp of these cocos is drawn a milk like that of almonds, and at Carthagena is used in dressing rice.

THO' lemons of the kind generally known in Europe, and of which such quantities are gathered in some parts of Spain, are very scarce, yet there are such numbers of another kind called sutiles, or limes, that the country is in a manner, covered with the trees that produce them, without care or culture. But the tree and its fruit are both much less than those of Spain, the height of the former seldom exceeding eight or ten feet; and from the bottom, or a little above, divides into several branches, whose regular expansion forms a very beautiful tuft. The leaf, which is of the same shape with that of the European lemon, is less but smoother; the fruit does not exceed a common egg in magnitude; the rind very thin; and it is more juicy in proportion than the lemon of Europe, and infinitely more pungent and acid; on which account the European physicians pronounce it detrimental to health; tho' in this country it is a general ingredient in their made dishes. There is one singular use which this fruit is applied to in cookery. It is a custom with the inhabitants not to lay their meat down to the fire above an hour at farthest, before dinner or supper; this is managed by steeping it for some time in the juice of these limes, or squeezing three or four according to the quantity of meat into the water, if they intend boiling, by which means the flesh becomes so softened as to admit of being thoroughly dressed in this short space of time. The people here value themselves highly on this preparative, and laugh at the Europeans for spending a whole morning about what they dispatch so very expeditiously.

THIS country also abounds in tamarinds; a large branchy tree, the leaf of which is a deep green. The pods are of a middle

middle size, and flat; the pulp of a dark-brown colour, a pleasant taste, very fibrous, and is called by the same name as the tree itself. In the middle of the pulp is a hard seed, or stone, six or eight lines in length, to two in breadth. Its taste is an acid sweetness, but the acid predominates, and is only used when dissolved in water as a cooling liquor, and then but moderately, and not for many days successively; its acidity and extreme coldness weakening and debilitating the stomach.

ANOTHER fruit called mani, is produced by a small plant. It is of the size and shape of a pine-cone; and eaten either roasted or as a conserve. Its quality is directly opposite to that of the former, being hot in the highest degree; and, consequently, not very wholesome in this climate.

THE products which are not natural here, besides wheat, barley, and other grain, are grapes, almonds, and olives; consequently the country is destitute of wine, oil, and raisins, with which they are supplied from Europe; but this necessarily renders them very dear, and sometimes they are not to be had at any price. When this is the case with regard to wine, great numbers suffer in their health; for, as all those who do not accustom themselves to drink brandy at their meals, which are far the greatest number, except the Negroes, being used to this wine, their stomachs for want of it lose their digestive faculty, and thence are produced epidemical distempers. This was an unhappy circumstance at our arrival, when wine was so extremely scarce, that mass was said only in one church.

THE want of oil is much more tolerable; for in dressing either fish or flesh, they use hog's lard, of which they have so great a quantity, as to make it an ingredient in their soop, which is very good, and, considering the country, not at all dear: instead of lamps too, they use tallow candles; so that they want oil only for their sallads.

FROM such plenty of flesh, fowl, and fruits, an idea may be formed of the luxuriancy of the tables in this country; and indeed, in the houses of persons of wealth and distinction, they are served with the greatest decency, and even splendor. Most of the dishes are dressed in the manner of this country, and differ considerably from those of Spain; but some of them are so delicate, that foreigners are no less pleased with them, than the gentlemen of the country. One of their favourite dishes is the agi-aco, there being scarcely a genteel table without it; doubtless a proper mixture of its several ingredients, cannot fail of making an excellent ragout. It consists of pork fried, birds of

ſeveral kinds, plantains, maize paſte, and ſeveral other things highly ſeaſoned with what they call pimento, or aji.

THE inhabitants of any figure generally make two meals a day, beſides another light repaſt. That in the morning, their breakfaſt is generally compoſed of ſome fried fiſh, paſtry of maize flour, and things of that nature, followed by chocolate. Their dinner conſiſts of a much greater variety; but at night the regale is only of ſweetmeats and chocolate. Some families, indeed, affect the European cuſtom of having regular ſuppers, tho' they are generally looked upon at Carthagena as detrimental to health. We found, however, no difference as to ourſelves; and poſſibly the ill effects flow from exceſs in the other meals.

CHAP. IX.

Of the trade of Carthagena, *and other countries of* America, *on the arrival of the gallions, and other* Spaniſh *ſhips.*

THE bay of Carthagena is the firſt place in America at which the gallions are allowed to touch, and thus it enjoys the firſt fruits of commerce, by the public ſales made there. Theſe ſales, tho' not accompanied with the formalities obſerved at Porto Bello fair, are very conſiderable. The traders of the inland provinces of Santa Fe, Popayan, and Quito, lay out not only their own ſtocks, but alſo the monies entruſted to them by commiſſions, for ſeveral ſorts of goods, and thoſe ſpecies of proviſions which are moſt wanted in their reſpective countries. The two provinces of Santa Fe and Popayan, have no other way of ſupplying themſelves with the latter, than from Carthagena. Their traders bring gold and ſilver in ſpecie, ingots, and duſt, and alſo emeralds; as beſides the ſilver mines worked at Santa Fe, and which daily increaſe by freſh diſcoveries, there are others which yield the fineſt emeralds. But the value of theſe gems being now fallen in Europe, and particularly in Spain, the trade of them, formerly ſo conſiderable, is now greatly leſſened, and conſequently the reward for finding them. All theſe mines produce great quantities of gold, which is carried to Choco, and there pays one fifth to the king, at an office erected for that purpoſe.

THIS commerce was for ſome years prohibited, at the ſolicitation of the merchants of Lima, who complained of the great damages they ſuſtained by the tranſportation of European merchandizes from Quito to Peru, which being thus furniſhed,

ed, while the traders of Lima were employed at the fairs of Panama and Porto Bello, at their return they found, to their great loſs, the price of goods very much lowered. But it being afterwards conſidered, that reſtraining the merchants of Quito and other places, from purchaſing goods at Carthagena, on the arrival of the gallions, was of great detriment to thoſe provinces; it was ordered, in regard to both parties, that on notice being given in thoſe provinces, of the arrival of the gallions at Carthagena, all commerce with regard to European commodities, ſhould ceaſe between Quito and Lima, and that the limits of the two audiences ſhould be thoſe of their commerce. That is, that Quito ſhould not trade beyond the territories of Loja and Zamora; nor Lima beyond thoſe of Piura, one of the juriſdictions of its audience. By this equitable expedient, thoſe provinces were in time ſupplied with the goods they wanted, without any detriment to the trade of Peru. This regulation was firſt executed in 1730, on the arrival of the ſquadron commanded by Don Manuel Lopez Pintado, who had orders from the king to place commerce on this footing, provided it bid fair to anſwer the intentions of both parties, and that no better expedient could be found. Accordingly this was carried into execution; being not only well adapted to the principal end, but alſo during the ſtay of the gallions at Carthagena, procured buſineſs for the Cargadores*, in the ſale of their goods; and thus made themſelves ample amends for their expences.

During the prohibition, the merchants of Carthagena were obliged to have recourſe to the Flotila of Peru, in their courſe from Guayaquil to Panama; or to wait the return of the gallions to Carthagena, and, conſequently, purchaſe only the refuſe of Porto Bello fair; both which were doubtleſs conſiderable grievances to them. If they purſued the firſt, they were obliged to travel a-croſs the whole juriſdiction of Santa Fe to Guayaquil, which was a journey of above four hundred leagues, with conſiderable ſums of money, which having diſpoſed of in merchandizes, the charges of their return were ſtill greater. In fine, the loſſes inevitable in ſuch a long journey, where rapid rivers, mountains, and bridges were to be croſſed, and their merchandizes expoſed to a thouſand accidents, rendered this method utterly impracticable; ſo that they were obliged to content themſelves with the remains of the fair; tho' it was very uncertain whether theſe would be ſufficient to anſwer the demand. Beſides, the inland merchants ran the hazard of not meeting at Carthagena with goods ſufficient in quality

* Perſons who bring European goods for ſale.

lity and quantity to anſwer their charges; and were ſometimes actually obliged to return with the money, and the vexation of a fruitleſs, tho' expenſive journey. These inconveniencies produced a repeal of the prohibition, and commerce was placed on the preſent equitable footing.

THIS little fair at Carthagena, for ſo it may be called, occaſions a great quantity of ſhops to be opened, and filled with all kinds of merchandize; the profit partly reſulting to Spaniards who come in the gallions, and are either recommended to, or are in partnerſhip with the Cargadores; and partly to thoſe already ſettled in that city. The Cargadores furniſh the former with goods, tho' to no great value, in order to gain their cuſtom; and the latter, as perſons whom they have already experienced to be good men; and both in proportion to the quickneſs of their ſale. This is a time of univerſal profit; to ſome by letting lodgings and ſhops, to ſome by the increaſe of their reſpective trades, and to others by the labour of their negro ſlaves, whoſe pay alſo is proportionally increaſed, as they do more work in this buſy time. By this briſk circulation thro' all the ſeveral ranks, they procure not only a ſufficiency for providing themſelves with all neceſſaries, but alſo money remaining; and it is not uncommon for ſlaves, out of their ſavings, and after paying their maſters the daily tribute, and providing themſelves with neceſſaries, to purchaſe their freedoms.

THIS affluence alſo extends to all the neighbouring villages, eſtancias, and the moſt wretched chacaras, of this juriſdiction; for by the increaſe of ſtrangers to a fourth, third, and ſometimes one half, of the uſual number of people, the conſumption, and conſequently the price of proviſions, advances, which is of courſe no ſmall advantage to thoſe who bring them to market.

THIS commercial tumult laſts only while the gallions continue in the bay; for they are no ſooner gone, than ſilence and tranquillity reſume their former place. This the inhabitants of Carthagena call tiempo muerto, the dead time; for with regard to the trade carried on with the other governments, it is not worth notice. The greateſt part of it conſiſts in ſome billanders from La Trinidad, the Havanah, and St. Domingo, bringing leaf-tobacco, ſnuff, and ſugars; and returning with Magdalena cacao, earthen ware, rice, and other goods wanted in thoſe iſlands. And even of theſe ſmall veſſels, one is ſcarce ſeen for two or three months. The ſame may be ſaid of thoſe which go from Carthagena to Nicaragua, Vera Cruz, Honduras, and other parts; but the moſt frequent

trips

trips are made to Porto Bello, Chagra, or Santa Martha. The reason why this commerce is not carried on more briskly, is, that most of these places are naturally provided with the same kind of provisions; and consequently are under no necessity of trafficking with each other.

ANOTHER branch of the commerce of Carthagena, during the tiempo muerto, is carried on with the towns and villages of its jurisdiction, from whence are brought all kinds of necessaries, and even the luxuries of life, as maize, rice, cotton, live hogs, tobacco, plantanes, birds, casava, sugar, honey, and cacao, most of which is brought in canoes and champanas, a sort of boats very proper for rivers. The former are a kind of coasters, and the latter come from the rivers Magdalena, Sinu, and others. Their returns consist of goods for apparel, with which the shops and warehouses furnish themselves from the gallions, or from prizes taken on the coast by the king's frigates, or privateers.

NO eatable pays any duty to the king; and every person may, in his own house, kill any number of pigs he thinks he shall sell that day; no salted pork being eat here, and the excessive heat soon corrupts it. All imports from Spain, as brandy, wine, oil, almonds, raisins, pay a duty, and are afterwards sold without any farther charge, except what is paid by retailers as a tax for their shop or stall.

BESIDES these goods which keep alive this slender inland commerce, here is an office for the assiento of Negroes, whither they are brought, and, as it were, kept as pledges, till such persons as want them on their estates come to purchase them; Negroes being generally employed in husbandry, and other laborious country works. This indeed gives some life to the trade of Carthagena, tho' it is no weighty article. The produce of the royal revenues in this city, not being sufficient to pay and support the governor, garrison, and a great number of other officers, the deficiency is remitted from the treasurers of Santa Fe, and Quito, under the name of Situado, together with such monies as are requisite for keeping up the fortifications, furnishing the artillery, and other expences necessary for the defence of the place and its forts.

VOYAGE FROM CARTHAGENA TO PORTO BELLO.

BOOK II.

CHAP. I.

General winds and currents between Carthagena *and* Porto Bello.

WHEN the French frigate had watered, and was ready for ſailing, we embarked on board her, on the 24th of November, 1735; the next day we put to ſea, and on the 29th of the ſame month, at half an hour after five in the evening, came to an anchor at the mouth of Porto Bello harbour in fourteen fathom water, caſtle Todo Fierro, or the iron caſtle, bearing N. E. four degrees northerly; and the ſouth point of the harbour eaſt one quarter northerly. The difference of longitude between Carthagena and Punta de Nave, we found to be 4° 24′.

We had ſteered W. N. W. and W. one quarter northerly, till the ſhip was obſerved to be in the eleventh degree of latitude, when we ſtood to the weſt. But when our difference of longitude from Carthagena was 3° 10′. we altered our courſe to S. W. and S. a quarter weſterly, which, as already obſerved, on the 29th of November, at five in the evening, brought us in ſight of Punta de Nave, which being ſouth of us, we were obliged to make ſeveral tacks, before we could get into the harbour.

IN this paſſage we met with freſh gales. The two firſt days at north, quarter eaſterly, and the other days till we made the land

land at N. E. a high ſea running the whole time. But we were no ſooner in ſight of Punta de Nave, than it became calm, and a breeze from the land ſprung up, which hindered us from getting that day into the harbour. It alſo continued contrary on the 30th, but by the help of our oars, and being towed, we got at laſt to the anchoring place, where we went on ſhore, with our baggage and inſtruments neceſſary for beginning our obſervations. But this being the moſt proper place for mentioning the winds which prevail in this paſſage, along the coaſt, and that of Carthagena, we ſhall beſtow ſome paragraphs on them.

THERE are two ſorts of general winds on theſe coaſts, the one called briſas, which blow from the N. E. and the other called vendabales, which come from the W. and W. S. W. The former ſet in about the middle of November, but are not ſettled till the beginning or middle of December, which is here the ſummer, and continue blowing freſh and invariable till the middle of May; they then ceaſe, and are ſucceeded by the vendabales, but with this difference, that theſe do not extend farther than 12 or 12½ degrees of latitude; beyond which the briſas conſtantly reign, tho' with different degrees of ſtrength, and veer ſometimes to the eaſt, and at other times to the north.

THE ſeaſon of the vendabales is attended with violent ſtorms of wind and rain, but are ſoon over, and ſucceeded by a calm equally tranſitory; for the wind gradually freſhens, eſpecially near the land, where theſe phænomena are more frequent. The ſame happens at the end of October and beginning of November, the general winds not being ſettled.

IN the ſeaſon of the briſas, the currents as far as 12° or 12° 30′ of latitude ſet to the weſtward, but with leſs velocity than uſual at the changes of the moon, and greater at the full. But beyond that latitude, they uſually ſet N. W. Tho' this muſt not be underſtood without exception; as, for inſtance, near iſlands or ſhoals, their courſe becomes irregular: Sometimes they flow thro' long channels; and ſometimes they are met by others; all which proceeds from their ſeveral directions, and the bearings of their coaſts; ſo that the greateſt attention is neceſſary here, the general accounts not being ſufficient to be relied on; for tho' they have been given by pilots who have for twenty or thirty years, uſed this navigation, in all kinds of veſſels, and therefore have acquired a thorough knowledge, they themſelves confeſs that there are places where the currents obſerve no kind of regularity, like thoſe we have mentioned.

WHEN

When the brisas draw near their period, which is about the beginning of April, the currents change their course, running to the eastward for eight, ten, or twelve leagues from the coast, and thus continue during the whole season of the vendabales; on which account, and the winds being, at this season, contrary for going from Carthagena to Porto Bello, it is necessary to sail to 12 or 13 degrees of latitude, or even sometimes farther; when, being without the verge of those winds, the voyage is easily performed.

While the brisas blow strongest, a very impetuous current sets into the gulph of Darien; and out of it during the season of the vendabales. This second change proceeds from the many rivers which discharge themselves into it, and at that time being greatly swelled by the heavy rains peculiar to the season; so that they come down with such rapidity, as violently to propel the water out of the gulph. But in the season of the brisas these rivers are low and so weak, that the current of the sea overcomes their resistance, fills the gulph, and returns along the windings of the coast.

CHAP. II.

Description of the town of St. Philip de Porto Bello.

The town of St. Philip de Porto Bello, according to our observations, stands in 9° 34′, 35″ north latitude; and by the observations of father Fevillee, in the longitude of 277° 50′, from the meridian of Paris, and 296° 41′ from the Pico of Teneriffe. This harbour was discovered on the 2d of November 1502, by Christopher Columbus, who was so charmed with its extent, depth, and security, that he gave it the name of Porto Bello, or the fine harbour. In the prosecution of his discoveries he arrived at that which he called Bastimentos, where, in 1510, was founded by Diego de Niqueza, the city Nombre de Dios, 'the name of God;' so called from the commander having said to his people on his landing, "here we "will make a settlement in the name of God," which was accordingly executed. But this place was, in its infancy, entirely destroyed by the Indians of Darien. Some years after, however, the settlement was repaired, and the inhabitants maintained their ground till 1584, when orders arrived from Philip II. for their removing to Porto Bello; as much better situated for the commerce of that country.

Porto Bello was taken and plundered by John Morgan, a famous

famous English adventurer, who infested those seas; but in consideration of a ransom spared the forts and houses.

The town of Porto Bello stands near the sea, on the declivity of a mountain which surrounds the whole harbour. Most of the houses are built of wood. In some the first story is of stone, and the remainder of wood. They are about 130 in number, but most of them large and spacious. The town is under the jurisdiction of a governor, with the title of lieutenant-general, as being such under the president of Panama, and the term of his post is without any specified limitation. He is always a gentleman of the army, having under him the commandants of the forts that defend the harbour, and whose employments are for life.

It consists of one principal street, extending along the strand, with other smaller crossing it, and running from the declivity of the mountain to the shore, together with some lanes, in the same direction with the principal street, where the ground admits of it. Here are two large squares; one opposite to the custom-house, which is a structure of stone, contiguous to the quay; the other faces the great church, which is also of stone, large, and decently ornamented, considering the smallness of the place. It is served by a vicar and some other priests who are natives of the country.

Here are also two other churches, one called Nuestra Signora de la Merced, with a convent of the same order, the other St. Juan de Dios, which, tho' it bears the title of an hospital, and was founded as such, is very far from being so in reality. The church of la Merced is of stone, but very mean, and ruinous, like the convent which is also decayed; so that wanting the proper conveniencies for the religious to reside in, they live in the town dispersed in private houses.

That of St. Juan de Dios, is only a small building like an oratory, and not in better condition than that of la Merced. Its whole community consists of a prior, chaplain and another religious, and sometimes even of less. So that its extent is very small, since, properly speaking it has no community; and the apartment intended for the reception of patients, consists only of one chamber open to the roof, without beds or other necessaries. Nor are any admitted but such as are able to pay for their treatment and diet. It is therefore of no advantage to the poor of the place; but serves for lodging sick men belonging to the men of war which come hither, being provided with necessaries from the ships, and attended by their respective surgeons, lodging room being the only thing afforded them by this nominal hospital.

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At the eaſt end of the town, which is the road to Panama, is a quarter called Guinea, being the place where all the Negroes of both ſexes, whether ſlaves or free have their habitations. This quarter is very much crowded when the gallions are here, moſt of the inhabitants of the town entirely quitting their houſes for the advantage of letting them, while others content themſelves with a ſmall part in order to make money of the reſt. The Mulatoes and other poor families, alſo, remove, either to Guinea, or to cottages already erected near it, or built on this occaſion. Great number of artificers from Panama likewiſe, who flock to Porto Bello to work at their reſpective callings, lodge in this quarter for cheapneſs.

Towards the ſea, in a large tract between the town and Gloria caſtle, barracks are alſo erected, and principally filled with the ſhips crews; who keep ſtalls of ſweetmeats, and other kind of eatables brought from Spain. But at the concluſion of the fair, the ſhips put to ſea, and all theſe buildings are taken down, and the town returns to its former tranquillity and emptineſs.

By an experiment we made with the barometer in a place a toiſe above the level of the ſea, the height of the mercury was found to be 27 inches 11 lines and a half.

CHAP. III.

Deſcription of Porto Bello *harbour.*

The name of this port indicates it being commodious for all ſorts of ſhips or veſſels, whether great or ſmall; and tho' its entrance is very wide, it is well defended by fort St. Philip de todo Fierro. It ſtands on the north point of the entrance, which is about 600 toiſes broad, that is a little leſs than the fourth part of a league; and the ſouth ſide being full of riſes of rocks, extending to ſome diſtance from the ſhore, a ſhip is obliged to ſtand to the north, tho' the deepeſt part of the channel is in the middle of the entrance, and thus continues in a ſtrait direction, having 9, 10 or 15 fathom water, and a bottom of clayey mud mixed with chalk and ſand.

On the ſouth ſide of the harbour, and oppoſite to the anchoring place is a large caſtle, called Sant Jago de la Gloria, to the eaſt of which, at the diſtance of about an hundred toiſes, begins the town, having before it a point of land projecting into the harbour. On this point ſtood a ſmall fort called St. Jerom, within ten toiſes of the houſes. All theſe were demoliſhed by the Engliſh admiral Vernon, who with a nume-

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rous naval force*, in 1739 made himself master of this port; having found it so unprovided with every thing, that the greatest part of the artillery, especially that of the castle todo Fierro, or iron castle, was dismounted for want of carriages, part of the few military stores unserviceable, and the garrison short of its compliment even in time of peace. The governor of the city, Don Bernardo Gutierrez de Bocanegra, was also absent at Panama, on some accusation brought against him. Thus the English fleet, meeting with no resistance, easily succeeded in their design upon this city, which surrendered by capitulation.

The anchoring place for the large ships, is N. W. of Gloria castle, which is nearly the center of the harbour; but lesser vessels, which come farther up, must be careful to avoid a sand bank, lying 150 toises from St. Jerom's fort, or point, bearing from it W. one quarter northerly; and on which there is only a fathom and a half, or, at most, two fathom water.

NORTH-WEST of the town is a little bay, called la Caldera, or the kettle, having four fathom and a half water; and is a very proper place for careening ships and vessels, as besides its depth, it is perfectly defended from all winds. In order to go into it, you must keep pretty close to the western shore, till about a third part of the breadth of the entrance where you will have five fathom water, (whilst on the eastern side of the same entrance there is not above two or three feet) and then steer directly towards the bottom of the bay. When the ships are in they may moor with four cables east and west, in a small bason, formed by the Caldera; but care must be taken to keep them always on the western side.

NORTH-EAST of the town is the mouth of a river called Cascajal, which affords no fresh water within a quarter of a league or upwards from its mouth; and it is not uncommon to see in it Caymanes, or alligators.

THE tides here are very irregular, and in this particular, as well as that of the winds, there is no difference between this harbour, and that of Carthagena; except that here the ships must always be towed in, being either be calmed, or the wind directly against them.

FROM several observations we made, both by the pole star, and the sun's azimuth, we found the variation of the needle in this harbour to be 8° 4′ easterly.

AMONG the mountains which surround the whole harbour of Porto Bello, beginning from St. Philip de todo Fierro, or the iron castle, (which is situated on their declivity) and without

* The numerons naval force, mentioned by our author, consisted we know of six ships only.

out any decrease of height, extends to the opposite point, one is particularly remarkable by it's superior loftiness, as if designed to be the barometer of the country; by foretelling every change of weather. This mountain distinguished by the name of Capiro, stands at the utmost extremity of the harbour, in the road to Panama. It's top is always covered with clouds of a density and darkness seldom seen in those of this atmosphere; and from these which are called the capillo or cap, has possibly been corruptly formed the name of Monte Capiro. When these clouds thicken, increase their blackness, and sink below their usual station, it is a sure sign of a tempest. While, on the other hand, their clearness and ascent, as certainly indicate the approach of fair weather. It must, however, be remembered that these changes are very frequent, and very subitaneous. It is also seldom that the summit is ever observed clear from clouds, and when this does happen it is only as it were, for an instant.

THE jurisdiction of the lieutenant general, governor of Porto Bello, is limited to the town and the forts; the neighbouring country, over which it might be extended, being full of mountains covered with impenetrable forests, except a few valleys, in which are thinly scattered some farms or Haciendas; the nature of the country not admitting of any further improvements.

CHAP. IV.

Of the climate of Porto Bello, *and the distempers which prove so fatal to the crews of the gallions.*

THE inclemency of the climate of Porto Bello, is sufficiently known all over Europe. Not only strangers who come thither are affected by it, but even the natives themselves suffer in various manners. It destroys the vigour of nature, and often untimely cuts the thread of life. It is a current opinion, that formerly, and even not above 20 years since, parturition was here so dangerous, that it was seldom any woman did not die in childbed: As soon therefore as they had advanced three or four months in their pregnancy they were sent to Panama, where they continued till the danger of their delivery was past: A few, indeed, had the firmness to wait their destiny in their own houses; but much the greater number thought it most adviseable, to undertake the journey, troublesome as it was, than to run so great a hazard of their lives.

THE excessive love which a lady of this town had for her husband

husband, blended with a dread that he would forget her during her absence, his employment not permitting him to accompany her to Panama, determined her to set the first example of acting contrary to this general custom. The reasons for her fear were sufficient to justify her resolution to run the risk of a probable danger, in order to avoid an evil which she knew to be certain, and must have embittered the whole remainder of her life. The event was happy; she was delivered, and recovered her former health; and the example of a lady of her rank did not fail of inspiring others with the like courage, though not founded on the same reasons; till by degrees, the dread which former melancholy cases had impressed on the mind, and gave occasion to this climate's being considered as fatal to pregnant women, was intirely dispersed.

ANOTHER opinion equally strange, is, that the animals from other climates, on their being brought to Porto-Bello, cease to procreate. The inhabitants bring instances of hens brought from Panama or Carthagena, which immediately on their arrival grew barren, and laid no more eggs; and even at this very time, the horned cattle, sent from Panama, after they have been here a small time, lose their flesh in such a manner as not to be eatable; tho' they do not want for plenty of good pasture. It is certain that there are no horses or asses bred here, which tends to confirm the opinion that this climate checks the generation of creatures produced in a more benign or less noxious air. However, not to rely on the common opinion, we enquired of some intelligent persons, who differed but very little from the vulgar, and even confirmed what they asserted, by many known facts, and experiments performed by themselves.

THE liquor in Mr. Reamur's thermometer, on the 4th of December, 1735, at six in the morning stood at 1021, and at noon rose to 1023.

THE heat here is excessive, being augmented by the situation of the town, which is surrounded with high mountains, without any interval for the winds, whereby it might be refreshed. The trees on the mountains stand so thick, as to intercept the rays of the sun; and, consequently, hinder them from drying the earth under their branches; hence copious exhalations, which form large clouds, and precipitate in violent torrents of rain; but these are no sooner over, than the sun breaks forth afresh, and shines with his former splendor; tho' scarce has the activity of his rays dried the surface ot the ground, not covered by the trees, than the atmosphere is again crowded by another collection of thick vapours, and the sun again concealed;

cealed; and in this manner it continues during the whole day: the night is alſo ſubject to the like viciſſitudes; but without the leaſt diminution of the heat in either.

THESE torrents of rain, which by their ſuddenneſs and impetuoſity, ſeem to threaten a ſecond deluge, are accompanied with ſuch tempeſts of thunder and lightning, as muſt daunt even the moſt reſolute; and this dreadful noiſe is prolonged by repercuſſions from the caverns of the mountains, like the exploſion of a cannon, the rumbling of which is heard for a minute after. To this may alſo be added the howlings and ſhrieks of the multitudes of monkeys of all kinds which live in the foreſts of the mountains, and which are never louder, than when a man of war fires the morning and evening gun, tho' they are ſo much uſed to it.

THIS continual inclemency, added to the fatigue of the ſeamen in unloading the ſhips, carrying the goods on ſhore in barges, and afterwards drawing them along on ſledges, cauſe a very profuſe tranſpiration, and conſequently render them weak and faint; and they, in order to recruit their ſpirits, have recourſe to brandy, of which there is, on theſe occaſions, an incredible conſumption. The exceſſive labour, immoderate drinking, and the inclemency and unhealthfulneſs of the climate, muſt jointly deſtroy the beſt conſtitutions, and produce thoſe deleterious diſeaſes ſo common in this country. They may well be termed deleterious, for the ſymptoms of all are fatal, the patients being too much attenuated to make any effectual reſiſtance; and hence epidemics, and mortal diſtempers are ſo very common.

BUT it is not the ſeamen alone who are ſubject to theſe diſeaſes, others who are ſtrangers to the ſeas, and not concerned in the fatigues, are alſo attacked by them; and, conſequently, is a ſufficient demonſtration that the other two are only collateral, tho' they tend both to ſpread and inflame the diſtemper; it being evident, that when the fluids are diſpoſed to receive the ſeeds of the diſtemper, its progreſs is more rapid, and its attacks more violent. On ſome occaſions, phyſicians have been ſent for from Carthagena, as being ſuppoſed to be better acquainted with the propereſt methods of curing the diſtempers of this country, and, conſequently, more able to recover the ſeamen; but experience has ſhewn, that this intention has been ſo little anſwered, that the gallions or other European ſhips, which ſtay any time here, ſeldom leave it, without burying half, or at leaſt one third of their men; and hence this city has, with too much reaſon, been termed the grave of the Spaniards; but it may with much greater propriety be applied to

thoſe

those of other nations, who visit it. This remark was sufficiently confirmed by the havock made among the English, when a fleet of that nation, in the year 1726, appeared before the port, with a view of making themselves masters of the treasure, brought thither from all parts to the fair held at the arrival of the gallions, which, at that time, by the death of the marquis Grillo, were commanded by Don Francisco Cornejo, one of those great officers whose conduct and resolution have done honour to the navy of Spain. He ordered the ships under his command to be moored in a line within the harbour; and erected on the entrance a battery, the care of which he committed to the officers of the ships; or rather, indeed, superintended it himself, omitting no precaution, but visited every part in person. These preparatives struck such a consternation into the English fleet, tho' of considerable force, that, instead of making any attempt, formed only a blockade, depending on being supplied with provisions from Carthagena, and that famine would at length oblige the Spaniards to give up what they at first intended to acquire by force; and when the admiral thought himself near the point of obtaining his ends, the inclemency of the season declared itself among his ships companies, sweeping away such numbers, that within a short time he was obliged to return to Jamaica, with the loss of above half his people.

But notwithstanding the known inclemency of the climate of Porto Bello, and its general fatality to the Europeans, the squadron of 1730 enjoyed there a good state of health, tho' the fatigues and irregularities among the seamen were the same: nor was there any perceivable change in the air. This happy singularity was attributed to the stay of the squadron at Carthagena, where they passed the time of the epidemia, by which their constitutions were better adapted to this climate; and hence it appears, that the principal cause of these distempers, flows from the constitutions of the Europeans not being used to it; and thus they either die, or become habituated to it, like the natives, Creoles, and other inhabitants.

CHAP. V.

Account of the inhabitants and country about Porto Bello.

In several particulars there is no essential difference between Carthagena and Porto Bello, so that I shall only mention those peculiar to the latter; and add some observations tending to convey a more exact knowledge of this country.

THE number of the inhabitants of Porto Bello, by reason of its smallness, and the inclemency of its climate, is very inconsiderable, and the greatest part of these Negroes and Mulattos, there being scarce thirty white families; those who by commerce or their estates are in easy circumstances, removing to Panama. So that those only stay at Porto Bello, whose employments oblige them to it; as the governor or lieutenant-general, the commanders of the forts, the civil officers of the crown, the officers and soldiers of the garrisons, the alcaldes in office, and of the harmandad, and the town-clerk. During our stay here the garrisons of the forts consisted of about 125 men, being detachments from Panama; and these, tho' coming from a place so near, are affected to such a degree, that in less than a month, they are so attenuated, as to be unable to do any duty, till custom again restores them to their strength. None of these, or of the natives of the country, above the Mulatto class, ever settle here, thinking it a disgrace to live in it. A certain proof of its unhealthiness, since those to whom it gave birth forsake it.

IN manners and customs, the inhabitants of Porto Bello resemble those of Carthagena, except that the latter are more free and generous, those in the parts round Porto Bello being accused of avarice; a vice indeed natural to all the inhabitants of these countries.

PROVISIONS are scarce at Porto Bello, and consequently dear; particularly during the time of the gallions and the fair; when there is a necessity for a supply from Carthagena, and Panama. From the former are brought maize, rice, casava, hogs, poultry, and roots; and from the latter, cattle. The only thing in plenty here is fish, of which there is a great variety and very good. It also abounds in sugar canes, so that the chacaras, or farm-houses, if they may be so called, are built of them. They have also ingenios for making sugar and molasses, and from the latter brandy.

FRESH water pours down in streams from the mountains, some running without the town, and others crossing it. These waters are very light and digestive, and, in those who are used to them, good to create an appetite; qualities which in other countries would be very valuable, are here pernicious. This country seems so cursed by nature, that what is in itself good, becomes here destructive. For doubtless this water is too fine and active for the stomachs of the inhabitants; and thus produces dysenteries, the last stage of all other distempers, and which the patient very seldom survives. These rivulets, in their descent from the mountains, form little reservoirs, or ponds,

ponds, whose coolness is increased by the shade of the trees, and in these all the inhabitants of the town bathe themselves constantly every day at eleven in the morning; and the Europeans fail not to follow an example, so pleasant and conducive to health.

As these forests almost border on the houses of the town, the tigers often make incursions into the streets, during the night, carrying off fowls, dogs, and other domestic creatures; and sometimes even boys have fallen a prey to them; and it is certain that ravenous beasts, which provide themselves with food in this manner, are afterwards known to despise what the forests afford, and that after tasting human flesh, they slight that of beasts. Besides the snares usually laid for them, the Negroes and Mulattos, who fell wood in the forests of the mountains, are very dextrous in encountering the tiger; and some, even on account of the slender reward, seek them in their retreats. The arms in this combat, seemingly so dangerous, are only a lance, of two or three yards in length, made of a very strong wood, with the point of the same hardened in the fire, and a kind of cimeter about three quarters of a yard in length. Thus armed they stay till the creature makes an assault on the left arm, which holds the lance, and is wrapped up in a short cloak of bays. Sometimes the tiger, aware of the danger, seems to decline the combat; but his antagonist provokes him with a slight touch of the lance, in order, while he is defending himself, to strike a sure blow; for as soon as the creature feels the lance, he grasps it with one of his paws, and with the other strikes at the arm which holds it. Then it is that the person nimbly aims a blow with his cimeter, which he kept concealed in the other hand, and hamstrings the creature, which immediately draws back enraged, but returns to the charge; when receiving another such stroke, is totally deprived of his most dangerous weapons, and rendered incapable of moving. After which the person kills him at his leisure, and stripping off the skin, cutting off the head, and the fore and hind feet, returns to the town, displaying these as the trophies of his victory.

Among the great variety of animals in this country, one of the most remarkable is the perico ligero, or nimble peter, an ironical name given it on account of its extreme sluggishness and sloth. It resembles a middling monkey in shape, but of a wretched appearance, the skin of it being of a greyish brown, and all over corrugated, and the legs and feet without any hair. He is so lumpish as not to stand in need of either chain or hutch, for he never stirs till compelled by hunger; and shews no manner of apprehension either of men or wild beasts. When he moves, every effort is attended with such a plaintive,

and at the ſame time ſo diſagreeable a cry, as at once produces pity and diſguſt; and this even in the ſlighteſt motion of the head, legs, or feet; proceeding probably from a general contraction of the muſcles and nerves of his body, which puts him to an extreme pain, when he endeavours to move them. In this diſagreeable cry conſiſts his whole defence; for, it being natural to him to fly at the firſt hoſtile approach of any beaſt, he makes at every motion ſuch howlings as are even inſupportable to his purſuer, who ſoon quits him and even flies beyond the hearing of his horrid noiſe. Nor is it only during the time he is in motion that he makes theſe cries; he repeats them while he reſts himſelf, continuing a long time motionleſs before he takes another march. The food of this creature is generally wild fruits, and when he can find none on the ground, looks out for a tree well loaded, which with a great deal of pains he climbs; and, in order to ſave himſelf ſuch another toilſome aſcent, plucks off all the fruit, throwing them on the ground; and to avoid the pain of deſcending the tree, forms himſelf into a ball, and drops from the branches. At the foot of this tree he continues till all the fruits are conſumed, never ſtirring till hunger forces him to ſeek again for food.

SERPENTS are here as numerous and deadly as at Carthagena; and toads innumerable, ſwarming not only in the damp and marſhy places, as in other countries, but even in the ſtreets, courts of houſes, and all open places in general. The great numbers of them, and their appearance after the leaſt ſhower, has induced ſome to imagine, that every drop of water becomes a toad; and tho' they alledge, as a proof, the extraordinary increaſe of them on the ſmalleſt ſhower, their opinion does not ſeem to me well founded. It is evident that theſe reptiles abound both in the foreſts and neighbouring rivers, and even in the town itſelf, and produce a prodigious quantity of animalcula, from whence, according to the beſt naturaliſts, theſe reptiles are formed. Theſe animalcula either riſe in the vapours, which form the rains, and falling together with it on the ground, which is extremely heated by the rays of the ſun; or being already depoſited in it by the toads, grow and become animated, in no leſs numbers than were formerly ſeen in Europe. But ſome of them which appear after rains, being ſo large as to meaſure ſix inches in length, they cannot be imagined the effect of an inſtantaneous production; I am therefore inclined to think, from my own obſervations, that this part of the country being remarkably moiſt, is very well adapted to nouriſh the breed of thoſe creatures, which love watery places; and therefore avoid thoſe parts of the ground expoſed

posed to the rays of the sun, seeking others where the earth is soft, and there form themselves cavities in the ground to enjoy the moisture; and as the surface over them is generally dry, the toads are not perceived; but no sooner does it begin to rain, than they leave their retreats to come at the water, which is their supreme delight; and thus fill the streets and open places. Hence the vulgar opinion had its rise, that the drops of rain were transformed into toads. When it has rained in the night, the streets and squares in the morning seem paved with these reptiles; so that you cannot step without treading on them, which sometimes is productive of troublesome bites; for besides their poison, they are large enough for their teeth to be severely felt. Some we have already observed to be six inches long, and this is, indeed, their general measure; and there are such numbers of them, that nothing can be imagined more dismal than their croakings, during the night, in all parts of the town, woods, and caverns of the mountains.

CHAP. VI.

Of the trade of Porto Bello.

THE town of Porto Bello, so thinly inhabited by reason of its noxious air, the scarcity of provisions, and the barrenness of its soil, becomes, at the time of the gallions, one of the most populous places in all South America. Its situation on the isthmus, betwixt the south and north sea, the goodness of its harbour, and its small distance from Panama, have given it the preference for the rendezvous of the joint commerce of Spain and Peru, at its fair.

ON advice being received at Carthagena, that the Peru fleet had unloaded at Panama, the gallions make the best of their way to Porto Pello, in order to avoid the distempers which have their source from idleness. The concourse of people on this occasion is such, as to raise the rent of lodgings to an excessive degree; a middling chamber with a closet lets, during the fair, for a thousand crowns, and some large houses for four, five, or six thousand.

THE ships are no sooner moored in the harbour, than the first work is to erect in the square a tent made of the ship's sails, for receiving its cargo; at which the proprietors of the goods are present, in order to find their bales, by the marks which distinguish them. These bales are drawn on sledges to their respective places, by the crew of every ship, and the money given them for this labour is proportionally divided.

WHILST the ſeamen and European traders are thus employed, the land is covered with droves of mules from Panama, each drove conſiſting of above an hundred, loaded with cheſts of gold and ſilver, on account of the merchants of Peru. Some unload them at the exchange, others in the middle of the ſquare; yet amidſt the hurry and confuſion of ſuch crouds, no theft, loſs, or diſturbance is ever known. He who has ſeen this place during the tiempo muerto, or dead time, ſolitary, poor, and a perpetual ſilence reigning every where; the harbour quite empty, and every place wearing a melancholy aſpect; muſt be filled with aſtoniſhment at the ſudden change, to ſee the buſtling multitudes, every houſe crouded, the ſquare and ſtreets encumbered with bales and cheſts of gold and ſilver of all kinds; the harbour full of ſhips and veſſels, ſome bringing by the way of Rio de Chape, the goods of Peru, as cacao, quinquina, or jeſuits bark, Vicuna wool, and bezoar ſtones; others coming from Carthagena, loaded with proviſions; and thus a ſpot, at all other times deteſted for its deleterious qualities, becomes the ſtaple of the riches of the old and new world, and the ſcene of one of the moſt conſiderable branches of commerce in the whole earth.

THE ſhips being unloaded, and the merchants of Peru, together with the preſident of Panama arrived, the fair comes under deliberation. And for this purpoſe the deputies of the ſeveral parties repair on board the commodore of the gallions, where, in preſence of the commodore and the preſident of Panama, the former as patron of the Europeans, and the latter of the Peruvians, the prices of the ſeveral kinds of merchandizes are ſettled; and all preliminaries being adjuſted in three or four meetings, the contracts are ſigned and made public, that every one may conform himſelf to them in the ſale of his effects. Thus all fraud is precluded. The purchaſes and ſales, as likewiſe the exchanges of money are tranſacted by brokers, both from Spain and Peru. After this every one begins to diſpoſe of his goods; the Spaniſh brokers imbarking their cheſts of money, and thoſe of Peru ſending away the goods they have purchaſed in veſſels called chatas and bongos, up the river Chagre; and thus the fair of Porto Bello ends.

FORMERLY this fair was limited to no particular time; but as a long ſtay, in ſuch a ſickly place, extremely affected the health of the traders, his catholic majeſty tranſmitted an order, that the fair ſhould not laſt above forty days, reckoning from that in which the ſhips came to an anchor in the harbour; and that if, in this ſpace of time, the merchants could not agree in their rates, thoſe of Spain ſhould be allowed to carry their goods up

up the country to Peru; and accordingly the commodore of the gallions has orders to reimbark them, and return to Carthagena; but otherwise, by virtue of a compact between the merchants of both kingdoms, and ratified by the king, no Spanish trader is to send his goods, on his own account, beyond Porto Bello; and, on the contrary, those of Peru cannot send remittances to Spain for purchasing goods there.

WHILST the English were permitted to send an annual ship, called navio de permisso, she used to bring to the fair a very large cargo on her own account, never failing first to touch at Jamaica, so that her loading alone was more than half of all those brought by the gallions; for besides, that her burthen so far exceeded five hundred Spanish tuns, that it was even more than nine hundred, she had no provisions, water, or other things, which fill a great part of the hold; she indeed took them in at Jamaica, from whence she was attended by five or six smaller vessels, loaded with goods, which when they arrived near Porto Bello were put on board her, and the provisions removed into the tenders; by which artifice that single Ship was made to carry more than five or six of the largest gallions; and this nation having a free trade, and selling cheaper than the Spaniards, that indulgence was of infinite detriment to the commerce of Spain.

IN the dead time, all the trade stirring here, consists in provisions from Carthagena; and cacao and quinquina, down the river Chagre: the former is carried in small vessels to Vera Cruz, and the quinquina either deposited in warehouses, or put on board ships, which, with permission, come from Spain to Nicaraqua, and Honduras; these ships also take in cacao. Some small vessels likewise come from the islands of Cuba, la Trinidad, and St. Domingo, and with cacao and rum.

WHILST the assiento of Negroes subsisted either with the French or English, one of their principal factories was settled here, and was of considerable advantage to its commerce, as being the channel by which not only Panama was supplied with Negroes, but from whence they were sent all over the kingdom of Peru: on which account the agents of the assiento were allowed to bring with them such a quantity of provisions as was thought necessary, both for their own use, and their slaves of both sexes.

VOYAGE

FROM

PORTO BELLO

TO

PANAMA;

Description of that city, and an account of the kingdom of TERRA FIRMA.

BOOK III.

CHAP. I.

Voyage up the Chagre, *and Journey from* Cruces *to* Panama *by land.*

AS it had always been our fixed design to stay no longer than absolutely necessary in any place, till we had answered the great end of our commission, our ardour to enter upon it, together with a desire of quitting this dangerous climate, induced us to make the utmost dispatch. In order to this we sent advice from Porto Bello, to Don Dionisio Martinez de la Vega, president of Panama, of our arrival, the motives of our voyage, and other circumstances, together with his majesty's orders relating to the assistance to be given us by all his officers; adding our requests that he would be pleased to send one or two of those vessels used on the Chagre, to bring us to Panama, it being impracticable for us to travel thither by land, as some of the Instruments were too large for the narrow craggy roads in many parts, and others of a nature not to be carried on mules. This gentleman, who has always shewn a remarkable zeal for every thing dignified with his majesty's name, was not in the least wanting on this occasion; and his polite answer,

ſwer, which fully anſwered our moſt ſanguine hopes, was followed by two veſſels, diſpatched to Porto Bello. Immediately on their arrival, we put on board the inſtruments and baggage belonging both to the French gentlemen and ourſelves; and on the 22d of December 1735, departed from Porto Bello.

THE land wind being contrary to us, we rowed out of Porto Bello harbour; but the briſas ſetting in at nine in the morning, both veſſels got under ſail, and a freſh gale, brought us, at four in the evening of the ſame day, to the mouth of the river Chagre, where we landed at the cuſtom-houſe; and the next day we began to row up the river.

ON the 24th we endeavoured to proceed in the ſame manner, but the force of our oars being too weak to ſtem the current, we were obliged to ſet the veſſels along with poles. At a quarter after one in the afternoon, we meaſured the velocity of the current, and found it ten toiſes and one foot in forty ſeconds and a half. In this ſlow toilſome manner we proceeded till the 27th at eleven in the morning, when we arrived at Cruces, the landing place, about five leagues diſtant from Panama. As we advanced up the river, we found a great increaſe in the velocity of the current, which on the 25th was ten toiſes in 26 ſeconds and a half: On the 26th at the place, where we anchored for that night, ten toiſes in fourteen ſeconds and a half; and on the 27th at the town of Cruces, the ſame ſpace in ſixteen ſeconds. Conſequently the greateſt velocity of the water is 283 toiſes, or about a league in an hour.

THIS river, which was formerly called Lagartos, from the number of aligators in it, tho' now better known by that of Chagre, has its ſcource in the mountains near Cruces. Its mouth, which is in the north ſea, in 9° 18′ 40″ N. latitude and 295° 6′ longitude, from the meridian of Teneriffe, was diſcovered by Lopez de Olano. Diego de Alvites diſcovered that part of it where Cruces is ſituated; but the firſt Spaniard who ſailed down it, to reconnoitre it to its month, was captain Hernando de la Serna, in the year 1527. Its entrance is defended by a fort ſituated on a ſteep rock on the eaſt ſide near the ſea ſhore. This fort is called San Lorenzo de Chagres, has a commandant, and a lieutenant, both appointed by his majeſty, and the garriſon is draughted from Panama.

ABOUT eight toiſes from the above fort, is a town of the ſame name. The houſes are principally of reeds, and the inhabitants Negroes, Mullattoes, and Meſtizos. They are a brave and active people, and on occaſion take up arms to the number of triple the uſual garriſon of the fort.

ON

On the oppoſite ſide facing it, on a low and level ground, ſtands the royal cuſtom-houſe, where an account is taken of all goods going up the Chagre. Here the breadth of the river is about 120 toiſes, but grows narrower gradually as you approach its ſource. At Cruces, the place where it begins to be navigable, it is only twenty toiſes broad; the neareſt diſtance between this town and the mouth is 21 miles, and the bearing N. W. 7° 24′ weſterly; but the diſtance meaſured along the ſeveral windings of the river, is no leſs than 43 miles.

It breeds a great a number of caymanes or alligators; creatures often ſeen on its banks, which are impaſſable both on account of the cloſeneſs of the trees, and the buſhes which cover the ground, as it were with thorns. Some of theſe trees, eſpecially the cedar, are uſed in making the canoes or banjas, employed on the river. Many of them being undermined by the water, are thrown down by the ſwellings of the river; but the prodigious magnitude of the trunk, and their large and extenſive branches, hinder them from being carried away by the current; ſo that they remain near their original ſituation, to the great inconvenience and even danger of the veſſels; for the greateſt part of them being under water, a veſſel by ſtriking ſuddenly on them, is frequently overſet. Another obſtruction to the navigation of this river is the races, or ſwift currents, over the ſhallows, where thoſe veſſels, tho' built for that purpoſe, cannot proceed for want of a ſufficient quantity of water; ſo that they are obliged to be lightened till they have paſſed the ſhallow.

The barks employed on this river are of two kinds, the chatas and bongos, called in Peru, bonques. The firſt are compoſed of ſeveral pieces of timber, like barks, and of a great breadth, that they may draw but little water; they carry ſix or ſeven hundred quintals. The bongos are formed out of one piece of wood, and it is ſurprizing to think there ſhould be trees of ſuch a prodigious bulk, ſome of them being eleven Paris feet broad, and carrying conveniently four or five hundred quintals. Both ſorts have a cabin at the ſtern for the conveniency of the paſſengers, and a kind of awning ſupported with wooden ſtancheons reaching to the head, and a partition in the middle, which is alſo continued the whole length of the veſſel; and over the whole, when the veſſel is loaded, are laid hides, that the goods may not be damaged by the violence of the rains, which are very frequent here. Each of theſe require, beſides the pilot, at leaſt eighteen, or twenty robuſt Negroes; for without ſuch a number, they would not be able, in going up, to make any way againſt the current.

All

ALL the forests and woods near this river are full of wild beasts, especially different kinds of monkeys. They are of various colours, as black, brown, reddish, and striated; there is also the same diversity in their size; some being a yard long, others about half a yard, and others scarce one third. The flesh of all these different kinds is highly valued by the Negroes, especially that of the red; but however delicate the meat may be, the sight of them is, I think, enough to make the appetite abhor them; for when dead, they are scalded in order to take off the hair, whence the skin is contracted by the heat, and when thoroughly cleaned looks perfectly white, and very greatly resembles a child of about two or three years of age, when crying. This resemblance is shocking to humanity, yet the scarcity of other food in many parts of America, renders the flesh of these creatures valuable; and not only the Negroes, but the Creoles and Europeans themselves, make no scruple of eating it.

NOTHING, in my opinion can excel the prospects which the rivers of this country exhibit. The most fertile imagination of a painter can never equal the magnificence of the rural landscapes here drawn by the pencil of nature. The groves which shade the plains, and extend their branches to the river; the various dimensions of the trees, which cover the eminences; the texture of their leaves; the figure of their fruits, and the various colours they exhibit; form a most delightful scene, which is greatly heightened by the infinite variety of creatures with which it is diversified. The different species of monkeys, skipping in troops from tree to tree, hanging from the branches, and in other places six eight or more of them linked together in order to pass a river, and the dams with their young on their shoulders, throwing themselves into odd postures, making a thousand grimaces, will perhaps appear fictitious to those who have not actually seen it: but if the birds are considered, our reason for admiration will be greatly augmented. For besides those already mentioned (book i. chap. vii.) and which from their great abundance, seem to have had their origin on the banks of this river, here are a great variety of others, also eatable; as the wild and royal peacock, the turtle, dove, and the heron. Of the latter there are four or five different species, some entirely white; others of the same colour, except the neck and some parts of the body, which are red; others black, only the neck, tips of the wings and the belly white; and some with other mixture of colours; and all differing in size. The species first mentioned are the least; and the white

white mixed with black, the largeſt and the moſt palatable. The fleſh of peacocks, pheaſants and other kinds is alſo very delicate. The trees along the banks of this river, are ſurprizingly loaded with fruit; but the pine-apples, both for beauty, largeneſs, flavour and fragrancy, excel thoſe of all other countries, and are highly eſteemed in all parts of America.

On our arrival at Cruces we went on ſhore, and were entertained by the Alcalde of the town, whoſe houſe was that of the cuſtoms, where an account is taken of all goods brought up the river. Having, with all poſſible diſpatch, got every thing ready for our journey to Panama, on the 29th at half an hour after eleven in the morning we ſet out, and reached that city by three quarters after ſix in the evening. We made it our firſt buſineſs to wait on the preſident, a mark of reſpect due not only to his dignity, but alſo to the many civilities he had ſhewn us. This worthy gentleman received us all, and particularly the foreigners, in the moſt cordial and endearing manner. He alſo recommended to all the king's officers, and other perſons of the firſt diſtinction in the city, not to be wanting in any good office, or mark of eſteem: A behaviour which ſhewed at once the weight of the royal orders, and his zeal to execute his ſovereign's pleaſure.

Some indiſpenſible preparations, which were to be made for the proſecution of our journey, detained us longer at Panama than we expected. We, however, employed our time to the beſt advantage, making ſeveral obſervations, particularly on the latitude and the pendulum; but the proximity of Jupiter at that time to the Sun, hindered us from ſettling the longitude. I alſo employed myſelf in taking a plan of the place, with all it's fortifications, and adjacent coaſt. At length, all things being in readineſs, we embarked without any farther loſs of time.

CHAP. II.

Deſcription of the city of Panama.

Panama is built on an iſthumus of the ſame name, the coaſt of which is waſhed by the ſouth ſea. From the obſervations we made here we found the latitude of this city to be 8° 57′ 48″½ north. With regard to its longitude there are various opinions, none of the aſtronomers having been able from obſervations made on the ſpot to aſcertain it; ſo that it is ſtill doubtful whether it lies on the eaſt or weſt ſide of the meridian

meridian of Porto Bello. The French geographers will have it to lie on the eaſt ſide, and accordingly have placed it ſo in their maps; but in thoſe of the Spaniards, it is on the weſt ſide: and I conceive the latter, from the frequent journeys they make from one place to the other, may be concluded to have a more intimate knowledge of their reſpective ſituations; whereas the former being ſtrangers in a great meaſure to thoſe places, have not the opportunity of making ſo frequent obſervations. I allow indeed, that among the Spaniards who make this little journey, the number is exceeding ſmall of thoſe, who have either capacity or inclination for forming a well grounded judgment of the road they travel, but there have been alſo many expert pilots, and other perſons of curioſity, who have employed their attention on it; and from their report the ſituation of the city has been determined. This opinion is in ſome meaſure confirmed by our courſe, the direction of which on the river, from its mouth to the town of Cruces, was eaſt 6° 15', ſoutherly; and the diſtance being 21 miles, the difference between the two meridians is 20 minutes, the diſtance Chagre is ſituated to the weſt of Cruces. We muſt alſo conſider the diſtance between Porto Bello and Chagre. During the firſt two hours and a half we ſailed a league and a half an hour; when the land breeze ſpringing up, we ſailed two leagues an hour, for ſeven hours; which in all makes 18 leagues; and the whole courſe having been very nearly weſt, the difference of longitude muſt have been 44 miles; or 41, allowing for what might have been wanting of a due weſt courſe; and from this again ſubtracting the 20 minutes which Cruces lies to the eaſt of Chagre, the reſult is, that Cruces is ſituated twenty-one minutes to the weſtward of Porto Bello. To this laſt reſult muſt be added the diſtance of meridians between Cruces and Panama, the bearing of which is near S. W. and N. E. and reckoning that we travelled, on account of the roughneſs and cragginess of the road, only three quarters of a league an hour, during the ſeven hours, the whole is 14 miles, and conſequently the difference of meridians, 10 minutes and a half. Conſequently Panama is ſituated about 30 minutes weſt of Porto Bello; and the Spaniſh artiſts nearer the truth than the French.

THE firſt diſcovery of Panama the Spaniards owe to Tello de Guzman, who landed here in 1515; but found only ſome fiſhermen's huts, this being a very proper place for their buſineſs, and from thence the Indians called it Panama, which ſignifies a place abounding in fiſh. Before this name-

ly

ly in the year 1513, Basco Nunez de Balboa, discovered the south sea, and took legal possession of it in the names of the kings of Castile. The discovery of Panama was, in the year 1518, followed by the settlement of a colony there, under Pedrarias Davilla, governor of Castilla del Oro, the name by which this Terra Firma was then called. And in 1521, his Catholic majesty, the emperor Charles V. constituted it a city, with the proper privileges.

It was this city's misfortune, in the year 1670, to be sacked and burnt by John Morgan an English adventurer. He had before taken Porto Bello and Maracaybo; and retiring to the islands, he every where published his design of going to Panama; upon which many of the pirates who then infested those seas joined him. He first sailed for Chagre, where he landed some of his men, and at the same time battered the castle with his ships; but his success was owing to a very extraordinary accident. His strength was considerably diminished by the great numbers killed and wounded by the fort, and he began to think it adviseable to retreat; when an arrow shot from the bow of an Indian, lodged in the eye of one of Morgan's companions; the person wounded being rendered desperate by the pain, but with a remarkable firmness and presence of mind, drew the arrow from the wound, and wrapping one of it's ends in cotton, or tow, put it into his musket, which was ready loaded, and discharged it into the fort, where the roofs of the houses were of straw and the sides of wood, according to the custom of that country. The arrow fell on one of the roofs, and immediately set it on fire, which was not at first observed by the besieged, who were busy in defending the place; but the smoke and flames soon informed them of the total destruction of the fort, and of the magazine of powder, which the flames must soon reach. Such an unexpected accident filled them with terror and confusion; the courage of the soldiers degenerated into tumult, and disobedience, and every one, being eager to save himself, the works were soon abandoned, in order to escape the double danger of being either burnt or blown up. The commandant, however, determined to do all in his power, still defended the fort, with sixteen or twenty soldiers, being all that were left him, till, covered with wounds, he fell a victim to his loyalty. The pirates encouraged by this accident, pushed their attack with the utmost vigour, and the few people were obliged to surrender the place, which the violence of the flames soon laid in ashes. Having surmounted this difficulty, the greatest part

part of them purſued their voyage up the river in boats and lances, leaving the ſhips at an anchor for the defence of their new conqueſt. The detachment having landed at Cruces marched towards Panama, and on the Sabana, a ſpacious plain before the city, they had ſeveral skirmiſhes, in which Morgan always gained the advantage; ſo that he made himſelf maſter of the city, but found it almoſt forſaken; the inhabitants on ſeeing their men defeated, having retired into the woods. He now plundered it at his leiſure, and, after ſtaying ſome days, agreed, for a large ranſom, to evacuate it without damaging the buildings; but after the payment of the money, the city was ſet on fire, by accident, as they gave out, and as the hiſtory of his adventures relates; but it is much more probable that it was done by deſign. To pretend it was owing to accident ſeemed to them the beſt palliative for their violating the treaty.

THIS misfortune rendering it abſolutely neceſſary to rebuild the city, it was removed to its preſent ſituation, which is about a league and a half from the former, and much more convenient. It has a wall of free-ſtone, and defended by a large garriſon of regulars; from whence detachments are ſent to do duty at Darien, Porto Bello, and Chagre. Near the city on the North-weſt, is a mountain called Ancon, whoſe perpendicular height by a geometrical menſuration, we found to be 101 toiſes.

THE houſes in general, when we viſited this city, were of wood, having but one ſtory, and a tiled roof, but large; and from their diſpoſition and the ſymetry of their windows, made a handſome appearance. A few were of ſtone. Without the walls is an open ſuburb, larger than the city itſelf, and the houſes of the ſame materials and conſtruction as thoſe within, except ſuch as border on the country, moſt of which are thatched with ſtraw; and among them ſome bujios or huts. The ſtreets both of the city and ſuburb, are ſtreight, broad, and for the moſt part, paved.

THO' the greateſt part of the houſes were formerly of wood, fires were rarely known at Panama, the nature of the timber being ſuch, that if any fire is laid on the floor, or placed againſt a wall, it is productive of no other conſequence than that of making a hole, without kindling into a flame; and the fire itſelf extinguiſhed by the aſhes. But notwithſtanding this excellent quality in the wood, in the year 1737, the city was almoſt entirely conſumed, the goodneſs of the timber being unable to ſecure it from the ravages of the flames; indeed, by the concurrence of another cauſe, the timber

timber was then rendered more combuſtible. The fire began in a cellar, where among other goods there were great quantities of pitch, tar, naphtha, and brandy; ſo that the fire being, as it were ſaturated with theſe ſubſtances, ſoon reached the walls, and this ſingular kind of wood, became a more eaſy prey to the devouring flames. In this conflagration the ſuburb owed its ſafety to its diſtance from the city, which is 1200 toiſes. Since this misfortune it has been again rebuilt, and the greateſt part of the houſes are now of ſtone, all ſorts of materials for buildings of this kind being here in the greateſt plenty.

In this city is a tribunal or royal audience, in which the governor of Panama preſides; and to this employment is annexed the captainſhip general of Terra Firma, and is generally conferred on an officer of diſtinction, tho' his common title is that of preſident of Panama. It has alſo a cathedral, and a chapter, conſiſting of a biſhop, and a number of prebendaries: An ayuntamiento, or corporation, compoſed of alcaldes and regidores: three officers of revenue, under an accomptant, treaſurer and agent; and a court of inquiſition appointed by the tribunal of inquiſition at Carthagena. The cathedral, and alſo the convents are of ſtone; indeed before the conflagration ſeveral of the latter were of wood; but that terrible misfortune ſhewed them the neceſſity of uſing more ſolid materials. The convents are thoſe of the dominicans, franciſcans, auguſtines, and fathers of mercy; a college of jeſuits, a nunnery of the order of St. Clara, and an hoſpital of St. Juan de Dios. The ſlender revenues will not admit of their being very numerous; and accordingly the ornaments of the churches are neither remarkably rich, nor contemptible.

The decorations of private houſes are elegant, but not coſtly; and tho' there are here no perſons of ſuch monſtrous fortunes, as in ſome cities of America, yet, it is not deſtitute of wealthy inhabitants, and all have a ſufficiency; ſo that if it cannot be claſſed among opulent cities, it is certainly above poverty.

The harbour of this city is formed in its road, by the ſhelter of ſeveral iſlands, particularly Iſla de Naos, de Perico, and Flamencos; and the anchoring place is before the ſecond, and thence called Perico. The ſhips here lie very ſafe, and their diſtance from the city is about two leagues and a half, or three leagues.

The tides are regular, and, according to an obſervation we made on the day of the conjunction, it was high-water

at

at three in the evening. The water rises and falls considerably, so that the shore lying on a gentle slope, is at low water left dry to a great distance. And here, we may observe the great difference of the tides in the north and south seas, being directly opposite; what in the ports on the north sea, is accounted irregular, is regular in the south; and when in the former it ceases to increase or decrease, in the latter it both rises and falls, extending itself over the flats, and widening the channels as the proper effect of the flux and reflux. This particular is so general as to be observed in all the ports of the south sea; for even at Manta, which is almost under the equinoctial, the sea regularly ebbs and flows nearly six hours; and the effects of these two motions are sufficiently visible along the shores. The same also happens in the river of Guayaquil, where the quantity of its waters does not interrupt the regular succession of the tides. The same phænomena are seen at Paita, Guanchaco, Callao, and the other harbours; but with this difference, that the water rises and falls more in some places than in others; so that we cannot here verify the well-grounded opinion entertained by sailors, namely, that between the tropics the tides are irregular both in the disproportion of the time of flood to that of the ebb, and also in the quantity of water rising or falling by each of these motions; the contrary happening here. This phænomenon is not easily accounted for; all that can be said is, that this isthmus, or narrow neck of land, separating the two seas, confines their waters, whereby each is subject to different laws.

The variation of the magnetic needle, in this road is 7° 39′ easterly. Both the road and whole coast abound in a great variety of excellent fish, among which are two kinds of oysters, one smaller than the other; but the smallest are much the best.

At the bottom of the sea, are a great number of pearls, and the oysters in which they are found are remarkably delicious. This kind of fishery is of great advantage to the inhabitants of all the islands in this bay.

The harbour of Perico is the rendezvous of the Peru fleet, during the time of the fair; and is never without barks loaded with provisions from the ports of Peru, and a great number of coasting vessels going from thence to Choco, and parts on the western coast of that kingdom.

The winds are the same as along the whole coast; the tides or currents are stronger near the islands than at a distance from them; but no general rule can be given with regard to their course, that depending on the place where the ship is,

with regard to the channels which they form. They also vary in the same place according to the winds. Let it therefore suffice that we have shewn there are tides on this coast, that on any occasion, this notice may be applied to use.

CHAP. III.

Of the climate and inhabitants of Panama.

IN many countries of America there is such a resemblance between the inhabitants and customs that they appear the same. This is equally observable in the climate; when no difference is occasioned by the accidental disposition of the ground, or quality of the soil. But this subject having been already sufficiently handled, a rational curiosity will require us only to mention those particulars in which they differ. Thus, after saying that the inhabitants of this city resemble those of Carthagena with regard to their constitution, I must add that there is some difference in their disposition, those of Panama being more parsimonious, more designing, and insidious, and stopping at nothing when profit is in view, the pole-star both of Europeans and Creoles; and it is difficult to determine which set the first example. The same selfishness and parsimony reigns equally among the women, some Spanish ladies excepted, who have accompanied their husbands, appointed auditors, or to some other employments; these still retaining the qualities they imbibed from education.

THE women of Panama begin to imitate the dress of those of Peru, which when they go abroad, consists only of a gown and petticoat nearly resembling those worn in Spain; but at home, on visits and some particular ceremonies, their shift is their only cloathing from the waist upwards. The sleeves are very long and broad, and quite open in the lower part or near the hand; and these, like the bosom, are decorated with very fine lace, the chief pride of the ladies of Panama. They wear girdles, and five or six chaplets or rows of beads about their necks, some set in gold, some of coral mixt with small pieces of gold, and others less costly; but all of different sizes, in order to make the greater show; and besides these, one, two, or more gold chains having some relicks appendent from them. Round their arms they wear bracelets of gold and tombac; also strings of pearls, corals, and bugles. Their petticoat reaches only from their waist to the calf of their legs and from thence to a little above their ancle hangs, from their under petticoat a broad lace. The Mestizo, or negro women, or the coloured

coloured women as they are called here, are distinguished in their dress from those of Spain, only by the gown and petticoat; the particular privilege of the latter, and which also gives them the title of signora; tho' many of them have little to boast of, either with regard to rank or wealth.

If I omitted in Carthagena the following observation, it was in order to reserve it for this place; namely, that in Carthagena, Porto Bello, and Panama, the inhabitants have a very singular pronunciation; and as some nations have a haughty accent, some a politeness in their manner of expression, and others speak in a very quick manner; so here their pronunciation has a faintness and langour, which is very disagreeable, till we are reconciled to it by custom. And what is still more particular, they have each a different accent in this langour; besides particular syllables peculiar to each, and no less different than they are from the manner of speaking used in Spain. This may indeed, in some measure, flow from the ill habit of their bodies, weakened by the excessive heat of the climate; but I believe it is principally owing to a bad custom.

The only difference between the climate of Carthagena and this is, that summer begins later and ends sooner, as the longer the Brisas delay their return, the sooner they are over. From many thermometrical observations made on several days, without any sensible difference betwixt them at the same hours, on the 5th and 6th of January 1736, at six in the morning they found the liquor at $1020\frac{1}{2}$, at noon, $1023\frac{1}{2}$, and at three in the afternoon, at 1025. But, at the same time, it must be observed, that the Brisas now began to blow, and consequently, was not the time of the greatest heats; these prevailing in the months of August, September, and October.

Tho' this climate would naturally be supposed to produce the same plants with others in the same latitude, it is very different. Nor does this seem to proceed from any defect in the soil, but from the fondness of the inhabitants for trade, and their total neglect of agriculture, as too laborious. But be the real cause of it what it will, this is certain, that even in the parts contiguous to the city, the land is left entirely to nature; nor does the least vestiges remain of its being formerly cultivated. From hence proceeds a scarcity of all things, and consequently they are sold at a high price. Here are no pulse or pot-herbs of any kind; and that this is not owing to the sterility of the earth, we had an evident proof in a small garden belonging to a Gallician, where all things of this kind were produced in great plenty. By this means Panama is under a necessity of being supplied with every thing, either from the coast of Peru, or places in its own jurisdiction.

CHAP. IV.

Of the usual food of the inhabitants of Panama.

THE very want of provisions causes the tables at Panama to be better furnished; and it may be truly said that this city subsists wholly by commerce, whatever is consumed in it coming from other places. The ships of Peru, are continually employed in exporting goods from that country, and the coasting barks in bringing the products of the several places into its jurisdiction, and that of Varaguas. So that Panama is plentifully furnished with the best of wheat, maize, poultry and cattle. Whether it be owing to the superior goodness of their food, the temperament of the climate, or to some other cause to me unknown, it is certain that the inhabitants of this city are not so meagre and pale, as those who live at Carthagena and Porto Bello.

THEIR common food is a creature called iguana. It is amphibious, living equally on the land and in the water. It resembles an alligator in shape, but is something larger, being generally above a yard in length; some are considerably bigger, and others less. It is of a yellowish green colour, but of a brighter yellow on the belly than on the back, where the green predominates. It has four legs like a lizard; but its claws are much longer in proportion; they are joined by a web, which covers them, and is of the same form as those of geese, except that the talons at the end of the toes are much longer, and project entirely out of the web or membrane. Its skin is covered with a thin scale adhering to it, and which renders it rough and hard; and from the crown of its head to the beginning of its tail, which is generally about half a yard, runs a line of vertical scales, each scale being from one to two lines in breadth, and three or four in length, separated so as to represent a kind of saw. But from the end of the neck to the root of the tail, the scales gradually lessen, so as at the latter part to be scarce visible. Its belly is in largeness very disproportionable to its body; and its teeth separated and very sharp pointed. On the water it rather walks than swims, being supported by the webs of its feet; and on that element, its swiftness is such as to be out of sight in an instant; whereas on the land, tho' far from moving heavily, its celerity is greatly less. When pregnant its belly swells to an enormous size, and indeed they often lay sixty eggs at a time, each of which is as large as those of a pidgeon. These are reckoned a great dainty, not only at Panama, but in the other parts where

where this creature is found. These eggs are all inclosed in a long, fine, membrane, and from a kind of string. The flesh of this animal is exceeding white, and universally admired by all ranks. I tasted both the flesh and the eggs, but the latter are viscid in the mouth, and of a very disagreeable taste. When dressed, their colour is the same with that of the yolks of hens eggs. The taste of the flesh is something better, but tho' sweet has a very nauseous smell. The inhabitants, however, compare it to that of chicken; tho' for my part, I could not perceive the least similarity. These people, who by being accustomed to see them forget the natural horror attending the sight of an aligator, delight in this food, to which Europeans can hardly reconcile themselves.

Here are two singularities attributed to nature and firmly believed by the inhabitants; one in the plant called yerva del gallo; the other the snake called la cabeaz, or double-headed, which I shall take notice of.

It is constantly asserted in this city, that its neighbourhood produces a snake having a head at each extremity; and that from the bite of each a poison is conveyed equal in activity to that of the coral, or rattle-snake: We, however, could not have the satisfaction of seeing one of these strange species whilst we were here, tho' we used all the means in our power to gratify our curiosity; but according to report, its usual length is about half a yard round, and in figure perfectly resembling an earth-worm. Its diameter is about six or eight lines, and its head different from those of other snakes; being of the same dimensions with its body. But it is very probable that they have only one head, and that from its resembling a tail, they have been imagined to have two. The motion of it is very slow, and its colour variegated with spots of a paler tinct.

The herb called del gallo, or cocks-herb, is so highly valued here, that they affirm, if an incision be made round the neck of that fowl, provided the vertebra be not injured, on the application of this herb, the wound immediately heals. Whatever construction we put upon this pretended cure it can only be considered as a mere vulgar notion; and if I mention it here, it is with no other intention than to satisfy those, who may have heard of it before, that we were not ignorant of it.

During our stay at Panama, we were very urgent with those who related this story, to procure us some of the herb, that we might make the experiment; but in this we were as unfortunate as in the article of the two-headed snake, none being

ing to be had. I have however, since been told, by persons settled in Panama, that it was very common, a sufficient proof, in my opinion, that the story has no foundation; for if it was so easy to be had, and of such surprizing virtue, what reason could they have for refusing to convince us by ocular demonstration. It may have a styptic virtue when none of the principal blood-vessels are injured; but that it can join them after being cut, together with the nerves and tendons; when totally severed, no person of any knowledge or judgment will ever be brought to believe. And if its effects are so remarkably happy on poultry, it is surely natural to think it should have the same on any other animal; and, consequently, on the human species. If this were the case it would be of infinite value; and no soldier, especially, should be without it, as a few ounces of this grand restorative would immediately cure the most terrible wounds.

CHAP. V.

Of the trade and commerce of Panama.

FROM what has been said relating to the commerce of Porto Bello, in the time of the gallions, an idea may be formed of that of Panama on the same occasion, this city being the first where the treasure from Peru is landed, and likewise the staple for the goods brought up the river Chagre. This commerce is of the greatest advantage to the inhabitants, both with regard to letting their houses, the freight of vessels, the hire of mules, and negroes, who forming themselves into separate bodies draw along from Cruces large balls, or any brittle and delicate wares; the roads here, tho' the distance is but short by crossing the chain of mountains called the Cordilleras, are in some parts so narrow, that a beast of burthen can hardly pass along, and consequently an imminent danger would attend the employing of mules for this service.

THIS city, even during the absence of the armada, is never without a great number of strangers; it being the thoroughfare for all going to the ports of Peru, in the south sea, as also for any coming from thence to Spain. To which must be added the continual trade carried on by the Peruvian ships, which bring variety of goods, as meal of different sorts, wines, brandy from grapes, or brandy castilla, as it is called by all the Americans in these parts, sugar, tallow, leather, olives, oil, and the like. The ships from Guayaquil bring cacao, and quinquina or jesuits bark, which always meet with a quick exportation

exportation here, especially in time of peace. All goods, particularly those of Peru, are subject to great alterations in their prices, so that on many occasions the owners lose considerably, and sometimes their whole purchase. And, on the other hand, there are favourable opportunities when they trifle it, according to the plenty or scarcity of the commodity. The different sorts of meal, are in particular subject to to this accident, they soon becoming so extremely vitiated by the great heat, that there is an absolute necessity for throwing them overboard. The wines and brandies also, from the heat of the jarrs, contract a pitchy taste, and are soon unfit for use. The tallow melts, becomes full of maggots, and turns into a kind of earth; the same may be observed of other goods. Hence if the gain is sometimes very great, the risk of the loss is proportional.

THE coasting barks which make frequent trips from the adjacent ports, supply the city with hogs, poultry, hung beef, hog's lard, plantanes, roots, and other eatables: with all which this city, by the industry of otliers, is abundantly supplied.

THE Peru and Guayaquil vessels, except at the time when the armada is here, return empty, except when they have an opportunity of taking Negroes on board; as while the assiento subsists, there is at Panama a factory, or office, which corresponds with that at Porto Bello; and hither the Negroes are brought, as being in some measure the staple for them, with regard to the kingdoms of Terra Firma and Peru.

THE president of Panama is invested with a power of licencing every year one or two ships, which go to Sonsonate, el Realejo, and other ports in the province of Guatemala and New Spain, to fetch from thence tar, naphtha, and cordage, for the vessels belonging to the Panama trade; they carry thither such parts of the Peruvian goods, as do not find a market at Panama; but few of the ships which have obtained this permission, return immediately; for the most profitable part of their trade consisting of indigo, they make the best of their way to Guayaquil, or other ports farther to the southward. The dearness of provisions in this city and its district, occasioned by the large quantity required, and the great distance from whence they are brought, is amply compensated by the multitude and value of the pearls found in the oysters of its gulph; and particularly those near the islands del Rey, Tabaga, and others to the number of 43, forming a small archipelago. The first to whom the Indians made this valuable discovery, was Basco Nunez de Balboa, who in his passage this way to make further discoveries on the south sea, was

presented with some by Tumaco, an Indian prince. At present they are found in such plenty, that there are few persons of substance near Panama, who do not employ all, or at least part of their slaves in this fishery, the manner of which not being commonly known, it will not be improper to describe it here.

THE owners of the Negroes employ the most proper persons for this fishery, which being performed at the bottom of the sea, they must be both expert swimmers, and capable of holding their breath a long time. These they send to the islands, where they have huts built for their lodgings, and boats which hold eight, ten or twenty Negroes under the command of an officer. In these boats they go to such parts as are known to produce pearls, and where the depth of the water is not above ten, twelve or fifteen fathom. Here they come to an anchor, and the Negroes having a rope fastened round their bodies, and the other end to the side of the boat, they take with them a small weight to accelerate their sinking, and plunge into the water. On reaching the bottom they take up an oyster, which they put under the left arm; the second they hold in their left hand, and the third in their right; with these three oysters, and sometimes another in their mouth, they rise to breathe, and put them in a bag. When they have rested themselves a while and recovered their breath, they dive a second time; and thus continue, till they have either compleated their task, or their strength fails them. Every one of these Negro divers is obliged daily to deliver his master a certain fixed number of pearls; so that when they have got the requisite number of oysters in their bag, they begin to open them, and deliver the pearls to the officer, till they have made up the number due to their master; and if the pearl be but formed, it is sufficient, without any regard to its being small or faulty. The remainder, however large or beautiful, are the Negroe's own property, nor has the master the least claim to them, the slaves being allowed to sell them to whom they please, tho' the master generally purchases them at a very small price.

THESE Negroes cannot every day make up their number, as in many of the oysters the pearl is not at all, or but imperfectly formed, or the oyster is dead, whereby the pearl is so damaged as to be of no value; and as no allowance is made for such pearls, they must make up their number with others.

BESIDES the toil of this fishery, from the oysters strongly adhering to the rocks, they are also in no small danger from some kinds of fish, which either seize the Negroes, or by striking on them, crush them by their weight against the bottom. So that these creatures seem to know that men are robbing

robbing them of the moſt valuable product of their element, and therefore make a vigorous defence againſt their enemy. The fiſhery on the whole coaſt is obnoxious to the ſame danger from theſe fiſh, but they are much more frequent where ſuch riches abound. The taburones, and tintoreras, which are of an enormous ſize, feed on the bodies of theſe unfortunate fiſhermen; and the mantas, or quilts, either preſs them to death by wrapping their fins about them, or cruſh them againſt the rocks by their prodigious weight. The name manta, has not been improperly given to this fiſh, either with regard to its figure or property; for being broad and long like a quilt, it wraps its fins round a man or any other animal that happens to come within its reach, and immediately ſqueezes it to death. This fiſh reſembles a thornback in ſhape, but is prodigiouſly larger.

Every Negro to defend himſelf againſt theſe animals, carries with him a ſharp knife, with which, if the fiſh offers to aſſault him, he endeavours to ſtrike it in a part where it has no power to hurt him; on which the fiſh immediately flies. The officers keep a watchful eye on theſe voracious creatures, and on diſcovering them, ſhake the ropes faſtened to the Negroes bodies, that they may be upon their guard; many, of the divers being in danger, having thrown themſelves into the water, with the like weapon, and haſten down to their defence: But too often all their dexterity and precaution is not ſufficient to protect the diver from being devoured by theſe fiſh, or loſing one of his legs or arms by their bite. Several ſchemes have been practiſed to prevent ſuch melancholy accidents; but they have hitherto proved very ineffectual.

The pearls of theſe fiſheries are generally of a good water, and ſome very remarkable both in their ſhape and ſize; but as there is a difference in both theſe properties, ſo there is alſo a difference in their water and colour; ſome being highly valuable, and others as remarkably defective. Some of theſe pearls, tho' indeed but few, are ſent to Europe, the greateſt part being carried to Lima; where the demand for them is very great, being not only univerſally worn there by all perſons of rank, but alſo ſent from thence into the inland parts of Peru.

Beſides theſe pearls the kingdom of Terra Firma, was formerly equally remarkable for the fine gold produced by the mines in its territories; and which, conſequently, proved a very conſiderable addition to its riches. Part of theſe mines were in the province of Veraguas, others in that of Panama; but moſt, alſo the richeſt, and whoſe metal was of the fineſt quality, were in the province of Darien; and, on that account, the

the conſtant objects of the miners. But the Indians revolting, and making themſelves maſters of the whole province, there was a neceſſity for abandoning theſe mines, by which means the greateſt part of them were loſt; a few only remaining on the frontiers, which ſtill yield a ſmall quantity of gold. Their produce might indeed be increaſed, did not the fear of the fickle nature of the Indians, and the ſmall confidence that can be placed on their apparent friendſhip, deter the maſters of the mines from taking proper meaſures for improving them.

THO' the mines of Veraguas and Panama are not expoſed to theſe dangers, yet they are not worked with more vigor than the others; and this for two reaſons. The firſt is, that beſides their being leſs rich in metal than the others, the gold they yield is not of ſo good a quality as that of Darien: the ſecond, and indeed the moſt weighty, is, that as theſe ſeas, by their rich produce of pearls, offer a more certain, and at the ſame time a more eaſy profit, they apply themſelves to this fiſhery, preferably to the mines. Some, indeed, tho' but few, are worked, beſides thoſe above-mentioned, on the frontiers of Darien.

BESIDES the advantage ariſing to Panama from its commerce, as the revenue here it not equal to the diſburſements, a very conſiderable ſum of money is annually remitted hither from Lima, for the payment of the troops, the officers of the audience, and others in employment under his majeſty.

CHAP. VI.

Extent of the audience of Panama, *in the kingdom of* Terra Firma.

THE city of Panama is not only the capital of its particular province, but alſo of the whole kingdom of Terra Firma, which conſiſts of the three provinces of Panama, Darien, and Veraguas. The firſt is the ſeat of every branch of the government, as being ſituated between the other two; Darien lying on the eaſt ſide, and Veraguas on the weſt.

THE kingdom of Terra Firma begins northwards at the river of Darien, and ſtretching along by Nombre de Dios, Bocas del Toro, Baiia del Almirante, is terminated weſtward by the river de los Dorados in the north ſea; and towards the ſouth ſea, beginning on the weſtern part, it extends from Punta Gorda, in Coſta Rica, by Punta de Mariatos, Morro de Puercos, to the gulph of Darien; from whence it continues ſouthward

along

along the coast, by Puerto de Pinas, and Morro Quemado, to the bay of St. Bonaventura. Its length from east to west is 180 leagues, but if measured along the coast it exceeds 230; and its breadth from north to south is the same as that of the isthmus, which includes the whole province of Panama, and part of that of Darien. The narrowest part of this isthmus is from the rivers Darien and Chagre, on the north sea, to those of Pito and Caymito on the south sea: and here the distance from sea to sea is about 14 leagues. Afterwards it increases in breadth towards Choco and Sitara; and the same westward in the province of Veraguas, forming an interval of forty leagues from sea to sea.

Along this isthmus run those famous chains of lofty mountains called the Andes, which beginning at such a prodigious distance as the Terra Magellanica, traverses the kingdom of Chili, the province of Buenos Ayres, and thence thro' the provinces of Peru and Quito; and from the latter contract themselves, as it were, for a passage thro' this narrow isthmus. Afterwards, again widening, they continue their course thro' the provinces and kingdoms of Nicaragua, Guatemala, Costa Rica, St. Miguel, Mexico, Guajaca, la Puebla, and others; with several arms and ramifications, for strengthening, as it were, the southern with the northern parts of America.

In order to give the reader a comprehensive idea of this kingdom, I shall speak particularly of each of its three provinces, beginning with that of Panama as the principal. Most of its towns and villages are situated in small plains along the shore, the rest of the country being covered with enormous and craggy mountains, uninhabited on account of their sterility.

In this province are three cities, one town, a few forts, villages, and country-seats; the names of which, together with the tribes of the inhabitants, are here subjoined.

The cities are Panama, Porto Bello, and Santiago de Nata de los Cavelleros. The situation of the latter was first discovered in the year 1515, by captain Alonso Perez de la Rua, at which time Nata was prince of this district. Gaspar de Espinosa was first commissioned to people it, under the title of a town. It was indeed afterwards taken and burnt by the Indians, but he rebuilt it, and called it a city. It is large, but the chief houses only of earth, or unburnt bricks, and the others of mud-walls. Its inhabitants are a mixture of Spaniards and Indians.

The town called los Santos, is a modern settlement of Spaniards, who before lived at the city of Nata, but with a view of

of augmenting their fortune, by improving the ground, left the city; and the inhabitants of the town are at present more in number than those of Nata. Its environs were first discovered by Rodrigo Valenzuela, and at that time contained an Indian town, governed by a prince called Guazan: the origin of the town sufficiently shews it is peopled by Spaniards and Indians.

THE number of villages in this province is very considerable, and of different kinds.

1. NUESTRA Senora de Pacora, to which we give the preference, is inhabited by Mulattos and their descendents.

2. SAN Christoval de Chepo, owes its name to the caciques, or princes, Chepo, and Chepauri, and was discovered in 1515, by Tello de Guzman. Besides Indians, here is a company of foot, belonging to the garrison of Panama, most of whom are settled here with their families.

SEVERAL Rancherias, or assemblages of Indian huts, are under the jurisdiction of a village. These Rancherias are situated to the southward in the small chasms or breaches of the mountains.

IN the savannahs of the river Mamoni are several such assemblages of huts, and within the same jurisdiction, namely,

On the river de la Campana.
In the breach of Curcuti.
On the banks and at the mouth of the river Canas.
On the river del Platanar.
On the river de Pinganti.
On the river de Bayano.
In the breach de Terralbe.
In that of Platanar.
In that of Calobre.
In that of Pugibay.
In that of Marcelo.
On the river de Mange.

Under the jurisdiction of the same village are also the following Rancherias, situated to the northwards.

On the river del Playon.
On the smaller river de la Conception.
On the river de Guanacati.
On the river del Caco, or Mandinga.
On the river de Sarati.

3. The village of San Juan, situated on the road between Panama and Porto Bello, is inhabited by Mulattos, and their descendants.

4. The

4. The village of Nueſtra Sinor de la Conſolation, a Negro ſettlement.

5. The village de la Santiſſimi Trinidad de Chame, diſcovered by captain Gonzalo de Badajoz, and called Chame, from its prince at that time, is inhabited by Spaniards and Indians.

6. The village of St. Iſidro de Quinones, diſcovered by the ſame officer, and then governed by its prince Totronagua: its preſent inhabitants Spaniards and Indians.

7. The village of St. Franciſco de Paula, in the Cordillera; alſo inhabited by Spaniards and Indians.

8. The village of St. Juan de Pononome, ſo called from the name of its cacique: its inhabitants are Indians, who ſtill retain the uſe of bows and arrows, at which they are very dextrous, and of an intrepid bravery.

9. The village of Santa Maria, is ſituated in a tract of land diſcovered by Gonzalo de Badajoz. The name of its laſt prince was Eſcolia: it is at preſent wholly inhabited by Spaniards.

10. The village of Santo Domingo de Parita, the laſt word being the name of its prince. It was formerly inhabited wholly by Indians, but at preſent there are many Spaniards among them.

11. Taboga, Taboguilla, and other iſlands, near which the pearl fiſheries are carried on, were diſcovered by the order of Pedro Arias Davila, the firſt governor and captain-general of the kingdom of Terra Firma. In theſe iſlands are houſes belonging to Spaniards, and huts for the Negro divers.

12. The iſlands del Rey, were diſcovered by Gaſper de Morales, and captain Franciſco Pizarro. In this iſland ſome Spaniards have houſes, beſides great numbers of Negro divers.

Second province of Terra Firma.

THE ſecond province of this kingdom is that of Varaguas, of which the city of Santiajo is the capital. The firſt who diſcovered this coaſt was admiral Chriſtopher Columbus, in 1503. To the river now called Veragua, he gave the name of Verdes-aguas, on account of the green colour of its water; or, according to others, becauſe the Indians called it by that name in their language. But however that be, it is from this river that the province derives its name. In 1508, the captains Gaſper de Eſpinoſa, and Diego de Alvirez, renewed the diſcovery by land; but being repulſed by prince Urraca, were obliged to content themſelves with a ſettlement in the neighbourhood; and even here the Spaniards were not able to maintain their ground againſt the frequent incurſions of the Indians;

ſo

so that finding the absolute necessity of a stronger settlement, they built the city of Satiago de Veraguas on the spot where it now stands.

Besides this city the province contains two others, and several villages.

The city of Santiago al Angel, was founded in 1521 by Benedict Hurtado, governor of Panama; it has been twice destroyed and rebuilt: the inhabitants partly Spaniards, partly Mulattos.

The city of Nuestro Senora de los Remedios de Pueblo-Nuevo: the inhabitants the same as those of the former.

1. The villages in this province are San Francisco de la Montana, inhabited by Indians using bows and arrows.

2. San Miguel de la Halaya, inhabited by different sorts of people.

3. San Marcelo de Leonmesa de Tabarana, inhabited by Indians.

4. San Raphael de Guaymi, by Indians.

5. San Philipe del Guaymi, by Indians.

6. San Martin de los Castos, by Indians.

7. San Augustin de Ulate, by Indians.

8. San Joseph de Bugava, by Indians.

9. and 10. La Piedad, and San Miguel, by Indians.

11. San Pedro, and San Pablo de los Platanares, by Indians.

12. San Pedro Nolosco, by Indians.

13. San Carlos, by Indians.

Third province of Terra Firma.

The third province of Terra Firma is that of Darien, where the greatest part of the inhabitants are wandering Indians, living without any religion, and in the most shocking barbarism, which was indeed the motive of their revolt. In 1716 there was here a considerable number of villages, Rancherias, and Doctrinas*, whose inhabitants had sworn allegiance to the king of Spain, and therefore under the governors of Panama, tho' at present very few are remaining. The name of those remaining in the above-mentioned year, were,

1. The village and staple for the mines of Santa Cruz de Cana, a very considerable settlement of Spaniards and Indians.

2. The village de la Conception de Sabalo, inhabited like the preceding, but less populous.

3. The

* A name given by the jesuits to Indian communities, which they have gathered together and civilized.

3. The village of San Miguel de Tayequa; inhabitants the same.

4. The village of Santa Domingo de Balsas; inhabitants like the others, being Spaniards and Indians.

5. Spanish village, in the territory of Santa Marica.

6. The Doctrina San Geronymo de Yabira, a word in the Indian language signifying Doncel, i. e. a virgin; and for this reason the river near it is called Rio Doncel, or virgin river.

7. San Enrique de Capeti, or the sleepy.

8. Santa Cruz de Pucro. In the Indian language Pucro signifies a sort of light wood, which at Guayaquil is called Balsa.

9. The Doctrina de San Juan de Tacaracuna, and Matarnati; the names of two of the mountains of the Andes, contiguous to the community.

10. The Indian village of San Joseph de Zete-Gaati, is not a Doctrina. Zete-Gaati, is the name of a kind of willow growing in the neighbourhood.

Rancherias *and* Hamlets *in the southern parts.*

The hamlet of Nuestra Senora del Rosario de Rio Congo.
Other hamlets on the rivers Zabalos, Balsas, and Uron.
On the river Tapanacul.
On the river Pucro.
On the banks and at the mouth of the river Paya.
At los Paparos, or the peasants.
On the river Tuquesa.
On the river Tupisa.
On the river Yabisa.
And at Chepigana.

Rancherias *and* Hamlets *in the northern parts.*

On the river Queno.
On the Seraque.
On the Sutagunti.
On the Moreti.
On the Agrasenequa.
On the Ocabajanti.
On the Uraba.

All these Doctrinas and communities, were formerly of Indians, and not inconsiderable, some of the latter consisting of 400 persons; but their general number was between 150 and 200; from whence we may form an idea of the populousness of these Doctrinas. But to save the trouble of computing the several

ſeveral inhabited places of this kingdom, as I thought proper to inſert their names, I ſhall conclude with a conciſe liſt of all theſe places, which will aſſiſt the reader in forming ſome idea of this country.

Recapitulation of all the inhabited places in the kingdom of Terra Firma.

Four fortreſſes.
Six Cities.
One town of Spaniards and Indians.
Thirty five villages. { Eleven of Spaniards and Indians. Two of Mulattos and Negroes. Twenty two of Indians, moſt of them Doctrinas. }

Thirty two Rancherias or Hamlets, each containing ſeveral cottages ſcattered among the breaches, along the ſides of rivers and ſavanahs.

Forty-three iſlands, where the pearl fiſhery is carried on, ſome of them in the bay of Panama, ſome near the coaſt of that city, and others ſouth of Veraguas.

VOYAGE

VOYAGE FROM PERICO HARBOUR TO GUAYAQUIL,

With nautical remarks, and a description of that city, and jurisdiction.

BOOK IV.

CHAP. I.

Voyage from Perico *to the city of* Guayaquil.

OUR tents and other neceſſaries being ready, we all embarked on board the St. Chriſtopher, captain Don Juan Manuel Morel; and the next day, being the 22d of February 1736, we ſet ſail; but having little wind, and that variable, it was the 26th at ſun-ſet before we loſt ſight of the land, the laſt we ſaw being Punta de Mala.

BY remarks repeatedly made till we loſt ſight of this laſt point, and which agreed with obſervations, but differed from thoſe by account, we found the ſetting of the current to be S. W. 5° weſterly; which obſervation correſponded with the accounts given us by able pilots, who aſſured us it continued to 3 or 4 degrees of latitude; and, according to their farther information, we corrected our daily account at one mile and one ſixth per hour; and found their information to be well founded. But it is neceſſary to obſerve, that till our ſhip was off Punta de Mala, there was no viſible current, and that whilſt we continued ſailing in the gulph of Panama, the latitude by account agreed with the obſerved.

FOR the time we ſet ſail, till Punta de Mala bore from us N.W. 6° 30′ weſterly, we continued to ſteer S.S.W. 1° 30′ and 8° 30′ weſterly: the winds variable with calms.

After passing Punta de Mala we steered south between 8° westerly and and 2° 30' easterly, till six in the evening of the first of March 1736, when we discovered the land contiguous to St. Matthew's bay. Upon which we stood to the S. W. both to avoid a ledge of rocks, which runs three leagues into the sea, and likewise the currents, which set towards it, and Gorgona bay.

This ledge of rocks was discovered in 1594, by a ship's striking on it.

From St. Matthew's bay, we, for some hours, steered S. W. 6° 15′ westerly; and the next day S. E. ¼ southerly; which, being the third day, at one in the afternoon, brought us in sight of Cape St. Francis, bearing N. ¼ easterly.

According to the reckoning of Don George Juan, the difference of Meridians between Panama and Cape St. Francis was 00° 36′; and which nearly agrees with the map of this coast. It must however, be supposed that the distance between each knot on the log line was 47 feet; 5 ½ royal inches, which is equal to 50 ½ English feet; and this confirms what we have already observed, Chap. I. Book I. and proves the justness of our observations on the currents.

Having weathered this cape we steered W. 3° southerly; S. W. 3° westerly; and on the 6th and 7th S. 7° easterly, and S. E. 6° easterly; till on the 7th at 8 in the morning, we again made Cape St. Francis, bearing N. 5° easterly, and Cape Passado south; after which we coasted along the shore, observing the most remarkable parts, till the 9th, when, at half an hour after 3 in the evening, we came to an anchor in Manta bay, in eleven fathom water, the bottom mud mixed with sand: Cape St. Lorenzo bearing W. S. W. and Monte Christo S. S. E. 6° easterly.

Two reasons induced us to anchor here, the first was, that as part of the intention of our original voyage was to measure some degrees of the equator, besides those of the meridian; and having been informed at Panama, of the situation of this coast, we were desirous of viewing it, in order to know whether by forming our first base on its plains, the series of triangles, could be continued to the mountains contiguous to Quito. The second the want of water and provisions; for the season being pretty far advanced, we had flattered ourselves, while at Panama with falling in with the Brisas, and by that means of soon reaching Guayaquil; and had therefore taken in provisions only for such a short voyage.

In order to satisfy ourselves with regard to our first and principal view, we all went on shore on the 10th in the evening to the

the village of Monte Christo, about two leagues and a half, or three leagues from the coast. But we soon found any geometrical operations to be impracticable there, the country being every where extremely mountainous, and almost covered with prodigious trees, an insurmountable obstruction to any such design. This being farther confirmed to us by the Indian inhabitants, we determined to pursue our voyage to Guayaquil, and from thence to Quito. Accordingly on the 11th we returned to the coast of Manta, where, whilst the ship was taking in water and provision, we employed ourselves in making observations; by which we found the latitude of this place to be 0° 56′ 5½″ south. But Mess. Bouguer and de la Condamine, reflecting that our stay at Guayaquil, would be considerable before the season would permit the mules to come from Guaranda to carry us to the mountains, and desirous of making the best use of their time, determined to stay here, in order to make further observations on the longitude and latitude, that they might ascertain the place where the equator cuts this coast, examine the length of the pendulum, and make other observations equally important. Accordingly proper instruments were left with them.

On the 13th of the same month of March, our vessel put to sea, keeping along the coast, and passed the next day within the island de la Plata. The 15th we began to lose sight both of Cape St. Lorenzo, and also of the island; at one in the afternoon, we steered S. S. E. till the 17th, when we discovered Cape Blanco, the south point of the bay of Guayaquil. From Cape Blanco we coasted along the bay, till about noon, on the 18th, coming to the mouth of the river Tumbez, we anchored about half a league from the land; the river's mouth bearing east 5 deg. northerly, and the island of Santa Clara, commonly called Amorta-jado, or Muerto, from its resembling the figure of a human corps, N. 4 deg. easterly, in fourteen fathom water, and a muddy bottom.

Some particular affairs of the captain of the ship, obliged us to remain here till the 20th, when at six in the morning we weighed, and at half an hour after 6 in the evening, the strength of the current on the ebb, obliged us to come to an anchor. Thus we continued anchoring every ebb, and sailing during the flood. And here we found that the current always sets out of the bay, tho' with much less velocity on the flood than on the ebb; for we observed that the tide, never altered its direction in 19 hours and a half. The cause of this phænomenon is supposed to be the prodigious quantity of water discharged into it by the rivers. On the 23d having come to an

anchor off Punta de Arenas in the island of Puna, we sent on shore for a pilot to carry in our ship; for tho' the distance was only 7 leagues, the great number of shallows in this short passage, rendered a precaution of this kind prudent, if not absolutely necessary. And on the 24th at 7 in the morning, we safely anchord in Puna harbour; Cape Centinela bearing S. S. W. 2° 30′ westerly, and Cape Maria Mandinga, W. N. W. 1° 15′ westerly, distant one quarter of a league.

From Punta de Mala to St. Matthews bay, we had the wind first at north and north-west, afterwards it shifted to the north-east, and during the last day, veered to the E. N. E. but when we came in sight of this bay, changed again to the north; being preceded by rains, which continued till our arrival at Manta, the winds having shifted to the S. E. south, S. W. and west, but with some variations from all those points.

I have already mentioned that at St. Matthew's bay, it was not only the opinion of the pilots relating to the currents which set towards Gorgona, but also our own experience that induced us to alter our course, which was necessary in order to continue our voyage. All the rest of the coast from Cape St. Francis to Manta, they set to the north; and this prevented us from getting to windward, and obliged us to tack as the wind was contrary.

In our passage from Manta to Cape Blanco, the winds were not less favourable, continuing as before, except a few gales, at N. W. and N. N. E. till we made the above cape. The currents here also set to the northwards; and from Cape Blanco to Puna harbour, to seaward, that is, towards the west; but, as we have before observed with a greater velocity on the ebb than on the flood.

Being very desirous of observing an eclipse of the moon, which was to happen on the 26th of March, and our time for preparing for it being but short, we concluded to stay at a little village situated in this harbour; but finding these houses, which were entirely built of canes, too weak to support the pendulum, we determined to make the best of our way to Guayaquil; and accordingly, at half an hour after eleven at night, we left the ship at anchor, and went to the city in a boat; and at 5 in the evening of the 25th by the vigour of our rowers, we arrived at Guayaquil, notwithstanding the strength of the tide against us. Here we immediately applied ourselves to settle the pendulum; but our diligence was entirely frustrated, the air being so filled with vapours, that nothing was to be seen.

It

It may not be amiſs here to inſert the variations we obſerved in different parts of the ſouth ſea, in the ſame order with thoſe obſerved from Cadiz to Carthagena.

A table of Variations obſerved in ſeveral parts of the ſouth ſea, the longitude reckoned from the meridian of Panama.

Latitudes. deg.	min.	Longitude deg.	min.	Variation. deg.	min.
8	17N.	359	55	8	45E.
7	49	359	42	7	34
7	30	359	31	7	49
7	02	359	18	7	59
3	55	358	21	7	34
0	56	358	43	7	20
0	36	359	06	8	29
0	30	358	40	7	25
0	15	358	56	7	30
0	22 S.	359	50	8	17
0	51 Monte Chriſto bearing S. E. $\frac{1}{4}$ ſoutherly.			8	00

Island de la Plata, bearing S. 15° 45′ weſterly, and Monte Chriſto E. S. E. 7° 46

2 18 S	8	00
Cape Blanco S. S. W.	3	30W
Punto de Mero eaſt 7° northerly, diſtant 3 leagus	8	00

On the coaſt of Sumber, of which the latitude by obſervation was 3° 14′ 8 11.

APPENDIX to this CHAPTER.

Containing an account of a new inſtrument for taking altitudes at ſea; and ſhewing the many advantages it has over any other of the kind.

We ſhould for ſeveral days have been without knowing certainly the latitude, an object of the laſt importance in any voyage, had not Mr. Godin had the precaution to take with him an inſtrument lately made publick at London, by which the operation is rendered much more eaſy and certain. This ingenious gentleman having been pitched upon for the voyage to America undertook a journey to London, purely to purchaſe ſeveral inſtruments, and among others bought that already mentioned; and which proved of the greateſt uſe to

us, in finding the latitude during this paſſage; a point the more difficult and neceſſary, on account of ſeveral perplexing circumſtances; the courſe being ſometimes north, ſometimes ſouth, and the currents ſetting in the ſame direction. Aſſiſted by this inſtrument, we were enabled to take the meridian altitude of the ſun, whilſt from the denſity of the vapours which filled the atmoſphere, the ſhadow could not be defined on the uſual inſtruments. Beſides the uſe of finding the meridian altitude, this inſtrument has ſeveral others not leſs conſiderable, and therefore deſerves a particular deſcription, for the benefit of thoſe who may derive advantage from it, but are unacquainted with its uſes; and this we thought could not be better done than by the memoirs of the author himſelf, whom Don George Juan and I, from repeated experience, can affirm to deſerve the praiſe and thanks of all navigators.

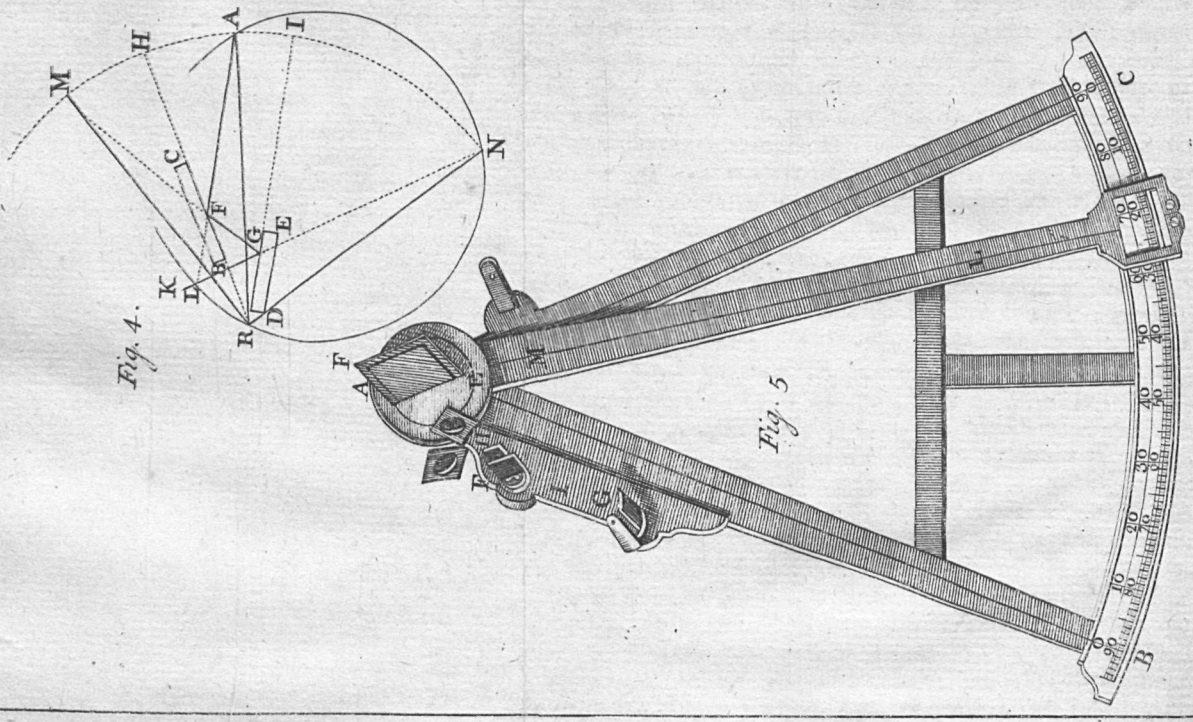
Deſcription of an inſtrument for taking angles by reflection, invented by John Hadley *Eſq; communicated to the Royal Society of* London, *May* 13 *and* 24, 1731. *

THIS inſtrument is deſigned to be of uſe where the motion of the object, or any circumſtance occaſioning an unſteadineſs in the common inſtruments renders the obſervations difficult or uncertain.

THE contrivance of it is founded on this obvious principle in catoptrics, that if the rays of light diverging from, or converging to any point, be reflected by a plane poliſhed ſurface, they will, after the reflection, diverge from, or diverge to, another point on the oppoſite ſide of that ſurface, at the ſame diſtance from it as the firſt; and that a line perpendicular to the ſurface, paſſing thro' one of thoſe points, will paſs through both. Hence it follows, that if the rays of light, emitted from any point of an object, be ſucceſſively reflected from two ſuch poliſhed ſurfaces, that then a third plane, perpendicular to them both, paſſing through the emitting point, will alſo paſs thro' each of its two ſucceſſive images made by the reflections: all three points will be at equal diſtances from the common interſection of the three planes; and if two lines be drawn thro' that common interſection, one from the original point in the object, the other from that image of which is made by the ſecond reflection; they will comprehend an angle double to that of the inclination of the two poliſhed ſurfaces.

* Philoſophical tranſactions, No. 420.

LET



1. A Spanish Lady of Quito. 3. An Indian Barber. 5. An Indian Peasant. Ridge Sc:
2. An Indian woman of Distinction. 4. A Mestizo of Quito. 6. An Indian Woman of the common sf

LET R F H (fig. 4. plate i.) and R G I represent the sections of the plane of the figure by the polished surfaces, of the two specula B C, and D E, erected perpendicularly thereon, meeting in R, which will be their point where their common section, perpendicular likewise to the same plane, passes it, and H R I is the angle of their inclination. Let A F be a ray of light, from any point of an object A, falling on the point F of the first speculum B C, and thence reflected into the line F G, and at the point G of the second speculum D E, reflected again into the line G K. Produce G F and K G, backwards to M, and N, the two successive representations of the point A; and draw R A, R M, and R N.

SINCE the point A is the plane of the scheme, the point M will be so likewise, by the known laws of catoptrics. The line F M is equal to F A, and the angle M F A, double the angle H F A, or M F H; consequently R M is equal to R A, and the angle M R A double the angle H R A, or M R H. In the same manner the point N, is also in the plane of the scheme, the line R N equal to R M, and the angle M R N double the angle M R I, or I R N. Subtract the angle M R A, from the angle M R N, and the angle A R N remains equal to double the difference of the angles M R I and M R H, or double the angle R H I, by which the surface of the speculum D E is reclined from that of B C; and the lines R A, R M, and R N are equal.

COROL. 1. The image N, by continuing the same point, although the two specular be turned together circularly on the axis R, so long as the point A remains elevated on the surface of B C, provided they retain the same inclination.

COROL. 2. If the eye be placed at L (the point where the line A F continued cuts the line G K) the points A and N, will appear to it at the angular distance A L N, which will be equal to A R N; for the angle A L N is the difference of the angles F G N, and G F L and F G N, is double F G I, and G F L double G F R, and consequently their difference double F R G, or H R I: therefore L is the circumference of a circle passing through A, N, and R.

COROL. 3. If the distance A R be infinite, those points A and N will appear at the same angular distance in whatever points of the scheme the eye and specula are placed; provided the inclination of their surfaces remain unaltered, and their common section parallel to itself.

COROL. 4. All the parts of any objects will appear to an eye viewing them by the two successive reflections, as before described, in the same situation as if they had been turned together circularly round the axis R, keeping their respective distances from one another; and the axis with the direction H I, i. e. the same way, the second speculum D E reclines from the first B C.

COROL. 5. If the specula be supposed to be at the center of an infinite sphere; objects in the circumference of a great circle, to which their common section is perpendicular, will appear removed by the two reflections though an arch of that circle equal to twice the inclination of the specula, as is before said. But objects at a distance from that circle will appear removed through the simular arch of a parallel: therefore the change of their apparent place will be measured by an arch of a great circle whose chord is to the chord of the arch equal to double the inclination of the specula, as the sines complements of their respective distances from that circle, are to the radius: and if those distances are very small, the difference between the apparent translation of one of these objects, and the translation of those which are in the circumference of the great circle aforesaid, will be to an arch equal to the versed sine of the distance of this object from that circle, nearly as double the sine of the angle of inclination of the specula is to the sine complement of the same.

THIS instrument consists of an actant A B C (fig. 5. plate i.) having on its limb B C an arch of 45 degrees divided into 90 equal parts, or half degrees, each of which answers to a whole degree in the observation. It has an index M L moveable on the centre to mark the divisions; and upon this, near the center, is fixed a plane mirrour E F, perpendicular to the plane of the instrument, and, by a line drawn from the center along the middle of the index, marks the degrees on the limb, as L M. On this mirrour the image of the object is first received, and from it reflected to another small mirrour on one of the arms of the instrument, which is in the plane of the first, or in another parallel to it, and as much above it as the central mirrour, and as the brass work of the larger covers its posterior part, so that half of the smaller is covered which is next the surface, and is the only one that is quicksilvered, the others being transparent, as may be seen in F. This small mirrour, being turned towards the observer, as the large one is from him, serves for observing objects by the fore observation; and for taking back observations, there is also another small mirrour G, placed also on the same radius or arm of the instrument,

ment, tho' ſomething farther from the center; but muſt alſo be perpendicular to, and in the ſame plane with the larger; that is in a plane parallel to that of the inſtrument, or very near it. The firſt mirrour is fixed on the center of the index and inſtrument; but the braſs work in which it is ſet, forms a circular baſe, or ſome other figure, ſcrewed on the index, but leaving it ſome play that it may be adjuſted in ſuch a manner as to coincide with the line drawn on the middle of the index. The other two ſmall mirrors have two motions, one circular, and the other lateral. That performed by the ſcrews, which fix its baſis to the arm of the quadrant, is for placing it perpendicular to the plane of the inſtrument; and the other, which is given to it by a key, moves the baſis of each mirror circularly to give them the inclination required, that the index being placed cloſe to the button, the ſurface of its mirrour and that for making fore obſervations may be parallel; but for the back obſervations exactly at right angles.

THE altitude of any celeſtial object above the horizon, is determined by the inclination of the two glaſſes to each other, when the object appears in the horizon; that is, of either of the leſſer glaſſes placed on the index, the two leſſer, in this caſe, being quite independant of one another. In the fore obſervation, the double of this angle of inclination is marked by the index on the limb. In the back obſervation, double the difference of this inclination from a right angle, gives the ſame altitude, and is marked by the index in the ſame manner, the ſcale of degrees ſerving indifferently for both; with this difference only, that in one the angle of inclination between the ſuperficies of the two glaſſes in found, and, in the other, its compliment.

EACH of the obſervations has a ſight vane belonging to it. In that for the fore obſervation are made two holes to direct the placing of the eye; the one being juſt the height above the plane of the inſtrument as the middle of the unquickſilvered part of the leſſer glaſs, the other about the height of the edge of the quickſilver itſelf, or a little lower. That for the back obſervation requires but one hole, which is placed exactly at the height of the middle of the clear part of the glaſs G, this having two quickſilvered parts, and in the middle of it a ſmall part, parallel to the plane of the inſtrument, which is not quickſilvered, and through this the horizon is diſcerned.

IN regard to objects, the brightneſs of whoſe reflected rays like thoſe of the ſun diſorder the ſight, and conſequently hinder the obſervation, there are two dark glaſſes, one more ſo than the other, which according as the ſtrength of the rays require,

require, are made uſe of. They are ſet in diſtinct frames of braſs, fixed to a pin, in two holes in the limb of the inſtrument, in H, in a fore obſervation, and in I, in a back one. Theſe two glaſſes turn round the pin which fixes them to the limb; and thus without taking the glaſs from the hole in the limb, they are either removed from, or placed in the line deſcribed by the reflected ray, as neceſſity requires.

THE method of taking obſervations with this inſtrument is to hold it vertically, ſo that the plane of the inſtrument coincides with that of the vertical circle paſſing thro' the zenith of the obſerver and object. The eye is then applied to the correſpondent vane, and the dex moved forward till thro' the leſſer glaſs the object appears preciſely in the horizon, ſeen thro' the unquickſilvered part of the glaſs. If the object be not arrived at the meridian, in proportion as it aſcends about the horizon, it is ſeen to remove from it thro' the leſſer glaſs, and the index gradually moved forward again renders it coincident with that circle.

IF the object be faint (as ſuppoſe the ſun when covered with thin clouds, or a ſtar) it muſt then be taken on the unquickſilvered part of the glaſs, and you muſt judge when the line of the horizon, ſeen directly through the other part of the glaſs, which is unquickſilvered, if produced, would paſs through the ſun or ſtar, taking care in either caſe to keep the line of direction of the ſight, that is, the line in which the image is ſeen, as near as poſſible parallel to the plane of the inſtrument; for which reaſon in uſing the fore obſervation, if the ſun be ſufficiently bright, take your obſervation on the middle of the unquickſilvered part of the glaſs, and look through the outward hole in the ſight vane. But if the ſun be too faint, or you obſerve a ſtar, take your obſervation near the edge or the quickſilvered part, and look through the hole neareſt the inſtrument.

WHEN the object is brought down ſo as to appear in or near the horizon, let the obſerver move the inſtrument from the right to the left, holding it always vertical, and the image of the ſun will appear to ſwim along the horizon; but if it appears at a diſtance from the horizon and does not touch it any where, it muſt by moving the index, be brought to touch the horizon in the loweſt part of its ſwing.

To know whether you hold the inſtrument upright carry it to right and left by turns, by the motion of the whole body, keeping the arms ſteady, and you will ſee the object ſlide along the horizon, otherwiſe it will run in a line cutting the horizon, and will give an uncertain altitude; and while the plane of it

continues

continues in the abovementioned vertical circle, the image of the object observed will never move out of the horizon.

In taking the altitude of the sun, if exactness be required, the center should not be used, because the diameter being between 30 and 32 minutes, it will be impracticable to determine exactly when the center is in the horizon; the best method therefore will be to take the altitude by the upper or under limb, adding or subtracting 15 or 16 minutes accordingly as the upper or under limb is used.

In making this correction it must be remembered that in the fore observation, the image of the sun, after the two reflections, is not inverted; the lower limb of the sun being the same in appearance as in reality; therefore if it has been the part observed, 15 or 16 minutes must be added to the altitude, marked on the limb by the index, in order to find the true altitude of the center of the sun above the horizon; but, on the contrary, if the upper limb as been observed, the same number of minutes must be subtracted. But in the back observation, the object is inverted, that limb which is in reality the highest, appears the lowest; therefore add or subtract contrarily to the rule relating to the fore observation; that is in taking the altitude by the limb which appears lowest, 15 or 16 minutes must be subtracted; if by the apparent upper limb, the same number must be added.

In observing a star, the best method, especially if high, is to look directly up at it, with the index placed at the beginning of the scale of degrees, and keeping your eye steady on it, by moving the index, the object will appear to run down till it touches the horizon, and when once it is seen in that circle, there is no difficulty of continuing the observation, as is usual in that of the sun. The reason of this caution is, that when two or more stars of the same brightness and magnitude are near one another, the observer should not mistake the object he intends to make use of. When the horizon is very bright and the star faint, the back observation should be used; in which case, look at the star, and by moving the index bring it down to the horizon. But as the observations are always made in the night, when the horizon is generally obscure, it will be proper to stand as near the surface of the water as possible, as it is by contraction rendered more discernable.

Two particulars are necessary to be remembered with regard to this instrument, in order to take an accurate observation, either by the fore or back methods: one to know whether the mirrors are perpendicular to the plane of the instrument; and the other to determine whether their reciprocal inclinations are just.

just. The first is easily performed, it being sufficient if they do not greatly deviate from their proper positions. But to know whether they are sufficiently exact, an object is chose at a league or half a league distant, tho' the most certain method is to use the horizon; the index touching the button, the eye is placed at the aperture of the sight vane adapted to the fore observation; if the arch of the horizon seen thro' the two sights, and that seen by reflection on the quicksilvered part coincide, the mirrors are truly placed; if not, it will be easy by means of screws on the plane of the index, to place the mirrors so that the coincidence may be perfect. The second examination is made by holding the instrument in a vertical position, the index being placed, as before, close to the button, or beginning of degrees, and the eye applied to the sight vane; if the horizon seen by reflection on the quicksilvered part of the glass coincides with that seen thro' the unquicksilvered part, and form one direct line, the two mirrours are parallel; if not the smaller must be turned by means of a handle on the back of the instrument, till they are truly adjusted; where it is fixed by means of a screw, to prevent any variation.

For the back observation the lesser mirror is examined in the same manner as before. The first trial is made by holding the instrument horizontally, and for the second vertically; and thus the fore observation will agree with the back, unless the observer be considerably above the surface of the sea, as is the case in large ships, by which means the observer instead of being in the plane of both horizons are considerably above it. But this small difference is adjusted by placing in the back observation, the index twice the number of minutes, from the button, contained between the real and apparent horizon; or double the dip of visible horizon; and thus if the two horizons coincide as before; that is if the former seen by reflection and the latter by direct vision be coincident, the observations may be securely performed.

It must be remembered that in the back observation, the horizon seen by reflection will be reverted, that is the water will appear above and the sky below.

In making these trials the mirrour on the index is supposed to be in a true position, and immoveable. This is known by a scale, and, as, we have already remarked, must be perpendicular to, and exactly in the line on the middle of the index.

With regard to the accuracy necessary in the construction of this instrument, the artist should be very attentive to several particulars, particularly be very careful in dividing its limb, all the errors committed there being doubled; the reason

reaſon of which is, that every half degree being by the nature of reflection, anſwerable to a whole, the error of a minute in the diviſion is equal to two. The index muſt have a circular motion on the center, and, conſequently, its axis always remain perpendicular to the plane of the inſtrument. Its whole motion muſt be eaſy and equal, that it may not bend, and for the greater ſecurity, ſhould be ſtrengthened by being made broader at its extremity near the center, and, conſequently, its flexibility prevented.

The mirrours ſhould be exactly flat, and finely poliſhed, as the leaſt irregularity in either of them would not only render the objects confuſed, but alſo vary their true ſituation when ſeen by reflection. Laſtly, the whole work, whether of wood or braſs, that is, the limb, center, and radii, muſt be in the ſame plane; and all the glaſſes in another parallel and as near to it as poſſible.

The dark glaſſes muſt likewiſe be true; however the ſame exactneſs is not requiſite as in the others, where the greateſt care is neceſſary; they muſt alſo be of a competent thickneſs. It is likewiſe requiſite that their ſurfaces be exactly parallel: they may be made either of metal or cryſtal.

This inſtrument has the following advantages above all others hitherto uſed: the motion of the ſhip is here no hindrance to the obſervation; for the luminous object appearing by the reflection in the horizon, both are ſeen in the ſame mirrour; and tho' the whole body of the inſtrument be agitated, and the objects ſeem to move in the mirrour, yet they always obſerve the ſame poſition; ſo that the object and horizon being once coincident, they are not ſeparated by the motion of the ſhip; and if by the continuance and violence of it they may be removed from the mirrour, they naturally return to it, and the object will be ſeen to riſe above the horizon as it approaches or recedes from the meridian; and, at the ſame time it will be equally eaſy to know its poſition, and repeat the obſervation as often as neceſſary. Other inſtruments are ſo far from having theſe advantages, that on ſuch occaſions, after a great deal of pains, the obſervation cannot be depended on to leſs than ten or twelve minutes. Thus different obſervers, tho' in a calm ſea and clear weather, are often known to differ from each other the quantity above mentioned.

All the inſtruments hitherto uſed at ſea for finding the latitude are very inconvenient; becauſe the ſight muſt, at the ſame time, be employed on two objects, and theſe being of a different kind and ſituated at very unequal diſtances, cannot be perfectly diſtinguiſhed, and therefore muſt cauſe a confuſion in the

the obſervation; conſequently no exact judgment can be formed either of the image or ſhade of the ſun exhibited on the vane, or of the horizon; the latter being at a vaſt diſtance from the former; whence it happens that the eye which it attends to the one, muſt loſe ſight of the other; an inconvenience from which the new octant is free, both the diſk of the ſun and the horizon appearing in the ſame place, and by coinciding ſeem to form only one object.

When in the common inſtruments the meridian altitude of the ſun cannot be obſerved, either from its light being too faint to caſt a ſhadow, or form its image, as it often happens, by the intervention of clouds; obſervations are made by this inſtrument with the ſame accuracy as when the ſun ſhines in his greateſt ſplendor; with this only difference, that, when its rays are weak, there is no neceſſiy for uſing the ſcreens, their whole intention being to defend the eye from too glaring a light. Beſides, tho' the horizon be ſomething obſcure, it does not hinder an obſervation, provided it be diſtinguiſhable by the naked eye; it being equally ſeen reflected in the mirrour, and the obſervation in both caſes performed with the ſame degree of accuracy, as in the cleareſt weather. Theſe accidents are frequent at ſea, and, conſequently, the navigator ignorant of his latitude, and often when it is of the laſt conſequence to be known.

When the ſun is near the zenith, the altitudes obſerved are either incorrect or entirely uſeleſs. The reaſon is becauſe the motion of the object muſt be very great to be perceived in the common inſtruments, but in this octant it is diſtinguiſhed to a ſingle minute.

There are alſo ſeveral other advantages peculiar to this inſtrument, now well known to every navigator.

CHAP. II.

Account of the voyage from Perico *to* Puna.

The briſas by their return, as we before obſerved, occaſion an alteration in the weather of Panama, by introducing the ſummer, as they alſo do in the paſſage from Perico to Puna; or, more properly, to cape Blanco: for after the Briſas have begun to blow at Panama, they gradually increaſe and ſpread, in oppoſition to the ſouth winds, till overcoming them they are ſettled; but their periods are not always equal, either on the land or in the ocean. Generally the Briſas do not reach beyond the equator, or are ſo faint, as often to be interrupted by calms, or other weak and unſettled winds. Sometimes, indeed, they have an extraordinary ſtrength, being felt even to the iſland of Plata. But their greateſt force is gradually increaſed

increaſed as we approach near to Panama. Theſe winds, which blow from between the north and north-eaſt, clear the atmoſphere, free the coaſt from fogs, and are not attended with tempeſts of rain; but frequently ſo ſqually, eſpecially between Cape Franciſco, and the bay of Panama, that without particular care and the utmoſt diſpatch in putting the ſhip in a proper condition, they are often dangerous.

At the period of the Briſas, the Sures or South-winds begin to blow; and, when ſettled, are more violent than the former. But they do not, as many have imagined, blow always preciſely from the ſouth; for they ſhift from the ſouth-eaſt even to the ſouth-weſt, and their diſtance from the ſouth is obſerved to be greateſt at particular times. When they incline to the ſouth-eaſt, which is the land ſide, they are accompanied with violent, but happily ſhort, tempeſts of wind and rain. The ſhips, which trade from the coaſts of Peru and Guayaquil to Panama, generally ſail during the Sures, in order to take the benefit of the north wind at their return; and by that means their voyages are eaſily and expeditiouſly performed. Sometimes, indeed, they ſail with other winds, tho' they are generally longer at ſea, in order to reach Paita, but often this diligence or rather avarice is ſo far diſappointed that they are obliged to put in at Tumaco, Acames, Manta, or Punta de Santa Elena for proviſions and water.

These are the principal winds in this paſſage, and whatever changes may ſometimes happen, they are not of any continuance; the ſettled wind ſoon recovering its place.

The currents in theſe parts are not ſo regular as the winds; for during the Briſas, the waters run from Morro de Puercos S. W. and W. to the height of Malpelo; and from thence E. and E. S. E. to cape St. Francis, inclining ſomething towards Gorgona. From cape St. Francis their direction is ſouth and ſouth-weſt, which continues for 30 or 40 leagues ſeawards, the ſtrength of them being proportionate to that of the Briſas.

During the ſeaſon of the Sures, or ſouth winds, the currents run N. and N. W. from Punta de Santa Elena, as far as cape St. Francis, extending thirty or forty leagues ſeawards; from hence they run with a great velocity eaſt as far as the meridian of Malpelo; and from Morro de Puercos ſouth-eaſt, along the coaſt, tho' at ſome diſtance from it, and tending partly to the bay of Gorgona. But from the meridian of Malpelo to Morro de Puercos, they run with great violence north-weſt and weſt. Alſo in the paſſage from cape Blanco to cape Santa Elena, a violent current runs weſt from the river of Guayaquil, during its ſwellings; but when the river is low, the current

current sets into Puna bay: the time of the former is during the Brisas, and the latter in the season of the Sures.

At all times in leaving Perico to sail to Guayaquil, or the coast of Peru, care must be taken to keep at a proper distance from the island of Gorgona, many instances having happened of ships being lost, either by this negligence, or, more frequently, by calms. It is also equally necessary to be careful of the island of Malpelo; but the latter is of the two the least dangerous; as the greatest detriment is only a longer delay of the voyage.

If a ship happens to come in sight of the island of Gorgona, it will be found very difficult to get clear of it by steering either south, south-west, or even north; so that the surest method is to return towards Panama along the coast, the currents there changing their direction; at the same time taking care not to keep at a great distance from it, to avoid being again carried away by the current, which sets south-east.

The land all along the coast from Panama to Santa Elena, is of a midling height, except in some parts, where we discern mountains at a vast distance and very high; being part of the cordillera. Monte Christo is the land-mark of Manta being a pretty high mountain, and having a village of the same name at its foot.

In the bays along this coast, and particularly at the mouths of rivers, it is dangerous to keep close to the shore, there being many shallows not known even to the pilots of the country. In the bay of Manta there is one at the distance of three or four leagues from the shore, on which several ships have struck; but the water is here so smooth, that all the damage they sustained was their being obliged to be immediately careened in order to stop the leaks occasioned by the accident.

In all this passage a rough sea is seldom met with; for if it be sometimes agitated by squalls and short tempests, it soon subsides after the storm is over. Whilst the south winds prevail, fogs are very frequent, and sometimes so thick, as totally preclude all sight of the coast. This we ourselves partly experienced in our passage; whereas, during the Brisas, it is quite the contrary; the air is serene, and the coast so clear as to be approached with confidence and safety.

CHAP.

CHAP. III.

Of our ſtay at Guayaquil, *and the meaſures taken for our journey to the mountains.*

THE ſhip, St. Chriſtopher, which we left at Puna, followed us ſo ſoon, that on the 26th in the evening ſhe came to an anchor before the city; the next day all our baggage and inſtruments were landed, and we began our obſervation for determining the ſituation of Guayaquil, with regard to its latitude and longitude. The deſire of ſucceeding rendered us very attentive to obſerve an immerſion of the ſatellites of Jupiter, to make amends for our diſapointment of the eclipſe of the moon; but we were in this equally unfortunate; the denſity of the vapours which filled the atmoſphere rendered our deſign abortive; but the days being more favourable than the nights for aſtronomical obſervations, we took ſeveral meridian altitudes of the ſun, and never neglected any opportunities that offered during the nights of doing the ſame with regard to ſome particular ſtars.

ON our arrival at Guayaquil, the corregidor of that city, whoſe great civility, together with that of all the king's officers and other perſons of diſtinction deſerve our acknowledgments, ſent notice of it to the corregidor of Guaranda, that he might order carriages to the port of Caracol, for conveying us to the mountains. The paſſage thither was then indeed impracticable, it being in this country the end of winter, at which time the roads are extremely bad, and the rivers ſwelled ſo as not to be forded without the greateſt riſk, and too wide for the bridges of this country.

THE corregidor of Guaranda was then at Quito, on ſome buſineſs of his office; but the preſident and governors of that province, Don Dionyſio de Alcedoy Herrera, ordered him to return to his juriſdiction without delay, for providing every thing neceſſary for our journey; ſending, at the ſame time, circular orders to all the other corregidors, through whoſe juriſdictions we were to paſs to Quito, enjoining them not to be wanting in any kind of good office in their power. Every thing being thus happily diſpoſed, and advice arriving that the mules were on their way to Caracol, where they arrived the 6th of May, we were no leſs expeditious to embark on the river, which is the uſual paſſage. There is indeed a road by land; but at all times extremely difficult and dangerous, on account of the many bays and large rivers which muſt be paſſed;

ſo that no perſon travels this road but in ſummer, and then only ſuch as have no baggage, and are beſides well acquainted with the country and the ferries of the rivers.

CHAP. IV.

Deſcription of Guayaquil.

THO' there is no certainty with regard to the time when Guayaquil was founded, it is univerſally allowed to be the ſecond city of Spaniſh origin, both in its own province and the kingdom of Peru; it appearing from ancient records preſerved in its archives, that it was the next city founded, after San Miguel de Piura, and the foundation laid of Los Reyes, Remac, or Lima, being in 1534, or according to others in 1535, the building of Guayaquil may be fixed between thoſe two years; but the proſperity it attained under its governor Belalcazar was of no long continuance, being, after ſeveral furious attacks, entirely deſtroyed by the neighbouring indians. It was however in 1537, rebuilt by captain Franciſco de Orellana. The firſt ſituation of Guayaquil was in the bay of Charapoto, a little to the northward of the place where the village of Monte Chriſto now ſtands; from whence it was removed to the preſent ſpot, which is on the weſt bank of the river of Guayaquil, in 2° 11′ 21″ of ſouth latitude, as appeared from our obſervations. Its longitude was not determined by any accurate obſervations; but, by computing it from thoſe made at Quito, it is 297° 17′ reckoning from the meridian of Teneriff. On its removal by Orellana, from its firſt ſituation, it was built on the declivity of a mountain called Cerillo Verde, and is now termed Ciudad Viega, or the old town. Its inhabitants being afterwards ſtreightened by the mountain on one ſide, and by ravins or hollows made by floods of rain, on the other, formed a deſign, without entirely abandoning the place, to build the principal part of the city, at the diſtance of five or ſix hundred toiſes; which was accordingly begun in 1693, and for preſerving a communication with the old part, a bridge of timber was erected, of about three hundred toiſes in length by which means the inconveniencies of the ravins are avoided, and the intervals being filled with ſmall houſes the old and new towns are now united.

THIS city is of conſiderable extent, taking up, along the bank of the river from the lower part of the old town to the upper part of the new, a ſpace of near half a league; but the breadth is not at all proportional, every perſon being fond of having

having a houſe near the river, both for the amuſements it affords, and for the benefit of refreſhing winds, which, in winter, are the more eagerly coveted, as they are very rare.

All the houſes of both towns are built of wood; and many of them covered with tiles; tho' the greateſt part of thoſe in the old town are only thatched; but in order to prevent the ſpreading of fires, by which this city has ſeverely ſuffered on ſeveral occaſions, ſuch covering is now prohibited. Moſt of theſe conflagrations owed their riſe to the malevolence of the Negroes, who, in order to revenge ſome puniſhments inflicted on them by their maſters, took the opportunity during the night, of throwing fire on the thatch, and by that means not only ruined thoſe who were the immediate objects of their revenge, but alſo the greateſt part of the inhabitants of the city.

Tho' the houſes are wholly built of wood, they are generally large and beautiful; have all one ſtory and an entreſole; the back part of the ground floor ſerves for warehouſes, and in the front are ſhops of all kinds, and generally before them ſpacious porticoes, which, are, indeed in winter time, the only parts where you can walk, the ſtreets being utterly impaſſable.

As a further precaution againſt fire, which they have ſo much reaſon to dread, the kitchens ſtand twelve or fifteen paces from the houſes, with which they communicate by means of a long open gallery, reſembling a bridge; but ſo lightly built, that, on the leaſt appearance of fire in the kitchen, it is demoliſhed in an inſtant; by which means the houſe is preſerved. Perſons of rank and fortune live in the upper apartments, and the entreſoles are let to ſtrangers who come to trade, or paſs thro' the city with their goods.

The ground on which the new city is built, and the ſavannahs in its neighbourhood, are not to be travelled over either on foot or horſeback during the winter; for beſides being a ſpungy chalk, it is every where ſo level, that there is no declivity for carrying off the water; and therefore, on the firſt rain it becomes one general ſlough. So that from the time of the rains ſetting in till the end of the winter, it is neceſſary to lay in the parts not covered by the above mentioned piazzas, very large planks for croſſing over them; but theſe ſoon become ſlippery and occaſion frequent falls into the chalky ſlough. The return of ſummer, however, ſoon exhales the water, and renders the ground ſufficiently dry for travelling. In this reſpect the old town has the advantage, being built on a gravelly ſoil, which is never impaſſable.

THIS city is defended by three forts, two on the river near the city, and the third behind it, guarding the entrance of a ravin. These are all built after the modern method of fortification; but before they were erected, it had only a platform, which is still remaining in the old town. These forts are built of large pieces of very hard wood, forming a variety of pallisades, and the wood is particularly proper for this country, and the use it is here applied to; retaining its solidity either under the water or in the mud. Before these fortifications were erected, the city was taken by European Corsairs, in the years 1686, and 1709; but the success of the latter was owing to the villany of a Mulatto, who, in order to revenge himself on some particular persons in the city, conducted the enemy thro' a bye way, where they were not expected; so that the inhabitants being surprized were not prepared for defence.

ALL the churches and convents are of wood except that of St. Domingo, still standing in the old town, which is of stone; the great solidity of the ground in that part being sufficient for supporting buildings of this kind. The convents in the new city, besides the parochial church, are an Augustine and a Franciscan, together with a college of jesuits; but the members of them not very numerous on account of the smallness of the revenues. Here is also an hospital, but without any other endowment than the shell of the building. The city and its jurisdiction are under a corregidor, nominated by the king, and holds his office during five years. Notwithstanding he is subordinate to the president and audience of Quito, he appoints the deputies in the several departments of his jurisdiction; and for the police and civil government, Guayaquil has ordinary alcaldies and regidores. The revenue is managed here by a treasurer and an accomptant, who receive the tributes of the Indians, the duties on imports and exports, and the taxes on commodities, which are either consumed there or carried through it.

THE ecclesiastical government is lodged in the bishop of Quito's vicar, who is generally also the priest of the town.

CHAP.

CHAP. V.

Of the inhabitants, customs, and riches of Guayaquil.

GUayaquil contains, in proportion to its dimensions, as many inhabitants as any city in all America; the continual resort of strangers drawn thither by commerce, contributing very greatly to increase the number, generally computed at twenty thousand. A great part of its eminent families are Europeans who have married there; besides which, and substantial Creoles, the other inhabitants are of different casts, as in the cities already described.

THE inhabitants capable of bearing arms are divided into companies of militia, according to their rank and cast; so that on occasion they may be ready to defend their country and property. One of these, consisting entirely of Europeans, and called the foreign company, is the most numerous, and makes the most splendid appearance among the whole militia. Without considering their wealth or station, they appear in arms, and pay a proper obedience to their officers, who are chosen by themselves, from their own body, being generally such as have served in Europe, and consequently more expert in military affairs. The corregidor is the commander in chief, having under him a colonel and major, for disciplining the other companies.

THO' the heat here is equal to that of Panama or Carthagena, yet the climate distinguishes itself in the colour of the human species; and if a certain author has styled it the equinoctial Low Countries in allusion to the resemblance it bears to the Netherlands of Europe, it may, with equal propriety, bear that appellation from this singularity, namely, that all the natives, except those born from a mixture of blood, are fresh-coloured, and so finely featured as justly to be styled the handsomest both in the province of Quito, and even in all Peru. Two things are here the more remarkable, as being contrary to common observation; one, that notwithstanding the heat of the climate, its natives are not tawny; the other, that tho' the Spaniards have not naturally so fair a complexion as the northern nations, their children born here of Spanish women, are very fair; nor has this phænomenon hitherto been sufficiently explained. To attribute it to the effluvia exhaling from the contiguous river, appears to me little satisfactory; other cities having the same advantageous situation, without producing any improvement in the complections of the inhabitants; whereas here fair persons are the most common, and the children have universally light hair and eye-brows, and very beautiful faces.

To these personal advantages bestowed by nature in a distinguished manner on the inhabitants, it has added, the no less pleasing charms of elegance and politeness; so that several Europeans, who intended only a short stay here, have married and settled; nor were their marriages owing to the immense fortunes of their ladies, as in some other cities of this country, the inhabitants not being at all famous for their riches.

The dress of the women at Guayaquil nearly resembles that at Panama, except only when they either pay or receive a visit; instead of the pollera, they wear a faldellin, which is not longer than the pollera, but being open before, and crossing one side over the other, is adorned in the most profuse manner. It is furbeloed with a richer stuff, near half a yard in depth, and bordered with fine laces, gold or fringe, or ribbands, disposed with an air, which renders the dress extremely rich and becoming. When they go abroad without a veil, they wear a light brown coloured mantelet, bordered with broad strips of black velvet, but without laces or any other decorations. Besides necklaces and bracelets, they wear rosaries, of the same degree of richness as at Panama, and not only load their ears with brilliant pendants, but add tufts of black silk, about the size of a filberd, and so full of jewels as to make a very splendid appearance.

From the commerce of this city a stranger would imagine it richer than it actually is. This is partly owing to the two dreadful pillages it has suffered, and partly to fires, by both which it has been totally ruined. And tho' the houses here, as we have already observed, are only of wood, the whole charge of which is the cutting and bringing it to the city, yet the expence of a house of any figure amounts to fifteen or twenty thousand dollars, workmens wages being very high, and iron remarkably dear. Europeans, who have raised any thing of a fortune here, when they have no immoveable goods to detain them, retire to Lima, or some other city of Peru, where they may improve their stocks with greater security.

CHAP. VI.

Of the temperature of the air, and the different seasons at Guayaquil; *its inconveniencies and distempers.*

In Guayaquil the winter sets in during the month of December, sometimes at the beginning, sometimes in the middle, and sometimes not till the end of the month, and lasts

lasts till April or May. During this season, the elements, the insects, and vermin seem to have joined in a league to incommode the human species. Its extreme heat appeared from some thermometrical experiments; for on the 3d of April, when its intenseness had begun to abate, at six in the morning the liquor stood at 1022; at noon at 1025; and at three in the afternoon at 1027; which shews the heat in the middle of winter to be greater than at Carthagena. The rains also continue day and night, accompanied with frequent and dreadful tempests of thunder and lightning. So that every thing seems to conspire to distress the inhabitants. The river and all those which join it, overflow their banks, and lay under water the whole country. The long calm renders the refreshing winds very desirable, and the innumerable swarms of insects and vermin, infest both the air and ground in an intolerable manner.

THE snakes, poisonous vipers, scorpions and scolependra in this season find methods of getting into the houses to the destruction of many of the inhabitants. And tho' they are not actually free from them all the rest of the year, yet at this time they are far more numerous, and also more active; so that it is absolutely necessary to examine carefully the beds, some of these animals having been known to find their way into them; and both as a safeguard against the danger, and to avoid the tortures of the moscitos and other insects, all persons, even the negro slaves and Indians, have toldos or canopies over their beds. Those used by the lower class of people are made of tucuyo, or cotton, wove in the mountains: others use white linen laced, according to the temper or ability of the owner.

THO' all these hot and moist countries, swarm with an infinite variety of volatile insects, yet the inhabitants are no where so greatly incommoded as at Guayaquil, it being impossible to keep a candle burning, except in a lantern, above three or four minutes, numberless insects flying into its flame and extinguishing it. Any person therefore being obliged to be near a light, is soon driven from his post by the infinite numbers which fill his eyes, ears, and nostrils. These insects were almost insupportable to us, during the short clear intervals of some nights, which we spent in making observations on the heavenly bodies. Their stings were attended with great tortures; and more than once obliged us to abandon our observations, being unable either to see or breathe for their multitudes.

ANOTHER terrible inconvenience attending the houses here, are the numbers of pericotes, or rats, every building being so

infeſted with them, that, when night comes on, they quit their holes, and make ſuch a noiſe in running along the ceiling, and in clambring up and down the ſides of the rooms and canopies of the beds, as to diſturb perſons not accuſtomed to them. They are ſo little afraid of the human ſpecies, that, if a candle be ſet down without being in a lantern, they immediately carry it off; but as this might be attended with the moſt melancholy conſequences, care is taken, that their impudence is ſeldom put to this trial, tho' they are remarkably vigilant in taking advantage of the leaſt neglect. All theſe inconveniences, which ſeem *inſupportable to ſtrangers, and alone ſufficient* to render ſuch a country uninhabited, little affect the natives, as having been uſed to them from their infancy; and they are the more affected with cold on the mountains, which the Europeans ſcarce feel, or, at leaſt, think very moderate, than with all theſe diſagreeable particulars.

THE leaſt troubleſome ſeaſon here is the ſummer, as then both the number and activity of theſe vermin are diminiſhed; it being a miſtake in ſome authors to ſay they abound moſt in that ſeaſon. The heat is then abated, by the ſetting in of the S. W. and W. S. W. breezes, called here chandui, as coming over a mountain of that name. Theſe begin conſtantly at noon, and continue to refreſh the earth till five or ſix in the morning of the following day. The ſky is always ſerene, and bright, the gentleſt ſhowers being rarely known. Proviſions are alſo in greater plenty, and thoſe produced in the country of a very agreeable taſte, if uſed while freſh. Fruits are alſo more common, eſpecially melons and water melons, which are brought in large balzas to the city. But the capital advantage is the remarkable ſalubrity of the air in that ſeaſon.

DURING the winter, tertian fevers are very common, and are here particularly painful and dangerous, owing partly to neglect and partly to an averſion to the uſe of the cortex, being prepoſſeſſed with a notion, that as hot, it can have no good effect in that climate; ſo that blinded with this prejudice, without ever conſulting phyſicians, who would undeceive them, they ſuffer the diſtemper to prey upon them, till they are often reduced to an irrecoverable ſtate. The natives of the mountains, who are enured to a cold air, cannot endure that of Guayaquil, it having a natural tendency to debilitate them, and by an intemperate uſe of its delicious fruits they throw themſelves into thoſe fevers, which are as common to them in one ſeaſon as annother.

BESIDES this diſeaſe, which is the moſt general, ſince the year 1740, the black vomit has alſo made its appearance, the

the gallions of the ſouth-ſea, having, on account of the war, touched here in order to ſecure the treaſure, among the provinces of the cordillera. At that time great numbers died on board the ſhips, together with many foreigners, but very few of the natives. In ſaying that the gallions brought this diſtemper to Guayaquil, I follow the general opinion, as it was before that epoca unknown there.

THE natives are very ſubject to cataracts, and other diſtempers of the eye, which often cauſe a total blindneſs. Tho' theſe diſtempers are not general, yet they are much more common than in other parts, and I am inclined to think it proceeds from the aqueous exhalations during the winter, when the whole country is overflowed with water, and which, from the chalky texture of the ſoil, muſt be viſcid in the higheſt degree, and penetrating the external tunic, not only foul the cryſtalline humour, but alſo cover the pupil, from whence cataracts and other diſorders of the eyes have their origin.

CHAP. VII.

Proviſions and manner of living at Guayaquil.

HERE, as at Carthagena, nature and neceſſity have introduced ſeveral kinds of bread, made from different grains and roots, to ſupply the want of wheat. But the moſt uſual here is the criollo, or natural bread, being unripe plantanes, cut into ſlices, roaſted, and ſerved up as bread. But this is not entirely owing to neceſſity, as ſeveral kinds of meal might eaſily be brought from the neighbouring mountains, in ſufficient quantities to ſupply all the inhabitants of the city; tho' only a ſmall ſhare of it would fall to the lot of the poor on account of the price which vaſtly exceeds that of the plantanes. However this be, the latter are deſervedly preferred to wheat bread, which is ſo badly made, that even the Europeans refuſe to eat it, and accuſtom themſelves to the criollo, which is far from being unpalatable.

MOST of the other proviſions except beef, fruits, and roots, are imported from the provinces of the Cordelleros and Peru. It would naturally be expected that the ſeveral branches of this river, which abounds in fiſh, would cauſe a great plenty of them in the city; but it is quite otherwiſe, and the ſmall quantity caught near it, is far from being good; and ſo full of bones, that none but the inhabitants can eat them without danger. Their badneſs in the neighbourhood of the city is probably owing to the brackiſh water; but ſome leagues above the

the city the river affords a great ſupply of what is very excellent. In ſuch hot climates, however, they cannot be kept without ſalt, and it is very ſeldom the fiſhermen venture to carry any to the city, leſt after all their labour, they ſhould be obliged to throw them away.

THE coaſts and neighbouring ports abound in very delicious fiſh, ſome of which are carried to the city, as keeping better than the ſpecies in the river; and theſe, together with ſeveral of the teſtaceous kind, conſtitute a conſiderable part of the food of the inhabitants of Guayaquil. In the ſalt-creek are taken very large and fine lobſters, of which they make ſeveral delicious ragouts: and from Jambeli creek, on the coaſt of Tumbez, are, brought great quantities of oyſters, which in every reſpect, ſurpaſs thoſe of all the coaſts from Panama to Peru, where there is alſo a great demand for them.

THE ſame cauſe which drives from that part of the river near the city, the fineſt fiſh, ſome to the ſalt and others to the freſh waters, according to their reſpective natures, renders good water very ſcarce at Guayaquil, eſpecially in ſummer; none being to be had at a leſs diſtance than four or five leagues up the river, according to the height of its waters. Many balzas are therefore employed in fetching water, and ſelling it to the inhabitants. During the winter this trade is partly at a ſtand, as by the increaſe of the rivers, the water at Guayaquil is rendered fit for uſe.

INSTEAD of lard, as at Carthagena and other places, they commonly uſe in dreſſing their food at Guayaquil beef ſuet. But whether the climate will not permit the beaſts to acquire a proper degree of fatneſs, whether the ſuet itſelf be not good, or whether they are careleſs in ſeparating it from the tallow, the ſmell and taſte of both are much the ſame, which renders their diſhes extremely nauſeous to ſtrangers; and, what is little better, they ſeaſon all of them with Guinea pepper, which tho' ſmall is ſo very ſtrong, that the ſmell of it when whole, ſufficiently declares its ſurprizing activity: ſo that perſons not accuſtomed to it, ſuffer either way. If they eat, their mouths ſeem in a flame; if they forbear, they muſt endure hunger, till they have overcome their averſion to this ſeaſoning; after which they think the Guinea pepper the fineſt ingredient in the world for giving a reliſh to their food.

THE inhabitants of Guayaquil affect great ſplendor in their formal entertainments; but the method of them is not very agreeable to an European gueſt. The firſt courſe conſiſts of different kinds of ſweetmeats, the ſecond of high-ſeaſoned ragouts; and

and thus they continue to serve up an alternate succession of sweet and high-seasoned dishes. The common drink on these occasions is grape brandy, there called Aqua Ardiente de Castilla, cordials and wine. Of all which they drink freely during the entertainment, heightening the pleasure by the variety; but the Europeans generally prefer wine.

THE custom of drinking punch has lately increased considerably in this city; and when drank in moderation is found to agree very well with the constitutions of this climate. Accordingly it has obtained greatly among persons of distinction, who generally drink a glass of it at eleven, and again in the evening. Thus allaying their thirst, and at the same time correcting the water, which, besides the disagreeable taste communicated to it by the heat, promotes an excessive perspiration; and this custom is so prevailing that even the ladies punctually observe it; and the quantity both of acid and spirit being but small, it becomes equally wholesome and refreshing.

CHAP. VIII.

Extent of the jurisdiction of Guayaquil.

THE most northern part of the jurisdiction of Guayaquil begins at Cape Passado, so called from its lying 21' south of the equinoctial, and about half a degree north of the bay of Manta. From this cape it continues all along the coast, including the isle of Puna, to the town of Machala on the coast of Tumbez, where it is terminated by the jurisdiction of Piura. From thence it runs away eastward, and is bounded by that of Cuenca; and then turning northwards along the western skirts of the Andes, it terminates on those of Bamba and Chimbo. Its length from north to south is about 60 leagues, and its breadth from east to west 40 or 45; reckoning from the point of Santa Elena to the parts called Ojibar. Its whole country, like that in the neighbourhood of the city, is one continued plain, and in winter universally overflowed. It is divided into seven lieutenancies or departments, for each of which the corregidor appoints a lieutenant or deputy, who however must be confirmed by the audience of Quito. These departments are Puerto Viejo, Punta de Santa Elena, Puna, Yagauche, Babahoyo, Baba, and Daule.

THE lieutenancy de San Gregorio de Puerto Viejo, is bounded northward by the government of Atacames, and southward by the lieutenancy of Santa Elena. Its capital of the same name, tho' small, thinly peopled, and poor, enjoys the privileges

privileges of a city, and includes the towns of Monte Christo, Picoasa, Charapoto, and Xipijapa. These have their particular priests, who are likewise the spiritual directors of all the smaller villages in this district.

THE town of Monte Christo stood at first in the bay of Manta, and was called by that name. It had then a considerable commerce by means of vessels passing from Panama to the ports of Peru; but having been pillaged and destroyed by some foreign adventurers who infested those seas, the inhabitants removed it to the foot of Monte Christo, where it now stands, and from whence it has its name.

SOME tobacco is planted in this jurisdiction; but is not much esteemed; and the rest of its products, as wax, cotton and pita, are barely sufficient to support its inhabitants, tho' they are far from being numerous; occasioned by the general poverty which reigns through all its towns and villages. The kinds of timber natural to such hot and moist countries, grow here in prodigious quantities.

FORMERLY along the coast, and in the bay belonging to this lieutenancy, was a considerable pearl fishery; but it has been totally discontinued for some years; occasioned partly from the dangers the divers were exposed to and from the mantas and tintoreras already described; partly from the poverty of the inhabitants of this country, who being in general Indians and Casts, want ability; to purchase negroes for this occupation. The bay has probably its name from the great number of mantas in those parts especially as the common employment of the inhabitants is the taking that fish, which they salt, and carry into the inland provinces. The Europeans cannot help admiring their dexterity in this kind of fishery, which they carry on in the following manner. They throw into the water a log of wood, such as they use in making a balza, being about five or six yards in length, and near a foot in diameter, and sufficient to bear the weight assigned it, which is a net lying across one end of it, while an Indian stands in an erect position on the other; and by the help of a canalete or oar, puts off to sea, to the distance of half a league or more, where he shoots his net. Another Indian, who follows him on a similar log takes hold of the robe fastened to one end of the net, and when the whole is extended they both move towards the land, where their partners wait to draw the net ashore. And here one cannot help observing with astonishment the dexterity and agility of the Indians, in maintaining an equilibrium on round logs, where by the continual agitations of the sea they must be always changing their position, and making different motions

ons with their body; and what ſtill heigthens the difficulty is, that he is obliged at the ſame time to mind hoth his oar and the net, in drawing it towards the land. They are indeed excellent ſwimmers, ſo that if they happen (which is very ſeldom) to ſlip off, they are ſoon on the log again, and in their former poſture, at leaſt they are in no danger of being ſhipwrecked.

I SHALL place Punta de Santa Elena as the ſecond lieutenancy, becauſe it joins to the ſouth part of the former. It extends all along the weſtern coaſt from the iſles of Plata and Salango, to the ſame Punta de Santa Elena; from thence it ſtretches along the north coaſt, formed by the bay of Guayaquil; comprehending in this extent the towns of Punta, Chongon, Morro, Colonche, and Chandui. At Chongon and Morro two prieſts reſide, to whoſe pariſhes the others belong. The lieutenant, inveſted with the civil government, reſides in the town of Punta, two leagues from the port, where there are indeed warehouſes or rather ſheds, for receiving ſalt and other goods, but no dwelling houſes.

THE port of Punta has ſo many ſalt works, that it ſupplies the whole province of Quito and juriſdiction of Guayaquil. The ſalt is not the fineſt, but remarkably compact, and anſwers very well the principal intention, that of ſalting fleſh.

ON the coaſt belonging to this lieutenancy is found that exquiſite purple, ſo highly eſteemed among the antients; but the fiſh from which it was taken having been either unknown or forgoten, many moderns have imagined the ſpecies to be extinct. This colour however, is found in a ſpecies of ſhell fiſh, growing on the rocks waſhed by the ſea. They are ſomething larger than a nut, and are replete with a juice, probably the blood, which, when expreſſed, is the true purple; for if a thread of cotton, or any thing of a ſimilar kind, be dipt in this liquor, it becomes of a moſt vivid colour, which repeated waſhings are ſo far from obliterating that they rather improve it; nor does it fade by wearing. The juriſdiction of the port of Nicoya in the province of Guatemala alſo affords this ſpecies of turbines the juice of which is alſo uſed in dying cotton threads, and in ſeveral parts for ribbands, laces, and other ornaments. Stuffs dyed with this purple are alſo highly valued. This precious juice is extracted by different methods. Some take the fiſh out of its ſhell, and laying it on the back of their hand, preſs it with a knife from the head to the tail, ſeparating that part of the body into which the compreſſion has forced the juice, and throw away the reſt. In this manner

ner they proceed till they have provided themſelves with a ſufficient quantity. Then they draw the threads thro' the liquor, which is the whole proceſs. But the purple tinge does not immediately appear, the juice being at firſt of a milky colour: it then changes to green, and laſtly into this celebrated purple. Others purſue a different method in extracting the colour; for they neither kill the fiſh, nor take it entirely out of its ſhell; but ſqueeze it ſo hard as to expreſs a juice with which they dye the thread, and afterwards replace the fiſh on the rock from whence it was taken. Some time after it undergoes a ſecond operation; but without yielding ſo much juice as at firſt; and at the third or fourth very little, by which means the fiſh is exhauſted beyond recovery. In 1744, being in the lieutenancy of Santa Elena, I had the ſatisfaction to ſee this liquor extracted according to the firſt proceſs, and ſome threads dyed with it. This purple is far from being ſo common as ſome authors have imagined; for tho' the fiſh increaſes, yet ſo large a quantity is neceſſary to dye a few ounces of thread, that little of it is ſeen; and indeed, its great price is partly owing to its ſcarcity. Another circumſtance worthy obſervation, and which increaſes or diminiſhes the value, is the difference of weight and colour of the cotton dyed with it according to the different hours of the day. I could not find any ſatisfactory account of this property at Punta de Santa Elena, where the inhabitants being leſs curious, have not carried their ſpeculations ſo far as to be acquainted with this remarkable ſingularity; whereas at Nicoya it is ſo well known that the dealers in it, both buyers and ſellers are exactly acquainted with the times of its increaſe or decreaſe, ſo that one of the firſt preliminaries to a contract is, to ſettle the time when it ſhall be weighed. From this alteration of the weight of the purple thread at Nicoya it may be inferred, that the ſame happens at Punta de Santa Elena, the turbines at both places being exactly of the ſame ſpecies, and without the leaſt viſible difference in colour. Another very remarkable particular relating to its tinct, and which, however, ſtrange, I have heard from perſons of undoubted veracity, is, that the colour of a thread of flax is very different from that of a thread of cotton. It would therefore be proper to make repeated experiments on threads of ſilk, flax and wool.

Some by ſaying that the fiſh from whence this dye is extracted breeds in a ſhell, by which either the flat or acaracolada or ſpiral, may be underſtood, it may not be improper to remark, that it is the laſt ſpecies, and accordingly the cotton tinged with this juice is called Caracolillo.

This

This department alſo abounds in fruits, cattle of all kinds, wax, and fiſh; ſo that the inhabitants have very profitable motives for induſtry; accordingly it is very populous, and tho' it does not abound in towns, the number of inhabitants far exceeds that of the preceding government, and the harbour of Punta is much frequented by veſſels; that is, by ſuch as trade between Panama and the ports of Peru, in order to purchaſe different kinds of proviſions, as calves, kids, fowl, and other kinds, of which there is here a great plenty. Veſſels belonging to the merchants of Guayaquil of two hundred tuns, load here with ſalt; a trade, which from the cheapneſs of that commodity, turns to very good account.

The next lieutenancy ſouthward is Puna, an iſland in the mouth of Guayaquil river. It extends north-eaſt and ſouth-weſt, between ſix and ſeven leagues, and is of a quadilateral figure. According to an ancient tradition its inhabitants were once between twelve and fourteen thouſand; but, at preſent, it has only one ſmall town, ſituated at the head of its harbour in the north-eaſt part; and the few inhabitants conſiſt chiefly of Caſts, and ſome Spaniards, but very few Indians. To this lieutenancy has been annexed the town of Machala, on the coaſt of Tumbez, together with that of Naranjal, the landing place of the river of the ſame name, called alſo the Suya; near which is a road leading to the juriſdictions of Cuenca, and Alauſi. But neither of theſe towns are in a more flouriſhing condition than that on the iſland. In the latter reſide both the lieutenant and prieſt, to whom the others are ſubject, both in civil and eccleſiaſtical affairs; Puna not only being the principal town, but great ſhips by reaſon of the depth of its harbour load there, which cannot be done at Guayaquil on account of the ſand, in its river; while others come there to load with wood.

The juriſdictions of Machala and Manaranjol produce great quantities of cacao, and that of the former is eſteemed the beſt in all Guayaquil. In its neighbourhood, as in the iſland of Puna, are great numbers of mangles, or mangrove trees, whoſe interwoven branches and thick trunks cover all thoſe plains; which lying low are frequently overflowed. As this tree is little known in Europe, it muſt not be paſſed over without a ſhort deſcription.

The mangrove is ſo far different from other trees, that it requires a ſoil daily overflowed by the ſea, ſlimy and ſoon corrupted. Accordingly, when the water is ebbed away from the ſpots where the mangroves thrive, they exhale very diſagreeable effluvia from their muddy ſurface. This tree no ſoon-

er

er appears above the ground, than it divides itself into very knotty and distorted branches; and from each knot, germinates a multitude of others, increasing so as to form, when grown up, an impenetrable thicket. Nor is it possible to discern the shoots belonging to the principal branches; for besides this intangled labyrinth, those of the fifth or sixth production are equal in magnitude to those of the first, which is generally of an inch and a half, or two inches in diameter; and all so flexible, that the only method of severing them is by some edged tool. Tho' they extend themselves nearly horizontally, yet the trunk and principal branches increase both in height and thickness. Its leaves are very small in proportion to the branches, not being above an inch and a half or two inches in length, oval, thick, and of a pale green. The usual height of the principal stems of the mangrove, is eighteen or twenty yards, ten or twelve inches in diameter, and covered with a thin, rough bark. But its wood is so solid and heavy that it sinks in water, and when used in ships or vessels, is found very durable, being not subject either to split or rot.

The Indians of this jurisdiction pay their annual tribute in the wood of the mangrove, which is used occasionally in such works as its nature is best adapted to.

The lieutenancy of Yaguache is at the mouth of the river of the same name, which falls into that of Guayaquil, on the south side; and has its rise from the skirts of the Cordillera, south of the river Bamba. Its jurisdiction contains three towns; the principal, that where the custom-house is erected, is San Jacinto de Yaguache; the two others are Nousa and Antonche. To these belong two priests, one residing at Yaguache, and the other at Nousa. Tho' these towns are but thinly inhabited, the farms, and country have great numbers, particularly of the poorer sort.

The chief production of Yaguache is wood, and a little cacao; but cattle and cotton are the principal objects of their attention.

Babahoyo, a name sufficiently known in all these countries, it being the seat of the grand custom-house for every thing going into the Cordillera, or coming from thence, has a very large jurisdiction, in which besides the principal town, are those of Ujiba, Caracol, Quilea, and Mangaches: the two last border on the Cordillera, and are a considerable distance from Ujiba, where the priest resides during the winter, removing in the summer to Babahoyo; which, besides its settled inhabitants, has always a great number of traders from other parts.

The

THE country of this jurisdiction being level and very low, on the first swellings of the rivers Caluma, Ujiba, and Caracol, is overflowed to a prodigious distance, tho' at different depths, particularly at Babahoyo, where the waters rise to the first story of the houses; so that during the winter it is entirely forsaken.

THE country of this jurisdiction, as well as that of Baba, contiguous to it, abounds in such numbers of cacao plantations, that many are neglected, and their fruit left to monkeys and other animals, which are thus happily provided for by the spontaneous fertility of the ground, without any assistance from agriculture. It also produces cotton, rice, Guinea pepper, and a great variety of fruits. It has likewise large droves of black cattle, horses and mules, which, during the time the country is under water, are kept in the mountains; but as soon as the lands are dry, are driven down to fatten on the gamalotes, a plant of such luxuriance as to cover entirely the ground; its height exceeds two yards and a half. It also grows so thick as to preclude all passage, even along the paths made by the traders.

THE blade of the gamalote resembles that of barley, but longer, broader, thicker, and rougher. The green is deep but lively, and the stalk diversified with knots, from which the leaves, which are strong, and something above two lines in diameter, have their origin. When the gamalote is at its full growth, the height of water during the floods by rising above its top, presses it down, and rots it; so that when the waters ebb away, the earth seems covered with it; but at the first impression of the sun it shoots again, and in a few days, abounds in the same plenty as before. One thing remarkable in it is, that tho' it proves so nourishing to the cattle of this district, it is very noxious to those from the Cordillera, as has been often experienced.

BABA is one of the largest lieutenancies of Guayaquil, reaching to the skirts of the Cordillera, or the mountains of Anga Marca, belonging to the jurisdiction of Latacunga, or, according to the Indian pronunciation, Llatacunga. Besides the principal town of the same name, it has others annexed to it, so far as to be under one priest, who, with the corrigor's lieutenant resides continually at Baba. Formerly the river of the same name ran close by this town; but Don En Vinces, having cut a canal for watering the cacao plantations on his estate, the river inclining more to this course than its former, it was found impossible to stop it; so that leaving its original channel, it has ever since continued to run in a course some

 distance

diſtance from the town. The other two places are San Lorenzo, and Palenque, both at a great diſtance from the capital, and near the Cordillera; ſo that their Indian inhabitants are but little civilized.

THE cacao tree, which, as I have already obſerved, abounds in this diſtrict, inſtead of being only four or five, according to ſome authors who poſſibly ſaw it when very young, is generally not leſs than eighteen or twenty feet high. It begins from the ground to divide itſelf into four or five ſtems, according to the vigour of the root, from whence they all proceed. They are generally between four and ſeven inches in diameter; but their firſt growth is in an oblique direction, ſo that the branches are all expanded and ſeparated from one another. The length of the leaf is between four and ſix inches, and its breadth three or four. It is very ſmooth, ſoft and terminates in a point, like that of the China-orange tree, but with ſome difference in colour, the former being of a dull green, and has nothing of the gloſs obſervable on the latter: Nor is the tree ſo full of leaves as that of the orange. From the ſtem, as well as the branches, grow the pods which contain the cacao. The firſt appearance is a white bloſſom, not very large, whoſe piſtil contains the embryo of the pod, which grows to the length of ſix or ſeven inches, and four or five in breadth, reſembling a cucumber in ſhape; and ſtriated in a longitudinal direction, but deeper than the cucumber. The pods are not preciſely of the above dimenſions, nor are they always proportionate to the ſtem or branch, to which they adhere in the form of excreſcences, ſome being much ſmaller; and it is not extraordinary to ſee one of the leaſt ſize on the principal trunk, and one prodigiouſly large near the extremity of a ſlender branch. But it is obſerved that when two grow in contact, one of them attracts all the nutritive juice, and thrives on the decay of the other.

THE colour of the pod while growing is green, nearly reſembling that of the leaf; but when arrived at its full perfection, it gradually changes to a yellow. The ſhell which covers it is thin, ſmooth and clear. When the fruit is arrived at its full growth, it is gathered, and being cut into ſlices, its pulp appears white and juicy, with ſmall ſeeds regularly arranged, and at that time of no greater conſiſtence than the reſt of the pulp, but whiter and contained of a very fine delicate membrane, full of liquor reſembling milk, but tranſparent, and ſomething viſcid; at this time it may be eaten like any other fruit. Its taſte is a ſweetiſh acid; but in this country it is thought to be promotive of fevers. The yellowneſs of the pod indicates

cates that the cacao begins to feed on its ſubſtance, to acquire a greater conſiſtence, and that the ſeeds begin to fill, the colour gradually fading till they are fully completed, when the dark brown colour of the ſhell, into which the yellow has deviated, indicate that it is a proper time to gather it. The thickneſs of the ſhell is now about two lines, and each ſeed found incloſed in one of the compartments formed by the tranſverſe membranes of the pod. After gathering the fruit it is opened, and the ſeeds taken out and laid on ſkins kept for that purpoſe, or more generally on vijahua leaves, and left in the air to dry. When fully dried they are put into leather bags, ſent to market, and ſold by the carga or load, which is equal to 81 pounds; but the price is far from fixed, being ſometimes ſold for ſix or eight rials per carga, tho' leſs than the charge of gathering; but the general price is between three and four dollars, and at the time of the armadas, when the demand is very large, riſes in proportion.

THIS tree produces its fruit twice a year, and in the ſame plenty and goodneſs. The quantity gathered throughout the whole juriſdiction of Guayaquil amounts at leaſt to 50,000 cargas.

THE cacao trees delight ſo exceſſively in water, that the ground where they are planted muſt be reduced to a mire, and if not carefully ſupplied with water, they die. They muſt alſo be planted in the ſhade, or at leaſt defended from the perpendicular rays of the ſun. Accordingly they are always placed near other larger trees, under the ſhelter of which they grow and flouriſh. No ſoil can be better adapted to the nature of theſe trees than that of Guayaquil, as it favours them in both reſpects; in the former as conſiſting wholly of ſavanahs or wide plains overflowed in winter, and in ſummer plentifully watered by canals; and with regard to the latter, it abounds in other trees which afford them the requiſite ſhelter.

ALL the care neceſſary in the culture of this tree conſiſts in clearing the ground from the weeds, and ſhrubs, abounding in ſo wet a ſoil. And this is ſo neceſſary, that if neglected, in a few years theſe vegetables will deſtroy the cacao plantations by robbing the ſoil of all its nouriſhment.

THE laſt lieutenancy to be deſcribed is that of Daule. The principal town is of the ſame name, and waſhed by the river, to which it owes its appellation. It contains many ſpacious houſes belonging to the inhabitants of Guayaquil. It is alſo the reſidence of a lieutenant and a pariſh prieſt, having under their inſpection the two towns of Santa Lucia and Valſar. Here are a great number of plantations; ſome of tobacco and ſugar

canes, and others of cacao and cotton; together with large orchards of fruit trees, and extensive corn fields.

THE river Daule, which, like that of Baba, discharges itself into Guayaquil river, is very large, and on both a great trade is carried on with that city. By the former it receives the great plenty and variety of summer fruits, and a considerable part of the platanes, which constitute the bread used there during the whole year. Tho' great quantities of tobacco grow in other parts of the jurisdiction of Guayaquil, yet none equals that of Daule.

THE business of grazing is followed in all these lieutenancies, but more or less in proportion to their extent, the nature of the soil, and the conveniency of driving the cattle to the mountains, beyond the reach of the inundations.

CHAP. IX.

Description of the river Guayaquil, *and of the vessels trading on it.*

THE river of Guayaquil being the channel of the commerce of that place, it will be proper to give some account of it, in order to assist the reader in forming a more adequate idea of the trade carried on in that city.

THE distance of the navigable part of this river, from the city to the custom-house at Babahoyo, the place where the goods are landed, is, by those who have long frequented it, commonly divided into reaches, of which there are twenty, its course being wholly serpentine; but to Caracol, the landing place in winter, there are 24 reaches, the longest of which are the three nearest the city; and these may be about two leagues and a half in length, but the others not above one. Whence it may be inferred, on an average, that the distance, measured on the surface of the river, between Guayaquil and the custom-house of Babahoyo, is twenty-four leagues and a half, and to Garacol twenty-eight and a half. The time requisite to perform this passage is very different, according to the season, and nature of the vessel. During the winter a chata generally takes up 8 days in going from Guayaquil to Caracol, being against the current of the river; whereas two days are sufficient to perform the passage downwards. In summer a light canoe goes up in three tides, and returns in little more than two; the same may be said of other vessels, the passage downwards being always performed in much less time than the other, on account of the natural current of the river, in the reaches near the custom-

cuſtom-houſe, where the ſtrongeſt flood only ſtops the water from running downwards.

THE diſtance from Guayaquil to Iſla Verde, ſituated at the mouth of the river in Puna bay, is by pilots computed at about ſix leagues, and divided, like the other part, into reaches: and from Iſla Verde to Puna three leagues. So that the whole diſtance from Caracol, the moſt inland part up the river, to that of Puna, is thirty-ſeven leagues and a half. Between Iſla Verde and Puna, it widens ſo prodigiouſly that the horizon towards the north and ſouth is bounded by the ſky, except in ſome few parts northwards, where the plantations of mangroves are perceived.

THE mouth of the river, at the Iſla Verde, is about a league in breadth, and even ſomething broader at Guayaquil, above which it contracts itſelf as it advances nearer the mountains, and forms other creeks, the mouth of one of which, called Eſtero de Santay, faces the city; another termed Lagartos, is near the cuſtom-houſe at Babahoyo. Theſe are the largeſt, and at the ſame time extend to ſuch a diſtance from the principal river, as to form very conſiderable iſlands.

THE tides, as we have before obſerved, in ſummer-time reach up to the cuſtom-houſe, checking the velocity of the waters, and conſequently cauſing them to ſwell; but in winter, the current being ſtronger and more rapid, this increaſe of the water is viſible only in the reaches near Guayaquil; and in three or four differens times of the year, the great velocity of the current render the tides imperceptible; the firſt of this ſeaſon happens about Chriſtmas.

THE principal cauſe of the ſwellings of this river, ariſes from the torrents ruſhing down from the Cordillera into it. For tho' rain is frequent here, great part of the water is received by its lakes, or ſtagnates on the plains. So that the increaſe in the waters of the river are entirely owing to the torrents from the mountains.

ONE particular inconvenience of theſe floods is their ſhifting the banks of ſand lying between the city and Iſla Verde, ſo that no ſhips of any conſiderable burden can go up with ſafety, without continually ſounding with the lead, unleſs care has been taken to mark the banks ſince their laſt change.

THE borders of this river, like thoſe of Yaguache, Paba, and Daule, as well as thoſe of the creeks and canals, are decorated with country ſeats, and cottages of poor people of all caſts, having here both the convenience of fiſhing and agriculture; and the intermediate ſpaces filled with ſuch a variety of

thickets, that art would find it difficult to imitate the delightful landſcape here exhibited by nature.

THE principal and moſt common materials uſed in buildings on theſe rivers, are canes, whoſe dimenſions and other particulars ſhall be taken notice of in its place. Theſe alſo form the inward parts, as walls, floors, and rails of the ſtairs; the larger houſes differ only in ſome of the principal pieces which are of wood. Their method of building is to fix in earth eight, ten, or twelve pieces of wood, more or leſs, according to the dimenſions of the houſe, forked at the top, and of a proper length, all the apartments being on the firſt ſtory, without any ground floor. Beams are then laid acroſs on theſe forks, at the diſtance of four or five yards from the ground. On theſe beams canes are laid in ſuch a manner as to form a kind of rafters, and over theſe boards of the ſame canes a foot and a half in breadth, which form as firm and handſome a flooring as if of wood. The partitions of the ſeveral apartments are of the ſame materials, but the outer walls are generally latticed, for the free admiſſion of the air. The principal beams of the roof of large houſes are of timber, the rafters of cane, with ſmaller in a tranſverſe direction, and over theſe vijahua leaves. Thus a houſe is built at very little expence, tho' containing all the neceſſary conveniences. With regard to the poorer ſort, every one's own labour ſuffices to procure him a habitation. He goes up a creek in a ſmall canoe, and from the firſt wood cuts down as many canes, vijahua and bejucos as he wants, and bringing the whole to the ſhore, he makes a balza or float, on which he loads his other materials, and falls down the river to the place where he intends to erect his cottage. After which he begins his work, faſtening with bejucos thoſe parts which are uſually nailed; and in a few days finiſhes it in the compleateſt manner. Some of theſe cottages are almoſt equal in dimenſions to thoſe of timber.

THE lower part, both of theſe houſes, as well as thoſe in the greateſt part of the juriſdiction of Guayaquil (which are of the ſame form) are expoſed to all winds, being entirely open, without having any wall, or fence, except the poſts or ſtancheons, by which the building is ſupported. For whatever coſt was expended on the ground floor, it would be wholly uſeleſs in the winter, when all the country is turned to mud. Such houſes however as ſtand beyond the reach of inundations, have ground floors, walled and finiſhed like the other apartments, and ſerve as warehouſes for goods; but thoſe within the inundations are built as it were in the air, the water having a free paſſage under them. All the inhabitants have their canoes for

paſſing

Fig. 1.

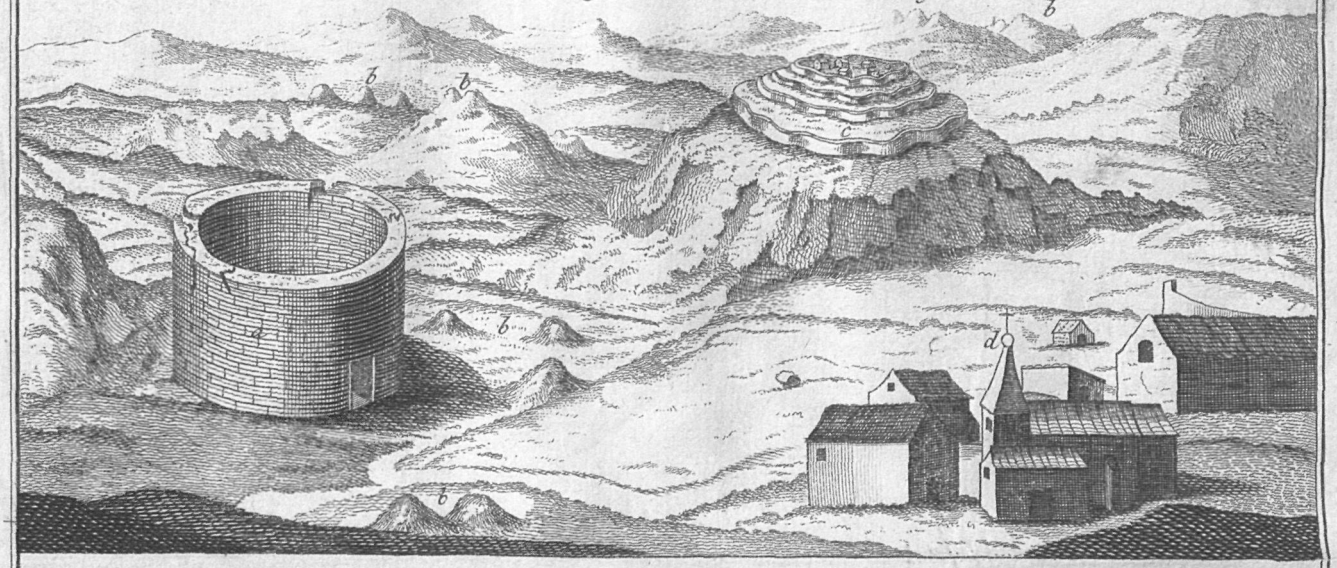
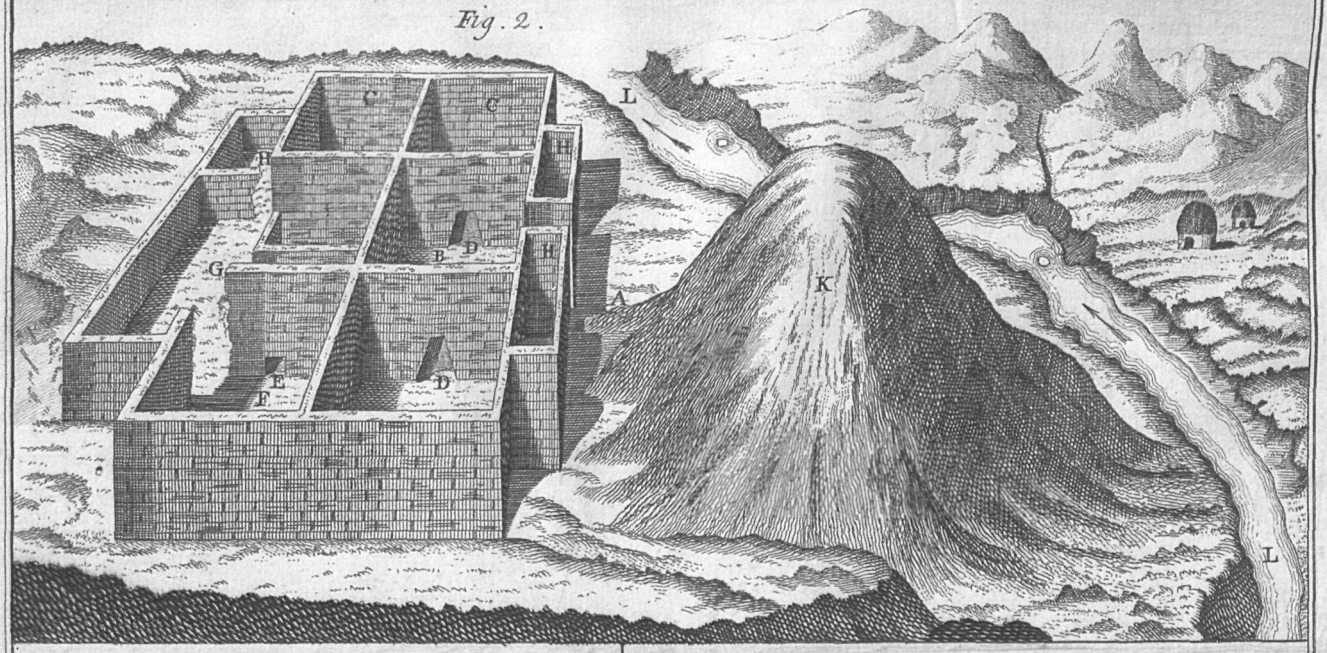


Fig. 2.



The Balza described Vol: I. Pag 159.

Fig. 3.

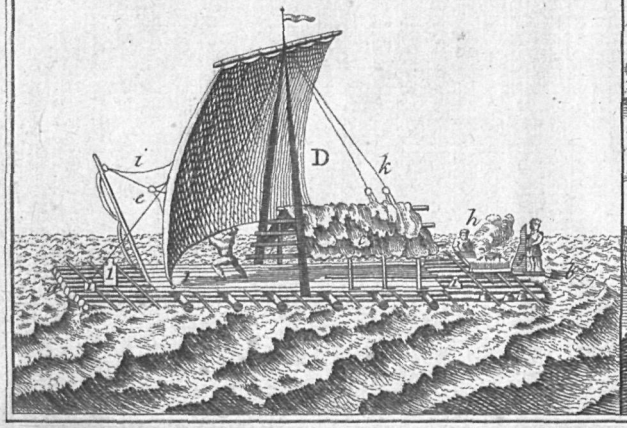
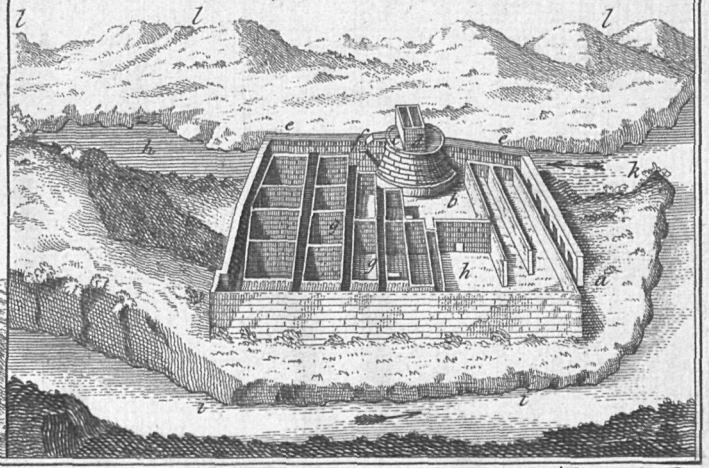


Fig. 4.



Ridge Scul.

passing from one house to another, and are so dextrous in the management of these skiffs, that a little girl ventures alone in a boat so small and slight, that another less skilful would overset in stepping into it, and without any fear crosses the most rapid currents, which an expert sailor not accustomed to them would find very difficult.

THE continual rains in winter, and the slightness of the materials with which these houses are built, render it necessary to repair them during the summer; but those of the poorer sort, which are low, must be every year rebuilt, especially those parts which consist of cane, bejuco, and vijahua, while the principal stancheons, which form the foundation, still continue serviceable, and able to receive the new materials.

FROM the houses I shall proceed to give an account of the vessels, which, omitting the chatas and canoes as common, are called Balzas, i. e. rafts, a name which sufficiently explains their construction, but not the method of managing them, which these Indians, strangers to the arts and sciences, have learned from necessity.

THESE Balzas, called by the Indians Jangadas, are composed of five, seven, or nine beams of a sort of wood, which tho' known here only by the name of Balza, the Indians of Darien call Puero; and, in all appearance, is the ferula of the Latins, mentioned by Collumella; and Pliny, lib. xiii. cap. 22. takes notice of two species of it, the lesser by the Greeks called Nartechia, and the larger called Narthea, which grows to a great height. Nebrija calls it in Spanish Canna Beja, or Canna Heja. Don George Juan, who saw it growing in Malta, found no other difference betwixt it and the Balza or Puero, only the Canna Beja, called ferula by the Maltese, is much smaller. The Balza is a whitish, soft wood, and so very light, that a boy can easily carry a log of it three or four yards in length and a foot in diameter. Yet of this wood is formed the Janjades or Balzas, represented Plate ii. fig. 3. Over part of it is a strong tilt L, formed of reeds. Instead of a mast, the sail is hoisted on two poles or sheers of mangrove wood D, and those which carry a foresail have two other poles erected in the same manner.

BALZAS are not only used on rivers, but small voyages are made at sea in them, and sometimes they go as far as Paita. Their dimensions being different, they are also applied to different uses; some of them being fishing Balzas; some carry all kinds of goods from the custom-house to Guayaquil, and from thence to Puna, the Salto de Tumbez, and Paita; and others of a more curious and elegant construction, serve for removing

families to their eſtates and country houſes, having the ſame convenience as on ſhore, not being the leaſt agitated on the river; and that they have ſufficient room for accommodations, may be inferred from their length of the beams, which are 12 or 13 toiſes, and about 2 feet, or 2 and a half in diameter. So that the nine beams of which they conſiſt form a breadth of between 20 and 24 Paris feet; and proportional in thoſe of 7, or any other number of beams.

THESE beams are faſtened or laſhed together by Bejucos, and ſo ſecurely, that with the croſs pieces at each end, which are alſo laſhed with all poſſible ſtrength, they reſiſt the rapidity of the currents in their voyages to the coaſts of Tumbez and Paita. The Indians are ſo ſkilful in ſecuring them, that they never looſen, notwithſtanding the continual agitation; tho' by their neglect in examining the condition of the Bejucos, whether they are not rotten, or worn ſo as to require others, there are ſome melancholy inſtances of Balzas, which in bad weather has ſeparated, and by that means the cargo loſt, and the paſſengers drown'd. With regard to the Indians, they never fail of getting on one of the beams, which is ſufficient for them to make their way to the next port. One or two unfortunate accidents of this kind happened even while we were in the juriſdiction of Quito, purely from the ſavage careleſſneſs of the Indians.

THE thickeſt beam of thoſe which compoſe the Balza is placed ſo as to project beyond the other in its after part; and to this is laſhed the firſt beams on each ſide, and thus ſucceſſively till the whole are ſecured; that in the middle being the principal piece, and thence the number of beams is always odd. The larger ſort of Balzas generally carry between four and five hundred quintals, without being damaged by the proximity of the water; for the waves of the ſea never run over the Balza; neither does the water ſplaſh up between the beams, the Balza always following the motion of the water.

HITHERTO we have only mentioned the conſtruction, and the uſes they are applied to; but the greateſt ſingularity of this floating vehicle is, that it ſails, tacks, and works as well in contrary winds, as ſhips with a keel, and makes very little leeway. This advantage it derives from another method of ſteering than by a rudder; namely, by ſome boards, three or four yards in length, and half a yard in breadth, called Guaras, which are placed vertically both in the head and ſtern between the main beams, and by thruſting ſome of theſe deep in the water, and raiſing others, they bear away, luff up, tack, lay to, and perform all the other motions of a regular ſhip. An invention hitherto unknown to the moſt intelligent nations of Europe,

Europe, and of which even the Indians know only the mechanism, their uncultivated minds having never examined into the rationale of it. Had this method of steering been sooner known in Europe, it would have alleviated the distress of many a shipwreck, by saving numbers of valuable lives; as in the year 1730, the Genovesa, one of his majesty's frigates, being lost on the Vibora, the ship's company made a raft; but committing themselves to the waves, without any means of directing their course, they only added some melancholy minutes to the term of their existence. Such affecting instances induced me to explain the reason and foundation of this method of steering, in order to render it of use in such calamitous junctures; and that I may perform it with the greater accuracy, I shall make use of a short memoir drawn up by Don George Juan.

THE direction, says he, in which a ship moves before the wind is perpendicular to the sail, as Mess. Renau in the *Theorie de Manœuvres*, Chap. ii. Art. 1. *Bernouli*, Cap. i. Art. 4. *Pitot*, Sect. ii. Art. 13. have demonstrated. And reaction being contrary and equal to the action, the force with which the water opposes the motion of the vessel, will be applied in a perpendicular direction to the sail, and continued from leeward to windward, impelling with more force a greater body than a smaller, in proportion to the superficies, and the squares of the signs of the angle of incidence, supposing their velocities equal. Whence it follows, that a Guara being shoved down in the fore-part of the vessel, must make her luff up; and by taking it out she will bear up or fall off. Likewise on a Guara's being shoved down at the stern, she will bear up, and by taking it out of the water, the Balza will luff, or keep nearer to the wind. Such is the method used by the Indians in steering the Balzas, and sometimes they use five or six Guaras, to prevent the Balza from making lee-way, it being evident that the more there are under water, the greater resistance the side of the vessel meets with; the Guaras performing the office of lee-boards, used in small vessels. The method of steering by these Guaras is so easy and simple, that when once the Balza is put in her proper course, one only is made use of, raising or lowering it as accidents require, and thus the Balza is always kept in her intended direction.

WE have before observed, that this river and its creeks abound in fish, which for some time of the year afford employment for the Indians and Mulattos inhabiting its banks, and for which they prepare towards the end of summer, having then sown and reaped the produce of their little farms. All their preparatives consist in examining their Balzas, giving them the necess-

neceſſary repairs, and putting up a freſh tilt of Vijahua leaves. This being finiſhed, they take on board the neceſſary quantity of ſalt, harpoons and darts; with regard to their proviſion it conſiſts only of maize, plantanes and hung beef. Every thing being ready, they put on board the Balzas their canoes, their families, and the little furniture they are maſters of. With regard to the cattle and horſes, of which every one has a few, they are driven up to winter in the mountains.

THE Indians now ſteer away to the mouth of ſome creek, where they expect to take a large quantity of fiſh, and ſtay there during the whole time of the fiſhery, unleſs they are diſappointed in their expectations; in which caſe they ſteer away to another, till they have taken a ſufficient quantity, when they return to their former habitations; but not without taking with them Vijahua leaves, bejucos, and canes, for making the neceſſary repairs. When the communication is opened with the provinces of the Cordilleras, and the cattle begin to return into the plains, they carry their fiſh to the cuſtom-houſe of Babahoyo, where they ſell it, and with the produce purchaſe bays, tucuyo, and other ſtuffs for cloathing themſelves and families.

THEIR method of fiſhing is thus: having moored their Balza near the mouth of a creek, they take their canoes with ſome harpoons and ſpears, and on ſight of a fiſh make towards it, till they arrive at a proper diſtance, when they throw their ſpear at it, with ſuch dexterity that they ſeldom miſs: and if the place abounds in fiſh they load their canoes in three or four hours when they return to their Balzas to ſalt and cure them. Sometimes, eſpecially in places where the creeks form a kind of lake, they make uſe of a certain herb called Barbaſco, which they chew, mix with ſome bait, and ſcatter about on the water. The juice of this herb is ſo ſtrong that a fiſh on eating a very little of it becomes inebriated ſo as to float on the ſurface of the water, that the Indians have no other trouble than to take them up. This juice is actually fatal to the ſmaller fiſh, and the larger do not recover for ſome time; and even theſe, if they have eat a conſiderable quantity, periſh. It is natural to think that fiſh caught in this manner muſt be prejudicial to health; but experience proves the contrary, and accordingly the moſt timorous make no difficulty of eating them. Their next method of fiſhing is with nets; when they form themſelves into companies for the better management of them.

THE

THE largeſt ſort of fiſh caught here is called Bagre, ſome of which are a yard and a half long; but flabby, and of an ill taſte, ſo that they are never eaten freſh. The Robalo, a ſort of large trout, is the moſt palatable, but being only taken in the creeks a great way above Guayaquil, the diſtance will not admit their being brought to that city.

THE increaſe of fiſh in this river is greatly hindered by the prodigious numbers of alligators, an amphibious creature, living both in the rivers and the adjacent plains, tho' it is not often known to go far from the banks of the river. When tired with fiſhing, they leave the water to baſk themſelves in the ſun, and then appear more like logs of half rotten wood thrown aſhore by the current, than living creatures; but upon perceiving any veſſel near them, they immediately throw themſelves into the water. Some are of ſo monſtrous a ſize as to exceed five yards in length. During the time they lie baſking on the ſhore, they keep their huge mouths wide open, till filled with moſchitos, flies, and other inſects, when they ſuddenly ſhut their jaws and ſwallow their prey. Whatever may have been written with regard to the fierceneſs and rapacity of this animal, I, and all our company know from experience, they avoid a man, and on the approach of any one immediately plunge into the water. Its whole body is covered with ſcales impenetrable to a muſket ball, unleſs it happens to hit them in the belly near the fore legs; the only part vulnerable.

THE alligator is an oviparous creature. The female makes a large hole in the ſand near the brink of a river, and there depoſits her eggs, which are nearly equal to thoſe of an oſtrich, and as white as thoſe of a hen, but much more ſolid. She generally lays about a hundred, continuing in the ſame place till they are all depoſited, which is about a day or two, She then covers them with the ſand; and the better to conceal them, rolls herſelf not only over her precious depoſitum, but to a conſiderable diſtance. After this precaution ſhe returns to the water, till natural inſtinct informs her, that it is time to deliver her young from their confinement; when ſhe comes to the ſpot, followed by the male, and tearing up the ſand, begins breaking the eggs, but ſo carefully that ſcarce a ſingle one is injured; and a whole ſwarm of little alligators are ſeen crawling about. The female then takes them on her neck and back in order to remove them into the water; but the watchful Gallinazos make uſe of this opportunity to deprive her of ſome; and even the male alligator, which indeed comes for no other end,

end, devours what he can, till the female has reached the water with the few remaining; for all those which either fall from her back, or do not swim, she herself eats; so that of such a formidable brood, happily not more than four or five escape.

THE Gallinazos mentioned in our account of Carthagena, are the most inveterate enemies of the alligators, or rather extremely fond of their eggs, in finding which they make use of uncommon address. These birds often make it their whole business to watch the females during the summer, the season when they lay their eggs, the sands on the sides of the river not being then covered with water. The Gallinazo perches in some tree, where it conceals itself among the branches, and there silently watches the female alligator till she has laid her eggs and retires, pleased that she has concealed them beyond discovery. But she is no sooner under the water, than the Gallinazo darts down on the repository, and with its beak, claws and wings, tears up the sand, and devours the eggs, leaving only the shells. This banquet would indeed richly reward its long patience, did not a multitude of Gallinazos, from all parts join the fortunate discoverer and share in the spoil. I have often been entertained with this stratagem of the Gallinazos, in passing from Guayaquil to the custom-house of Babahoyo; and my curiosity once led me to take some of the eggs, which those who frequent this river, particularly the Mulattoes, make no difficulty of eating when fresh. Here we must remark the methods used by providence in diminishing the number of these destructive creatures, not only by the Gallinazos, but even by the males themselves. Indeed neither the river nor the neighbouring fields would otherwise be sufficient to contain them; for notwithstanding the ravages of these two insatiable enemies, their numbers can hardly be imagined.

THESE alligators are the great destroyers of the fish in this river, it being their most safe and general food; nor are they wanting in address to satisfy their desires, eight or ten, as it were by compact, draw up at the mouth of a river or creek, whilst others of the same corps go a considerable distance up the river, and chase the fish downwards, by which none of any bigness escape them. The alligators, being unable to eat under water, on seizing a fish, raise their heads above the surface, and by degrees draw the fish from their jaws, and chew it for deglutition. After satisfying their appetite, they retire to rest on the banks of the river.

WHEN

When they cannot find fish to appease their hunger, they betake themselves to the meadows bordering on the banks of the river, and devour calves and colts; and in order to be more secure in seizing their prey, take the opportunity of the night, that they may surprize them in their sleep; and it is observed that those Alligators which have once tasted flesh, become so fond of it, as never to take up with fish but in cases of necessity. There are even too many melancholy instances of their devouring the human species, especially children, who, from the inattention natural to their age, have been without doors after it is dark; and tho' at no great distance, these voracious animals have dared to attack them, and having once seized them with their mouth, to make sure of their prey against that assistance which the cries of the victim never fail to bring, hasten into the water, where they immediately drown it, and then return to the surface and devour it at leisure.

Their voracity has also been felt by the boatmen, who, by inconsiderately sleeping with one of their arms or legs hanging over the side of the boat, these animals have seized, and drawn the whole body into the water. Alligators who have once feasted on human flesh are known to be the most dangerous, and become as it were inflamed with an insatiable desire of repeating the same delicious repast. The inhabitants of those places where they abound are very industrious in catching and destroying them. Their usual method is by a casonate, or piece of hard wood sharpened at both ends, and baited with the lungs of some animal. This casonate they fasten to a thong, the end of which is secured on the shore. The Alligator, on seeing the lungs floating on the waters, snaps at the bait, and thus both points of wood enter his jaws in such a manner that he can neither shut nor open his mouth. He is then dragged ashore, where he violently endeavours to rescue himself, while the Indians beat him like a bull, knowing that the greatest damage he can do is to throw down such as for want of care or agility do not keep out of his reach.

The form of this animal so nearly resembles that of the Lagarto or Lizard, that here they are commonly called by that name; but there is some difference in the shape of the head, which in this creature is long, and towards the extremity slender, gradually forming a snout, like that of a hog, and, when in the river is generally above the surface of the water; a sufficient demonstration that the respiration of a grosser air is necessary

ſary to it. The mandibles of this creature have each a row of very ſtrong and pointed teeth, to which ſome writers have attributed particular virtues; but all I can ſay to this is, that they are ſuch as I and my companions, notwithſtanding all our enquiries to attain a complete knowledge of every particular, could never hear any ſatisfactory account of.

CHAP. X.

Of the Commerce carried on by means of the city and river of Guayaquil, *betwixt the Provinces of* Peru *and* Terra Firma, *and the coaſt of* New-Spain.

THE commerce of Guayaquil may be divided into two parts; one reciprocal, being that of the products and manufactures of its juriſdiction; the other tranſitory; its port being the place where the goods from the provinces of Peru, Terra Firma, and Guatemala, conſigned to the mouutains, are landed; and on the other hand, thoſe from the mountains, deſigned for the above mentioned provinces, are brought hither and ſhipped for their reſpective ports. And as theſe two branches are very different, I ſhall firſt treat particularly of its reciprocal commerce.

THE cacao, one of its principal products, is chiefly exported to Panama, the ports of Sonſonate, el Realejo, and other ports of New Spain; and alſo to thoſe of Peru, tho' the quantity ſent to the latter is but ſmall. It is ſomething ſingular, that in this city and juriſdiction, where cacao grows in ſuch plenty, little or no uſe ſhould be made of it.

TIMBER, which may be eſteemed the ſecond article of its commerce, is chiefly ſent to Callao; tho' a little is ſold to the places between Guayaquil and that port. All the expence of it here is the charge of felling, carrying it to the next creek or river, and floating it down to Guayaquil, where, or at Puna, it is ſhipped for the ports it is conſigned to.

Tho' both theſe branches of trade are very advantageous to Guayaquil, as may eaſily be imagined from the prodigious quantities exported; yet the trade of ſalt is not inferior to either, tho' the principal markets to which this is ſent, are only the inland towns in the province of Quito. To theſe may be added, cotton, rice, and fiſh both ſalted and dried; the two firſt of which deſerve to be mentioned, as they are exported both to the maritime and inland provinces.

THE fourth and laſt article of the commerce of this juriſdiction, is the trade in horned cattle, mules, and colts, of which

which great numbers are bred in the extenſive ſavanahs of this province. Theſe turn to good account in the provinces of the mountains, where there is not a ſufficiency to anſwer the neceſſary demands.

Besides theſe four capital articles, there are others, tho' ſingly of little conſequence, yet jointly are equal to any one of the former, as tobacco, wax, Guinea pepper, drugs, and lana de ceibo, by which great numbers of the lower claſs of people, acquire a comfortable ſubſiſtence.

The lana de ceibo, or ceibo wool, is the product of a very high and tufted tree of that name. The trunk is ſtrait, and covered with a ſmooth back; the leaf round, and of a middling ſize. At the proper ſeaſon the tree makes a very beautiful appearance, being covered with white blooſoms; and in each of theſe are formed a pod, which increaſes to about an inch and a half, or two inches in length, and one in thickneſs. In this pod the lana or wool is contained. When thoroughly ripe and dry, and the pod opens, and the filamentuous matter or wool gradually ſpreads itſelf into a tuft reſembling cotton, but of a reddiſh caſt. This wool is much more ſoft and delicate to the touch than cotton itſelf, and the filaments ſo very tender and fine, that the natives here think it cannot be ſpun; but I am perſuaded that this is entirely owing to their ignorance. And if a method be ever diſcovered of ſpinning it, its fineneſs will entitle it rather to be called ciebo ſilk than wool. The only uſe they have hitherto applied it, is to fill matraſſes; and in this particular it muſt be allowed to have no equal, both with regard to its natural ſoftneſs, and its riſing ſo, when laid in the ſun, as even to ſtretch the covering of the matraſs; nor does it ſink on being brought into the ſhade, unleſs accompanied with dampneſs, which immediately compreſſes it. This wool is here thought to be of an extreme cold quality, which is abundantly ſufficient to hinder it from being generally uſed; tho' great numbers of perſons of rank, and tenderly brought up, have never ſlept on any thing elſe, but without any injury to their health.

The goods imported into this juriſdiction from Peru, in return for the above mentioned commodities, are wine, brandy, oil, and dried fruits. From Quito it receives bays, tucuyos, flour, papas, bacon, hams, cheeſe, and other goods of that kind. From Panama, European goods purchaſed at the fairs. The chief commodities it receives from New Spain are iron found in that country, but much inferior to that of Europe, being brittle and vitreous. It however ſerves for ſuch uſes where malleability is of no great importance, but is rarely uſed in building

building ſhips; alſo naphtha, and tar for the uſe of ſhipping. From the ſame coaſt, as well as from Peru, they have alſo cordage; tho' the laſt article, together with European iron, the owners of ſhips import on their own account; and therefore make no part of the commerce of the city.

THE tranſitory commerce is in quantity much more conſiderable than that of the preceding, as it conſiſts of the reciprocal exchange between the large kingdoms of Quito and Lima, of their reſpective commodities both natural and factitious. Lima ſends the products of its vineyards and oliveyards; and Quito furniſhes cloth, bays, tucuyos, ſerges, hats, ſtockings, and other woollen goods; but indigo being neceſſary for increaſing the beauty of the colours, and none of it growing in the province of Quito, the merchants of Guayaquil import it from New Spain, and ſend it to the Quito manufacturers.

SUMMER is the proper ſeaſon for carrying on theſe branches of commerce; becauſe then the manufacturers of the mountains can be brought down to Guayaquil, and the goods ſent from other parts carried up to the mountainous parts. But the river of Guayaquil is never without veſſels loading with goods of that juriſdiction, the ſea here being always open. The profits reſulting from this large and conſtant commerce, could alone have preſerved it from a total deſertion, after being ſo frequently pillaged by pirates and waſted by fire. And it is owing to the advantages reſulting from this commerce that we now behold it large, flouriſhing and magnificent, as if it had enjoyed an uninterrupted proſperity from its very foundation.

JOURNEY

JOURNEY FROM GUAYAQUIL TO THE CITY of QUITO:

Menſuration of ſome degrees of the meridian in that province; with the difficulties that attended erecting the ſeveral ſignals on the ſtations for forming the triangles; and a deſcription of the city of Quito.

BOOK V.

CHAP. I.

Paſſage from Guayaquil *to the town of* Caracol, *and from thence to* Quito.

ON receiving advice that the mules provided by the corregidor of Guaranda were on the road to Caracol, we immediately embarked at Guayaquil on the third of May 1736, on board a large chata: but the uſual impediment of the current, and ſeveral unfortunate accidents, rendered the paſſage ſo very long, that we did not land at Caracol before the eleventh. The tortures we received on the river from the moſchitos were beyond imagination. We had provided ourſelves with guetres, and muſchito cloths; but to very little purpoſe. The whole day we were in continual motion to keep them off; but at night our torments were exceſſive. Our gloves were indeed ſome defence to our hands, but our faces were entirely expoſed, nor were our clothes a ſufficient defence for the reſt of our bodies; for their ſtings penetrating through the cloth, cauſed a very painful and fiery

 itching

itching. The most dismal night we spent in this passage, was when we came to an anchor near a large and handsome house, but uninhabited; for we had no sooner seated ourselves in it, than we were attacked on all sides with innumerable swarms of moschitos; so that we were far from having any rest there, that it was impossible for a person susceptible of feeling to be one moment quiet. Those who had covered themselves with their moschito cloths, after taking the greatest care that none of these malignant insects were contained in them, found themselves in a moment so attacked on all sides, that they were obliged soon to return to the place they had quitted. Those who were in the house, hoping that they should find some relief in the open fields, ventured out, tho' in danger of suffering in a more terrible manner from the serpents; but were soon convinced of their mistake; it being impossible to determine which was the most supportable place, within the muschito cloth, without it, or in the open fields. In short no expedient was of any use against their numbers. The smoak of the trees we burnt to disperse these infernal insects, besides almost choaking us, seemed rather to augment than diminish their multitudes. At day-break we could not without concern look upon each other. Our faces were swelled, and our hands covered with painful tumours, which sufficiently indicated the condition of the other parts of our bodies, exposed to the attacks of those insects. The following night we took up our quarters in a house inhabited, but not free from moschitos; tho' in much less numbers than before. On informing our host of the deplorable manner in which we had spent the preceding night, he gravely told us, that the house we so greatly complained of, had been forsaken on account of its being the purgatory of a soul. To which one of our company wittily answered, that it was much more naturally to think that it was forsaken on account of its being a purgatory for the body.

THE mules being arrived at Caracol, we set out on the 14th of May, and after travelling four leagues, thro' savannahs, woods of plantane, and cacao trees, we arrived at the river Ojibar; and continued our journey during the whole day along its banks, fording it no less than nine times, tho' with no small danger from its rapidity, breadth, depth, and rocky bottom; and about three or four in the afternoon we halted at a place called Puerto de Muschitos.

ALL the road from Caracol to the Ojibar, is so deep and boggy, that the beasts at every step sunk almost up to their bellies;

bellies; but along the banks of that river we found it much more firm and commodious. The name of the place where we were to take up our lodging that night, sufficiently indicates its nature. The house had been for some time forsaken, like that already mentioned on Guayaquil river, and become a nest of moschitos of all kinds; so that it was impossible to determine which was the worst. Some, to avoid the torture of these insects, stripped themselves, and went into the river, keeping only their heads above water; but the face, being the only part exposed, was immediately covered with them; so that those who had recourse to this expedient, were soon forced to deliver up their whole bodies to these tormenting creatures.

On the 15th we continued our journey thro' a very thick forest, the end of which brought us once more to the banks of the same river, which we again forded four times, and rather with more danger than at first. About five we halted on its banks, at a place called Caluma, or the Indian post. Here was no house for lodging in, nor had we seen one during the whole day's journey; but this inconvenience was in some measure removed by the surprising dexterity of our Indians, who running into the woods, soon returned with branches of trees and vijahua leaves, with which, in less than an hour, they erected several huts, large enough to contain our whole company; and so well covered that the rain, which came on very violently, did not penetrate them.

The thermometer at Caluma, on the 16th at six in the morning, was at 1016, and we were ourselves sensible that the air began to grow cool. At half an hour after eight in the morning we began our journey, and at noon passed by a place called Mamarumi, or mother of stone, where there is an inconceivably beautiful cascade. The rock from which the water precipitates itself, is nearly perpendicular, and fifty toises in height, and on both sides bordered with lofty and spreading trees. The clearness of the water dazzles the sight, which is, at the same time, charmed with the lustre of the volume of water formed in its fall; after which it continues its course in a bed along a small descent, and is crossed by the road. These cataracts are by the Indians called Paccha, and by the Spaniards of the country Chorrera. From hence we continued our journey, and after crossing the River twice on bridges, but with equal danger as in fording it, we arrived at two in the evening at a place called Tarigagua, where we rested in a large structure of timber covered with vijahua leaves, built for our re-

ception. Indeed we were no less fatigued with this day's journey than with any of the preceding; some parts of it being over dreadful precipices, and the road in others so narrow as hardly to afford a passage for the mules, that it was impossible to avoid frequently striking against the trees and rocks; few of us therefore reached Tarigagua, without several bruises.

It must not be thought strange that I should say the bridges are equally dangerous with the fords; for these structures, all of wood, and very long, shake in passing them; besides, their breadth is not above three feet, and without any rail; so that one false step precipitates the mule into the torrent, where it is inevitably lost; accidents, according to the report of our guides not uncommon. These bridges, by the rotting of the wood under water, are annually repaired towards winter, the only season when they are used; the rivers, during the summer, being fordable.

When a person of distinction, as a president, a bishop, or an auditor, is on a journey from Caracol or Babahoyo, the corregidor of Guaranda dispatches Indians for building cottages at the usual resting places, like that we found at Tarigagua; and these being left standing serve afterwards for other passengers, till the rains destroy them. When these are thrown down, travellers must content themselves with the huts which their Indian guides build with wonderful dispatch.

At Tarigagua, on the 17th at six in the morning the thermometer stood at 101 4½. And having been for some time accustomed to hot climates, we now sensibly felt the cold. It is remarkable that we here often see instances of the effects of two opposite temperatures, in two persons happening to meet, one of them coming from Guayaquil, and the other from the mountains; the latter finding the heat so great, that he is scarce able to bear any clothes; while the former wraps himself up in all the garments he can procure. The one is so delighted with the warmth of the water of the river, that he bathes in it; the other thinks it so cold, that he avoids being spattered by it. Nor is the case very different even in the same person, who after a journey to the mountains is returning to Guayaquil, or *vice versa*, provided the journey and return be made at the same season of the year. This sensible difference proceeds only from the change naturally felt at leaving a climate to which one has been accustomed, and coming into another of an opposite temperature; and thus two persons, one used to a cold climate, like

that

that of the mountains, the other to a hot, like that of Guayaquil, muſt, at coming into an intermediate temperature as at Tarigagua, feel an equal difference; one with regard to heat, and the other with regard to cold; which demonſtrates that famous opinion, that the ſenſes are ſubject to as many apparent alterations, as the ſenſations are various in thoſe who feel them. For the impreſſions of objects are different according to the different diſpoſition of the ſenſes: and the organs of two perſons differently diſpoſed are differently affected. At a quarter paſt nine in the morning we began to aſcend the mountain of San Antonia, the foot of which is at Tarigagua; and at one came to a place called by the Indians Guamac, or croſs of canes. Here is a ſmall but inclining plain; and being told that it was half way up the acclivity, and our beaſts requiring reſt, we halted here.

The ruggedneſs of the road from Tarigagua leading up this mountain, is not eaſily deſcribed. It gave us more trouble and fatigue, beſides the dangers we were every moment expoſed to, than all we had experienced in our former journeys. In ſome parts the declivity is ſo great that the mules can ſcarce keep their footing, and in others the acclivity is equally difficult. In many places the road is ſo narrow, that the mules have ſcarce room to ſet their feet; and in others a continued ſeries of precipices. Beſides, theſe roads, or rather paths, are full of holes, or camelones, near three quarters of a yard deep, in which the mules put their fore and hind feet; ſo that ſometimes they draw their bellies and riders legs along the ground. Indeed theſe holes ſerve as ſteps, without which the precipices would be in a great meaſure impracticable. But ſhould the creature happen to put his foot between two of theſe holes, or not place it right, the rider falls, and if on the ſide of the precipice inevitably periſhes. It may perhaps be ſaid that it would be much ſafer to perform this part of the journey on foot; but how can any perſon be ſure always of placing his feet directly on the eminences between the holes? and the leaſt falſe ſtep throws him up to the waſte in a ſlimy mud, with which all the holes are full, and then he will find it very difficult either to proceed or return back.

These holes, or camelones, as they are called, render all this road very toilſome and dangerous, being as it were ſo many obſtacles to the poor mules; tho' the danger is even greater in thoſe parts where they are wanting. For as the tracts are extremely ſteep and ſlippery from the ſoil, which is chalky and continually wet; ſo they would be quite impracticable, did not the Indians go before and dig little

trenches acrofs the road, with fmall fpades which they carry with them for this purpofe; and thus both the difficulty and danger of thefe craggy paths are greatly leffened. This work is continual, every drove requiring a repetition of it; for in lefs than a night the rain utterly deftroys all the trenches cut by feveral hands the preceding day. The trouble of having people going before to mend the road; the pains arifing from the many falls and bruifes; and the difagreeablenefs of feeing one's felf entirely covered with dirt, and wet to the skin, might be the more chearfully fupported, were they not augmented by the fight of fuch frightful precipices, and deep abyffes, as muft fill the travellers mind with terror. For without the leaft exaggeration it may be faid that in travelling this road the moft refolute tremble.

The manner of defcending from thefe heights is not lefs difficult and dangerous. In order to underftand this, it is neceffary to obferve, that in thofe parts of the mountains, the exceffive fteepnefs will not admit of the camelones being lafting, for the waters, by continually foftening the earth, wafh them away. On one fide are fteep eminences, and on the other frightful abyffes; and, as they generally follow the direction of the mountain, the road, inftead of lying in a level, forms two or three fteep eminences and declivities, in the diftance of two or three hundred yards; and thefe are the parts where no camelones can be lafting. The mules themfelves are fenfible of the caution requifite in thefe defcents; for coming to the top of an eminence, they ftop, and having placed their fore-feet clofe together, as in a pofture of ftopping themfelves, they alfo put their hinder feet together, but a little forwards, as if going to lie down. In this attitude, having as it were taken a furvey of the road, they fliide down with the fwiftnefs of a meteor. All the rider has to do is to keep himfelf faft in the faddle without checking his beaft; for the leaft motion is fufficient to diforder the equilibrium of the mule, in which cafe they both unavoidably perifh. The addrefs of thefe creatures is here truly wonderful; for in this rapid motion, when they feem to have loft all government of themfelves, they follow exactly the different windings of the road, as if they had before accurately reconnoitred and previoufly fettled in their minds the route they were to follow, and taken every precaution for their fafety, amidft fo many irregularities. There would indeed otherwife be no poffibility of travelling over fuch places, where the fafety of the rider depends entirely on the experience and addrefs of his beaft.

But

But the longest practice of travelling these roads, cannot entirely free them from a kind of dread or horror, which appears when they arrive at the top of a steep declivity. For they stop without being checked by the rider; and if he inadvertently endeavours to spur them on, they continue immoveable; nor will they stir from the place till they have put themselves in the above-mentioned posture. Now it is that they seem to be actuated by reason; for they not only attentively view the road, but tremble and snort at the danger, which, if the rider be not accustomed to these emotions, cannot fail of filling him with terrible ideas. The Indians go before, and place themselves along the sides of the mountain, holding by the roots of trees, to animate the beasts with shouts, till they at once start down the declivity.

There are indeed some places, where these declivities are not on the sides of precipices; but the road is so narrow and hollow, and the sides nearly perpendicular, that the danger is almost equal to the former; for the track being extremely narrow, and the road scarce wide enough to admit the mule with its rider, if the former falls, the latter must be necessarily crushed; and for want of room to disengage himself, generally has a leg or an arm broken, if he escapes with life. It is really wonderful to consider these mules, after having overcome the first emotions of their fear, and are going to slide down the declivity, with what precision they stretch out their fore-legs, that by preserving the equilibrium they may not fall on one side, yet at a proper distance, make with their body that gentle inclination necessary to follow the several windings of the road; and lastly, their address in stopping themselves at the end of their impetuous career. Certainly the human species themselves could not shew more prudence and conduct. Some mules, after being long used to these journeys, acquire a kind of reputation for their skill and safety, and accordingly are highly valued.

The worst seasons for these journeys, tho' difficult and dangerous at all times, are the beginnings of summer and winter; the rain then causing such dreadful torrents, that in some places the roads are covered with water, and in others so damaged that there is no possibility of passing, but by sending Indians before to mend them; tho' after all their labour, which must be done in haste, and when those people think them both safe and easy, they are such as an European stranger would willingly avoid.

Besides, the natural difficulty of all the roads among the mountains is increased by the neglect of them, which is greater

than could easily be conceived. If a tree, for instance, happens to fall down a-cross the road, and stop up the passage, no person will be at the pains to remove it; and tho' all passing that way are put to no small difficulty by such an obstacle, it is suffered to continue; neither the government, nor those who frequent the road, taking any care to have it drawn away. Some of these trees are indeed so large, that their diameter is not less than a yard and a half; and consequently fill up the whole passage; in which case, the Indians hew away part of the trunk, and assist the mules to leap over what remains; but in order to this they must be unloaded, and after prodigious labour they at last surmount the difficulty, though not without great loss of time and damage to the goods; when, pleased with having got over the obstacle themselves, they leave the tree in the condition they found it, so that those who follow are obliged to undergo the same fatigue and trouble. Thus the road, to the great detriment of trade, remains encumbered till time has destroyed the tree. Nor is it only the roads over San Antonio and other mountains between Guayaquil and the Cordillera, that are thus neglected; the case is general all over this country, especially where they lead over mountains and thro' the forests.

On the 18th at six in the morning the thermometer at Cruz de Canos was 1010, and after travelling along a road no better than the day before, we arrived at a place, at the end of the acclivity of the mountain, by the Indians called Pucara, which signifies a gate or narrow pass of a mountain; it also signifies a fortified place, and possibly derived its name from its narrowness, and the natural strength of its situation. We now began to descend with more ease towards the province of Chimbo, tho' the road was not much better than the former. Here we were met by the corregidor of Guaranda or Chimbo, attended by the provincial alcalde, and the most eminent persons of the town. After complimenting us in the most cordial manner on our arrival, we proceeded together, and within a league of the town were met by the priest, a dominican, accompanied by several of his order, and a great number of the inhabitants, who also left the town on the same friendly occasion; and, to heighten the ceremony, had brought with them a troop of cholos, or Indian boys.

These cholos were dressed in blue, and girded round their waists with sashes. On their heads they wore a kind of turban, and in their hands they carried flags. This little corps was divided into two or three companies, and went before us dancing, and singing some words in their language, which, as we were told,

told, expressed the pleasure they received from the sight of such persons arrived safe in their country. In this manner our cavalcade entered the town, on which all the bells in the place were rung, and every house resounded with the noise of trumpets, tabors, and pipes.

On expressing to the corregidor our surprize at this reception, as a compliment far above our rank, he informed us that it was not at all singular, it being no more than what was commonly practised when persons of any appearance enter the town; and that there was no small emulation between the several towns in paying these congratulations.

After we had passed the mountains beyond Pacara, the whole country within the reach of the eye, during a passage of two leagues, was a level and open plain, having neither trees nor mountains, and covered with fields of wheat, barley, maize, and other grain, whose verdure, different from that of the mountain, naturally gave us great pleasure; our sight for near a twelvemonth having been conversant only with the products of hot and moist countries, very foreign to these, which nearly resemble those of Europe, and excited in our minds the pleasing idea of our native country.

The corregidor entertained us in his house at Guaranda till the 21st of the same month, when we continued our journey to Quito. The thermometer was for three days successively at 100½.

On the 22d we began to cross the desart of Chimborazo, leaving the mountain of that name on the left, and travelling over different eminences and heights, most of which were of sand, the snow for a great distance forming as it were the sides of the mountain. At half an hour after five in the evening, we arrived at a place called Rumi Machai, that is, a stony cave, an appellation derived from a vast cavity in a rock, and which is the only lodging travellers find here.

This day's journey was not without its trouble; for tho' we had nothing to fear from precipices, or dangerous passes like those in the road to Guaranda, yet we suffered not a little from the cold of that desert, then increased by the violence of the wind. Soon after we had passed the large sandy plain, and being thus got over the severest part of the desert, we came to the ruins of an ancient palace of the Yncas, situated in a valley between two mountains; but these ruins are little more than the foundations of the walls.

On the 23d, at three quarters after five in the morning, the thermometer was at 1000, or the freezing point, and accordingly we found the whole country covered with a hoar frost; and

and the hut in which we lay had ice on it. At nine in the morning we set out, still keeping along the side of Chimborazo. At two in the afternoon we arrived at Mocha, a small and very mean place, but where we were obliged to pass the night.

On the 24th, at six in the morning, the thermometer was at 1006; and at nine we set out for Hambato, which we reached at one in the afternoon, after passing several torrents, breaches, or chasms of the mountain Carguairaso, another mountain covered with snow, a little north of Chimborazo. Among these chasms is one without water, the earth remaining dry to the depth of 12 feet. This chasm was caused by a violent earthquake, which shall be spoken of in its place.

On the 26th the thermometer at Hambato, at half an hour after five in the morning, stood at 1010, and on the 26th, at six in the morning, at 1009⅔. This day, having passed the river of Hombato over a wooden bridge, and afterwards that of St. Miguel by help of a bridge of the same materials, we arrived at Latacunga.

On the 27th, at six in the morning, the thermometer was at 1007, when leaving Latacunga we reached, in the evening, the town of Mula-Halo, having in the way forded a river called Alaques.

On the 28th the liquor of the thermometer was at the same height as at Latacunga, and we proceeded on our journey, arriving in the evening at the mansion-house or villa called Chi Shinche. The first part of this day's journey was over a large plain, at the end of which we had the pleasure of passing by a structure that belonged to the Pagan Indians, being a palace of the Yncas. It is called Callo, and gave name to the plain. We afterwards came to an acclivity, at the top of which we entered on the plain of Tiopullo, not less in extent than the first; and at the bottom towards the north is the house where we were entertained that night.

On the 29th the thermometer, at six in the morning, was at 1003¾. We set out the earlier, as this was to be our last journey. A road crossing several breaches and beaten tracts, brought us to a spacious plain called Tura-Bamba, that is a muddy plain; at the other extremity of which stands the city of Quito, where we arrived at five in the evening. The president of the province at that time was Don Dionesio de Alzedo y Herrera, who, besides providing apartments for us in the palace of the Audencia, entertained us the first three days with great splendor, during which we were visited by the bishop, the auditors, the canons, the regidores, and all other persons of any distinction,

distinction, who seemed to vie with each other in their civilities towards us.

In order to form an adequate idea of this country, it will not be amiss, after being so particular in describing the disagreeable parts, and the many dangers to which travellers are exposed, to add a description of the most remarkable productions of nature. The lands between the custom-house of Babahoyo, or Caracol, and Guaranda, are of two kinds: the first, which extends to Tarigagua, is entirely level; and the second, which begins at that part, wholly mountainous. But both, and even two leagues beyond Pucara, are full of thick forests of various kinds of large trees, differing in the foliage, the disposition of their branches, and the size of their trunks. The mountains which form this chain of the Andes, are, on the west side, covered with woods; but on the east entirely bare. Among these mountains is the source of that river, which being increased on all sides by brooks, makes so grand an appearance between Caracol and Guayaquil, and proves so advantageous to the commerce of the country.

In the level part of this woody extent, are a great number of animals and birds, of the same kind with those described in our account of Carthagena, except that to the last may be added wild peacocks, bustards, pheasants, and a few others, which are here in such abundance, that did they not always rest on the tops of the trees, where either from their enormous height, or being covered with leaves they are secure, a traveller, with a good fowling-piece and ammunition, might at any time procure himself an elegant repast. But these forests are also terribly infested with snakes, and monkeys, particularly a kind called Marimondas, which are so very large, that when standing on their hind legs are little less than six feet high. They are black, and in every respect very ugly, but easily tamed. None of the forests are without them, but they seem most common in those of Guayaquil.

Among the vegetable productions I shall select three, which to me seemed worthy of a particular description; namely, the Cana, Vijahua, and the Bejuco; as they are not only the materials of which the houses in the jurisdiction of Guayaquil are built, but also applied to various other uses.

The Canas or canes, are remarkable both for their length and thickness, and the water contained in their tubes. Their usual length is between six and eight toises; and tho' there is a difference in their size, the largest do not exceed six inches diameter. The wood or side of the tube is about six lines in diameter; so that when the cana is opened, it forms a board near a

foot

foot and a half in breadth; and hence it will not appear ſtrange that houſes ſhould be built of ſuch materials. From the time of their firſt appearance till they attain their full perfection, when they are either cut down, or of themſelves begin to dry, moſt of their tubes contain a quantity of water; but with this remarkable difference, that at full moon they are entirely or very nearly full; and with the decreaſe of the moon the water ebbs, till at the conjunction little or none is to be found. I have myſelf cut them at all ſeaſons, ſo that I here advance nothing but what I know to be true from frequent experience. I have alſo obſerved that the water during its decreaſe appears turbid, but about the time of the full moon it is as clear as cryſtal. The Indians add another particular, that the water is not found in all the joints, one having water and another not, alternately. All I can ſay to this ſingularity is, that on opening a joint which happens to be empty, the two contiguous ones have water; and this is commonly the caſe in almoſt all the canes. This water is ſaid to be an excellent preſervative againſt the ill conſequence of any bruiſes; at leaſt it is drank as ſuch by all who come from the mountains, where ſuch accidents are unavoidable.

THE canes being cut, they are left to dry, or, as they ſay here, to be cured; whence they acquire ſuch a degree of ſtrength, that they ſerve either for rafters, beams, flooring, or even maſts for Balzas. Ships which load with cacao are alſo cieled with them, to preſerve the timbers from the great heat of that fruit. They are alſo uſed as poles for litters, and an infinite number of other particulars.

THE Vijahua is a leaf generally five feet in length, and two and a half in breadth. They grow wild, and without any ſtem. The principal rib in the middle is between four or five lines in breadth, but all the other parts of the leaf are perfectly ſoft and ſmooth: The under ſide is green, and the upper white, covered with a very fine, white, and viſcid down. Beſides the common uſe of it in covering houſes, it alſo ſerves for packing up ſalt, fiſh, and other goods ſent to the mountains; as it ſecures them from the rain. They are alſo, in theſe deſert places, of ſingular uſe for running up huts on any exigency.

THE Bejucos are a kind of ligneous cordage, and of two kinds; one growing from the earth and twining round trees; the other ſtrike their roots into certain trees, and from thence derive their nouriſhment. Both kinds, after growing to a great height, incline again to the earth, on which they creep till they meet with another tree, to the top of which they climb as before, and then again renew their inclination towards the earth; and

and thus form a labyrinth of ligatures. Some are even ſeen extended from the top of one tree to another, like a cord. They are ſo remarkably flexile that no bending or twiſting can break them. But if not cut at the proper time they grow of an unwieldy bigneſs. The ſlendereſt of them are about four or five lines in diameter, but the moſt common ſize is between ſix and eight; tho' there are others much thicker, but of little or no uſe, on account of their hardneſs contracted in their long growth. The chief uſe of them is for laſhing, tying, or faſtening different things together; and, by twiſting ſeveral of them in the nature of ropes, they make cables and hawſers for the Balzas and ſmall veſſels; and are found by experience to laſt a long time in the water.

In theſe foreſts alſo grows a tree called very properly Matapalo, i. e. kill-timber. It is of itſelf a weak tree; but growing near another of conſiderable bulk, and coming into contact with it, ſhoots above it, when expanding its branches deprives its neighbour of the rays of the ſun. Nor is this all; for by imbibing the juices of the earth, the other withers and dies. After which it becomes lord of the ſoil, and increaſes to ſuch a bulk, that very large canoes are made of it; for which its wood is, of all others, the beſt adapted, being very light and fibrous.

CHAP. II.

Difficulties attending our making the neceſſary obſervations for meaſuring the length of an arch of the meridian, and the manner of our living during the operations.

ALL the progreſs made during one whole year which we ſpent in coming to Quito, was the ſurmounting the difficulties of the paſſage, and at length reaching that country where we were to enter on the principal part of our commiſſion. Nor will even this appear a ſmall matter, if the great diſtance and diverſity of climates be conſidered. A few of the firſt days after our arrival were ſpent in making proper returns for the civilities we had received from all perſons of rank; after which we began to deliberate on the beſt methods of performing our work; and the rather as M. Bouguer and de la Condamine were now arrived. The former reached Quito on the 10th of June by the ſame road of Guaranda; and the latter on the 4th of the ſame month, having taken his rout by the river of Emeralds, in the government of Atacames.

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Our first operation was to measure a piece of ground, which was to be the base of the whole work; and this we finished during the remainder of the current year. But it proved a very difficult and fatiguing operation, from the heat of the sun, the winds and rains, which continually incommoded us. The plain made choice of for this base, is situated 249 toises lower than Quito, and four leagues to the north-east of that city. It is called the plain of Yaruqui, from a village of that name near it. This plain was particularly chosen as the best adapted to our operations; for tho' there are several others in this district, yet all of them lay at too great a distance from the direction of our base. The quality, disposition, and lower situation, all contribute to render it less cold than Quito. Eastward it is defended by the lofty Cordillera of Guamani and Pambamarca, and westward by that of Pichincha. The soil is entirely sand; so that besides the heat naturally resulting from the direct rays of the sun, it is increased by the rays being reverberated by the two Cordilleras; and hence it is also exposed to violent tempests of thunder, lightning, and rain; but being quite open towards the north and south, such dreadful whirlwinds form here, that the whole interval is filled with columns of sand, carried up by the rapidity and gyrations of violent eddy winds, and sometimes produce fatal consequences; one melancholy instance happened while we were there; an Indian being caught in the center of one of those blasts, died on the spot. It is not indeed at all strange that the quantity of sand in one of those columns should totally stop all respiration in any living creature who should have the misfortune of being involved in it.

Our daily labour was to measure the length of this plain in a horizontal direction, and at the same time, by means of a level, to correct the inequalities of the ground; beginning early in the morning, and continuing to pursue our task closely till evening, unless interrupted by extreme bad weather; when we retired to a tent always pitched for that purpose, as well as for a retreat at noon, when the heat of the sun became too great for us, after the fatigue of the morning.

We at first intended to have formed our base in the plain of Cayambe, situated twelve leagues to the north of Quito. Accordingly the company first repaired to this plain to view it more attentively. In this place we lost M. Couplet on the 17th of September 1736, after only two days illness. He was indeed slightly indisposed when we set out from Quito; but being of a strong constitution, his zeal for the service would not permit him to be absent at our first essay. On his arrival, however, his distemper rose to such a height, that he had only two days

days to prepare for his paſſage into eternity; but we had the ſatisfaction to ſee he performed his part with exemplary devotion. This almoſt ſubitaneous death of a perſon in the flower of his age, was the more alarming, as none of us could diſcover the nature of his diſeaſe.

THE menſuration of the baſe was ſucceeded by obſerving the angles, both horizontal and vertical, of the firſt triangles we intended to form; but many of them were not purſued, the form and diſpoſition of the ſeries being afterwards altered to very great advantage. In order to this M. Verguin, with ſome others, was ſent to draw a geographical map of the parts ſouth of Quito; whilſt M. Bouguer did the ſame with regard to the northern parts; a taſk we found abſolutely neceſſary, in order to determine the points where the ſignals ſhould be placed, ſo as to form the moſt regular triangles, and whoſe ſides ſhould not be intercepted by higher mountains.

DURING theſe operations M. de la Condamine went to Lima, in order to procure money on recommendatory letters of credit, which he had brought from France, for defraying the expences of the company, till remittances arrived; and Don George Juan followed him, in order to confer with the viceroy of Peru, for amicably determining ſome differences which had riſen with the new preſident.

THESE two gentlemen having happily terminated their reſpective affairs, returned to Quito about the middle of June, when both M. Bouguer, and thoſe who ſurveyed the ſouthern parts, had finiſhed their plans. It was now determined to continue the ſeries of triangles to the ſouth of Quito; and the company accordingly divided themſelves into two bodies, conſiſting of French and Spaniards, and each retired to the part aſſigned them; Don George Juan and M. Godin, who were at the head of one party, went to the mountain of Pambamarca; while M. Bouguer, de la Condamine, and myſelf, together with our aſſiſtants, climbed up to the higheſt ſummit of Pichincha. Both parties ſuffered not a little, both from the ſeverity of the cold, and the impetuoſity of the winds, which on theſe heights blew with inceſſant violence; and theſe difficulties were the more painful to us, as we had been little uſed to ſuch ſenſations. Thus in the torrid zone, nearly under the equinoctial, where it is natural to ſuppoſe we had moſt to fear from the heat, our greateſt pain was cauſed by the exceſſiveneſs of the cold, the intenſeneſs of which may be conjectured from the following experiments made by the thermometer carefully ſheltered from the wind, on the top of Pichincha; the freezing point being at 1000.

On

On the 15th of August 1737, at 12 at noon, the liquor was at the height of 1003. At 4 in the evening, at 1001½. At 6 in the evening, at 998¼.

On the 16th of August, at 6 in the morning, at 997. At 10 in the forenoon, at 1005. At 12 at noon, at 1008. At 5 in the evening, at 1001½. At 6 in the evening, at 999½.

On the 17th, at three-quarters after 5 in the morning, at 996. At 9 in the morning, 1001. At ¾ after 12, at 1010. At ¼ after 2 in the afternoon, at 1012¼. At 6 in the evening, at 999. And at 10 in the evening, 998.

Our first scheme for shelter and lodging in these uncomfortable regions, was, to pitch a field-tent for each company; but on Pichincha this could not be done from the narrowness of the summit, and we were obliged to be contented with a hut, so small that we could hardly all creep into it. Nor will this appear strange, if the reader considers the bad disposition and smallness of the place, it being one of the loftiest crags of a rocky mountain, one hundred toises above the highest part of the desert of Pichincha. Such was the situation of our mansion, which, like all the other adjacent parts, soon became covered with ice and snow. The ascent up this stupendous rock, from the base, or the place where the mules could come, to our habitation, was so craggy as only to be climbed on foot, and to perform it cost us four hours continual labour and pain, from the violent efforts of the body, and the subtilty of the air; the latter being such as to render respiration difficult. It was my misfortune, when I had climbed something above half-way, to be so overcome, that I fell down, and remained a long time without sense or motion; and, as I was told, with all the appearance of death in my face. Nor was I able to proceed after coming to myself, but was obliged to return to the foot of the rock, where our servants and instruments remained. The next day I renewed the attempt of climbing the rock, tho' probably I should have had no better success than before, had not some Indians assisted me in the most steep and difficult places.

The strange manner of living which we were reduced to during the time we were employed in a geometrical mensuration of some degrees of the meridian, may not perhaps prove unentertaining to the reader; and therefore I shall, as a specimen of it, give a succinct account of what we suffered on Pichincha. For this desert, both with regard to the operations we performed there, and its inconveniencies, differing very little from

from others, an idea may be very easily formed of the fatigues, hardships, and dangers to which we were continually exposed during the time we were prosecuting the enterprize, with the conduct of which we had been honoured. The principal difference between the several deserts consisted in their greater or lesser distance from places where we could procure provisions; and in the inclemency of the weather, which was proportionate to the height of the mountains, and the season of the year when we visited them.

We generally kept within our hut. Indeed we were obliged to do this, both on account of the intenseness of the cold, the violence of the wind, and our being continually involved in so thick a fog, that an object at six or eight paces was hardly discernible. When the fog cleared up, the clouds by their gravity moved nearer to the surface of the earth, and on all sides surrounded the mountain to a vast distance, representing the sea, with our rock like an island in the center of it. When this happened we heard the horrid noises of the tempests, which then discharged themselves on Quito and the neighbouring country. We saw the lightnings issue from the clouds, and heard the thunders roll far beneath us; and whilst the lower parts were involved in tempests of thunder and rain, we enjoyed a delightful serenity; the wind was abated, the sky clear, and the enlivening rays of the sun moderated the severity of the cold. But our circumstances were very different when the clouds rose; their thickness rendered respiration difficult; the snow and hail fell continually, and the wind returned with all its violence; so that it was impossible entirely to overcome the fears of being, together with our hut, blown down the precipice, on whose edge it was built, or of being buried under it by the daily accumulations of ice and snow.

The wind was often so violent in these regions, that its velocity dazzled the sight, whilst our fears were increased by the dreadful concussions of the precipice by the fall of enormous fragments of rocks. These crashes were the more alarming as no other noises are heard in these deserts. And during the night our rest, which we so greatly wanted, was frequently disturbed by such sudden sounds. When the weather was any thing fair with us, and the clouds gathered about some of the other mountains which had a connection with our observations, so that we could not make all the use we desired of this interval of good weather, we left our hut to exercise ourselves, in order to keep us warm. Sometimes we descended to some small distance, and at others amused ourselves with rolling large fragments of rocks down the precipice; and these

 many

many times required the joint ſtrength of us all, tho' we often ſaw the ſame performed by the mere force of the wind. But we always took care in our excurſions not to go ſo far, but that on the leaſt appearance of the clouds gathering about our cottage, which often happened very ſuddenly, we could regain our ſhelter. The door of our hut was faſtened with thongs of leather, and on the inſide not the ſmalleſt crevice was left unſtopped; beſides which it was very compactly covered with ſtraw. But notwithſtanding all our care the wind penetrated through. The days were often little better than the nights, and all the light we enjoyed was that of a lamp or two, which we kept burning, that we might diſtinguiſh one another, and improve our time as much as poſſible in reading. Tho' our hut was ſmall, and crouded with inhabitants, beſides the heat of the lamps, yet the intenſeneſs of the cold was ſuch, that every one of us was obliged to have a chafindiſh of coals. Theſe precautions would have rendered the rigour of the climate ſupportable, had not the imminent danger of periſhing by being blown down the precipice, rouſed us every time it ſnowed, to encounter the ſeverity of the outward air, and ſally out with ſhovels to free the roof of our hut from the maſſes of ſnow which were gathering on it. Nor would it, without this precaution, have been able to ſupport the weight. We were not indeed without ſervants and Indians; but they were ſo benumbed with the cold, that it was with great difficulty we could get them out of a ſmall tent, where they kept a continual fire. So that all we could obtain from them was to take their turns in this labour; and even then they went very unwillingly about it, and conſequently performed it ſlowly.

It may eaſily be conceived what we ſuffered from the aſperities of ſuch a climate. Our feet were ſwelled, and ſo tender, that we could not even bear the heat, and walking was attended with extreme pain Our hands were covered with chilblains; our lips ſwelled and chopped; ſo that every motion in ſpeaking or the like, drew blood; conſequently we were obliged to a ſtrict taciturnity, and but little expoſed to laugh, as by cauſing an extenſion of the lips, it produced ſuch fiſſures as were very painful for two or three days after.

Our common food in this inhoſpitable region was a little rice boiled with ſome fleſh or fowl, which we procured from Quito; and inſtead of fluid water, our pot was filled with ice; we had the ſame reſource with regard to what we drank: and while we were eating, every one was obliged to keep

keep his plate over a chafindish of coals, to prevent his provisions from freezing. The same was done with regard to the water. At first we imagined that drinking strong liquors would diffuse a heat through the body, and, consequently, render it less sensible of the painful sharpness of the cold; but to our surprize we felt no manner of strength in them, nor were they any greater preservative against the cold than common water. This, together with the apprehension that they might prove detrimental to our health, besides the danger of contracting an ill habit, we discontinued their use, having recourse to them but very seldom, and then sparingly. We frequently gave a small quantity to our Indians, together with part of the provisions which were continually sent to us from Quito; besides a daily salary of four times as much as they usually earn.

But notwithstanding all these encouragements we found it impossible to keep the Indians together. On their first feeling the rigours of the climate, their thoughts were immediately turned on deserting us. The first instance we had of this kind was so unexpected, that had not one of a better disposition than the rest, staid with us, and acquainted us of their design, it might have proved of very bad consequence. The affair was this: there being on the top of the rock no room for pitching a tent for them, they used every evening to retire to a cave at the foot of the mountain, where, besides a natural diminution of the cold, they could keep a continual fire; and, consequently, enjoyed more comfortable quarters than their masters. Before they withdrew at night they fastened on the outside the door of our hut, which was so low that it was impossible to go in or out without stooping; and as every night the hail and snow which had fallen, formed a wall against the door, it was the business of one or two to come up early and remove this obstruction, that, when we pleased, we might open the door. For tho' our negro servants were lodged in a little tent, their hands and feet were so covered with chilblains, that they would rather have suffered themselves to have been killed than move. The Indians therefore came constantly up to dispatch this work betwixt nine and ten in the morning; but we had not been there above four or five days, when we were not a little alarmed to see ten, eleven, twelve come, without any news of our labourers; when we were relieved by the honest servant mentioned above, who had withstood the seduction of his countrymen, and informed us of the desertion of the four others. After great difficulty he open-

ed a way for us to come out, when we all fell to clearing our habitation from the maſſes of ſnow. We then ſent the Indian to the corregidor of Quito, with advice of our condition, who with equal diſpatch ſent others, threatening to chaſtize them ſeverely if they were wanting in their duty.

But the fear of puniſhment was not ſufficient to induce them to ſupport the rigour of our ſituation; for within two days we miſſed them. On this ſecond defertion the coregidor, to prevent any other inconvenience, ſent four other Indians under the care of an alcalde, and gave orders for their being relieved every fourth day.

Twenty-three tedious days we ſpent on this rock, viz. to the 6th of September, and even without any poſſibility of finiſhing our obſervations of the angles; for when it was fair and clear weather with us, the others, on whoſe ſummits were erected the ſignals which formed the triangles for meaſuring the degrees of the meridian, were hid in clouds; and when (as we conjectured, for we could never plainly diſcern them) thoſe were clear, Pichincha was involved in clouds. It was therefore neceſſary to erect our ſignals in a lower ſituation, and in a more favourable region. This however, did not produce any change in our habitation till the beginning of December, when having finiſhed the obſervations which particularly concerned Pichincha, we proceeded to others; but with no abatement either of inconveniencies, cold, or fatigue, the places where we made all our obſervations being neceſſarily on the higheſt parts of the deſerts; ſo that the only reſpite in which we enjoyed ſome little eaſe, was during the ſhort interval of paſſing from one to the other.

In all our ſtations ſubſequent to that on Pichincha, during our fatiguing menſuration of the degrees of the meridian, each company lodged in a field-tent, which, tho' ſmall, we found leſs inconvenient than our Pichincha hut, tho', at the ſame time, we had more trouble, being oftener obliged to clear it from the ſnow, as the weight of it would otherwiſe have demoliſhed the tent. At firſt indeed, we pitched it in the moſt ſheltered places; but on taking a reſolution that the tents themſelves ſhould ſerve for ſignals, to prevent the inconvenience of thoſe of wood, we removed them to a more expoſed ſituation, where the impetuoſity of the winds ſometimes tore up the piquets, and blew them down. Then we were not a little pleaſed with our having brought ſupernumerary tents, and with our dexterity in pitching another inſtead of that which the wind had torn away. Indeed without

out this precaution, we ſhould have been in the utmoſt danger of periſhing. In the deſert of Aſuay we particularly experienced the benefit of this expedient, three tents belonging to our company being obliged to be pitched one after another, till at laſt they all became unfit for uſe, and two ſtout poles were broken. In this terrible condition our only reſource was to quit the poſt, which was next to the ſignal of Sinaſaguan, and ſhelter ourſelves in a breach or chaſm. The two companies were both at that time on this deſert, ſo that the ſufferings of both were equal. The Indians who attended us, not willing to bear the ſeverity of the cold, and being at the ſame time diſguſted with frequent labour of clearing the tent from the ſnow, at the firſt ravages of the wind, deſerted us. Thus we were obliged to perform every thing ourſelves, till others were ſent us from a ſeat about three leagues diſtant at the bottom of the mountain.

While we were thus labouring under a variety of difficulties from the wind, ſnow, froſt, and the cold, which we here found more ſevere than in any other part; forſaken by our Indians, little or no proviſions, a ſcarcity of fuel, and in a manner deſtitute of ſhelter, the good prieſt of Cannar, a town ſituated at the foot of theſe Cordilleras, ſouth-weſt from the ſignal of Sinaſaguan, about five leagues from it, and the road very difficult, was offering up his prayers for us; for he, and all the Spaniards of the town, from the blackneſs of the clouds, gave us over for loſt; ſo that, after finiſhing our obſervations, when we paſſed through the town, they viewed us with aſtoniſhment, and received us with the moſt cordial ſigns of delight, adding their congratulations, as if we had, amidſt the moſt threatning dangers, obtained a glorious victory. And doubtleſs our operations muſt appear to them a very extraordinary performance, if we conſider the inexpreſſible horror with which they view thoſe places where we had paſſed ſo many days.

It was at firſt determined to erect ſignals of wood in the form of a pyramid; but to render our ſtay in the piercing colds of theſe regions as ſhort as poſſible, we abandoned that intention, of which there would have been no end; becauſe after remaining ſeveral days in the denſeſt parts of the clouds, when a clear interval happened, the ſignals could not be diſtinguiſhed: ſome the winds had blown down, and others had been carried away by the Indians who tended their cattle on the ſides of the mountains, for the ſake of the timber and ropes. To remedy which, the only expedient was to make the very tents in which we lodged ſerve for ſignals; for the orders of the magiſtrates, and threatenings of the

priests, were of little consequence in such a desert country, where it was almost impossible to discover the delinquents.

THE deserts of the mountains of Pambamarca, and Pichincha, were the noviciates in which we were inured to the severe life we led from the beginning of August 1737, to the end of July 1739. During which time our company occupied thirty-five deserts, and that of Don George Juan, thirty-two; the particulars of which shall be enumerated, together with the names of all those on which we erected signals for forming the triangles; in all which the inconveniencies were the same, except that they became less sensible, in proportion as our bodies became inured to fatigue, and naturalized to the inclemency of those regions; so that in time we were reconciled to a continual solitude, coarse provisions, and often a scarcity of these. The diversity of temperatures did not in the least affect us when we descended from the intense cold of one of those deserts into the plains and valleys, where tho' the heat was but moderate, seemed excessive to those coming from such frozen regions. Lastly, without any concern we encountered the dangers unavoidable among those steep precipices, and a great variety of others to which we were continually exposed. The little cabins of the Indians and the stalls for cattle scattered up and down on the skirts of the mountains, and where we used to lodge in our passage from one desert to another, were to us specious palaces; mean villages appeared like splendid cities, and the conversation of a priest, and two or three of his companions, charmed us like the banquet of Zenophon: the little markets held in those towns, when we happened to pass thro' them on a Sunday, seemed to us as if filled with all the variety of Seville fair. Thus the least object became magnified, when we descended for two or three days from our exile, which in some places lasted fifty days successively; and it must be owned, that there were particular occasions when our sufferings were such, that nothing could have supported us under them, and animated us to persevere, but that honour and fidelity which jointly conspired to induce both companies, whatever should be the consequence, not to leave imperfect a work so long desired by all civilized nations, and so particularly countenanced by the two powerful monarchs our sovereigns.

IT may not be amiss here to inform the reader of the different opinions conceived by the neighbouring inhabitants, with regard to our enterprize. Some admired our resolution, others could not tell what construction to put upon our perseverance; and even those of the best parts and education among them were utterly at a loss what to think. They made it

their

their business to examine the Indians concerning the life we led, but the answers they received only tended to increase their doubts and astonishment. They saw that those people, tho' naturally hardy, robust, and inured to fatigues, could not be prevailed upon, notwithstanding the encouragement of double pay, to continue any time with us. The serenity in which we lived on those dreaded places was not unknown to them; and they saw with what tranquillity and constancy, we passed from one scene of solitude and labour to another. This to them appeared so strange, that they were at a loss what to attribute it to: some considered us as little better than lunatics; others, more sagaciously, imputed the whole to covetousness, and that we were certainly endeavouring to discover some rich minerals, by particular methods of our own invention: others again suspected that we dealt in magic; but all were involved in a labyrinth of confusion with regard to the nature of our design; and the more they reflected on it, the greater was their perplexity, being unable to discover any thing proportionate to the pains and hardships we underwent; and even when we informed them of the real motive of this expedition, which caused so much astonishment, their ignorance of its importance would not suffer them to give credit to what we said; suspecting that we concealed, under the veil of an incomprehensible chimera, our real practices, of which, as I have already observed, they had no good opinion.

Among several pleasant adventures which this occasioned, I shall only mention two, both which are still fresh in my memory; and may serve to illustrate the strange ideas these ignorant people formed of us. While we were at the signal of Vengotasin, erected on a desert at no great distance from the town of Latacunga, about a league from the place where we had pitched our field-tent, was a cow-house, where we constantly passed the night; for the ascent not being remarkably difficult, we could every morning in fair weather, return soon enough to the tent to begin our observations. One morning, as we were passing to the signal, we saw at a distance, three or four Indians, in appearance on their knees; and we found indeed on our approaching nearer, that this was their real posture; we also observed that their hands were joined, and that they uttered words in their language, with the greatest fervour and the most supplicant accent; but by the position of their eyes it was evident that we were the persons whom they thus addressed. We several times made signs for them to rise, but they still

kept their posture till we were got at a considerable distance. We had scarce begun to prepare our instruments within the tent, when we were alarmed with the repetition of the same suppliant vociferations. On going out to know the cause, we found the same Indians again on their knees before the tent; nor were we able, by all the signs we could make, to raise them from that posture. There fortunately happened at that time to be with us a servant who understood both the Indian and Spanish languages; and having directed him to ask these poor people what they wanted of us, we were informed that the eldest of them was the father of the others, and that his ass being either strayed or stolen, he came to us, as persons who knew every thing, to intreat us to commiserate his great loss, and put him in a method of recovering his beast. This simplicity of the Indians afforded us no small entertainment; and tho' we did all we could, by means of our interpreter, to undeceive them; we found they were equally tenacious of this strange error as of genuflexion; and would still believe that nothing was hid from us; till having wearied themselves with these clamorous vociferations, and finding we took no notice of them, they retired with all the marks of extreme sorrow, that we would not condescend to inform them where they might find the ass; and with a firm persuasion that our refusal proceeded from ill-nature, and not from ignorance.

THE other adventure I shall mention happened to myself in particular, and not with simple and ignorant Indian peasants, but with one of the principal inhabitants of Cuenca. While the whole company were on the mountain of Bueran, not far from the town of Cannar, I received a message from the priest of that place, informing me that two Jesuits of my acquaintance were passing that way, and if I was desirous of seeing them, I might find them at his house. As I was chearfully descending the mountain to enjoy this pleasing invitation, I happened to be overtaken by a gentleman of Cuenca, who was going to take a view of his lands in that jurisdiction, and had observed me coming from our tent. He was, it seems, acquainted with my name, tho' he had never seen me; but observing me dressed in the garb of the Mestizos, and the lowest class of people, the only habit in which we could perform our operations, he took me for one of the servants, and began to examine me; and I was determined not to undeceive him till he had finished. Among other things he told me, that neither he nor any body else would believe, that the ascertaining the figure and magnitude of

of the earth, as we pretended, could ever induce us to lead ſuch a diſmal and uncouth life; that, however we might deny it, we had doubtleſs diſcovered many rich minerals on thoſe lofty deſerts; adding that perſons in his circumſtances were not to be ſatisfied with fine words. Here I laboured to remove the prejudices he entertained againſt our operations; but all I could ſay only tended to confirm him in his notion; and at parting he added, that doubtleſs by our profound knowledge in the magic art, we might make much greater diſcoveries than thoſe who were ignorant of it. Theſe opinions were blended with others equally abſurd and ridiculous; but I found it impoſſible to undeceive him, and accordingly left him to enjoy his own notions.

Our ſeries of triangles in the ſouth part being finiſhed, and a ſecond baſe meaſured by each company to prove the truth of our work, we began our aſtronomical obſervations; but our inſtruments not being perfectly adapted to that intention, we were obliged, in the month of December of the ſame year, to return to Quito, in order to conſtruct another, on whoſe accuracy we could ſafely rely; and this employed us till the firſt of Auguſt, of the following year 1740. When, without any further loſs of time, we again repaired to Cuenca, and immediately began our obſervations; but theſe being very tedious, were not finiſhed before the end of September; the atmoſphere of that country being very unfavourable to aſtronomical obſervations. For in the deſarts the clouds in which we were ſo frequently involved, hindered us from diſcerning the other ſignals; and in the city, over which they ſpread a kind of perpetual pavilion, they hid the ſtars from us while they paſſed the meridian; but patience and reſolution, inſpired by the importance of our enterprize, having enabled us at laſt to perform our taſk on the ſouth ſide of the equator, we prepared for our journey to the north of it, in order to make the aſtronomical obſervations at the other extremity of the arch of the meridian, and thus put the finiſhing hand to our work; but this was for ſome time retarded by an accident of the greateſt importance which called us to Lima, as will be more fully related in the ſecond volume.

In the month of December 1743, the reaſons which detained us at Lima, Guayaquil, and in Chili, no longer ſubſiſting, we returned to Quito in January 1744, when Don George Juan and I prolonged the arch of the meridian four triangles, by which it was extended to the place where M. Godin in 1740, had made the ſecond aſtronomical obſervation,

obſervation, and which we now repeated and finiſhed in the month of May, 1744.

MESS. BOUGUER and M. de la Condamine having at that time finiſhed the ſeveral parts aſſigned to them, had left Quito, in order to return to France; the former by the way of Carthagena, and the latter by the river of the Amazons; but the reſt of the company remained there ſome time; ſome for fear of being taken by the enemy, ſome for want of the means to defray the charges neceſſary in ſo long a journey, and others on account of their having contracted ſome obligations, and were unwilling to leave the country till they could diſcharge them. So that in the former only the natural deſire of returning to their country prevailed, in order there to repoſe themſelves after ſuch a ſeries of labours and hardſhips, by which the health and vigour of all was in ſome meaſure impaired.

CHAP. III.

The names of the deſerts and other places where the ſignals were erected for forming the ſeries of triangles for meaſuring an arch of the meridian.

IN order to gratify the curioſity of the reader with regard to our operations, I ſhall mention, in ſeparate articles, the places where each company made their obſervations, and the time they were obliged to remain there; omitting a detail of ſeveral circumſtances, many of which would be little more than a paraphraſe on the ſubject of the preceding chapter. Nor ſhall I here include thoſe ſtations uſed in the year 1736, after meaſuring the baſe of Yaruqui, both on its extremities and in the deſerts of Pambamarca and Yllahalo; for the diſpoſition of the triangles being afterwards altered, they were repeated. Therefore conſidering them as not uſed at that time, I ſhall begin with thoſe ſtations in which no ſuch circumſtances happened, and range them in the order they were occupied.

Deſerts on which the ſignals were erected for the operations conducted by M. de la Condamine *and myſelf.*

I. SIGNAL on the deſert of Pichincha.

THE ſignal was at firſt erected on the higheſt ſummit of Pichincha; but afterwards removed to another ſtation at the foot of the pic: the top having been afterwards found not to be the moſt proper place. We began our obſervations on

on this mountain on the 14th of August 1737; but could not finish them before the beginning of December following.

II. The signal on Oyambaro, the south extremity of the base of Yaruqui.

On the 20th of December 1737, we removed to Oyambaro, and finished our observations necessary to be made there on the 29th of the same month.

III. Signal on Caraburu, the northern extremity of the base of Yaruqui.

On the 30th of December we passed to Caraburu, and continued there till the 24th of January 1738. This long stay was partly occasioned by the badness of the weather, and partly by the want of signals.

IV. Signal on the desert of Pambamarca.

On this desert of Pambamarca, where we had before been in 1736, on finishing the measurement at Yaruqui, a second signal was erected here, and we went up the 26th of January 1738, where we remained till the 8th of February; and tho' we had not here the difficulties of the ice and snow to struggle with, as on Pichincha and other subsequent stations, yet we were extremely incommoded by the velocity of the winds, which were so violent that it was difficult to stand; and notwithstanding the best shelter possible to be procured, we often found it very difficult to keep the instrument steady; which, of consequence, greatly increased the difficulty of making the observations with the necessary accuracy.

V. Signal on the mountain of Tanlagua.

On the 12th of February we ascended the mountain of Tanlagua; and having the next day finished our observations, returned. If this mountain be but small in comparison of others in this Cordillera, and thus saved us the many inconveniencies of a lofty station; yet the steepness of its sides put us to no small difficulty, there being no other possible method of going up than by climbing, and the greatest care is requisite in fixing the hands and feet close and firm; nor is it possible to climb it in less than four hours. The descent

descent, as may naturally be concluded, is little less hazardous, as you must sit and slide down much the greater part of it; and this must be done very gently, lest by the celerity of the motion you tumble down the precipice.

VI. Signal on the plain of Changalli.

On the 7th of March we removed to the signal of Changalli, and finished the necessary observations on the 20th. We spent the time here very comfortably. The signal was erected on a plain where neither the air nor weather molested us; and being lodged in a farm-house near the signal, and not far from the town of Pintac, we had all the necessary conveniencies of life, the want of which we often severely felt in the deserts. These comforts did not, however, in the least abate our diligence to avail ourselves of every instant when the signals on the mountains were not concealed in clouds. But one circumstance which lengthened our stay was, that some of the signals were wanting, having been blown down by the wind; it was therefore resolved, that for the future the field-tents should serve for signals. And accordingly we afterwards constantly pursued this method.

VII. Signal on the desert of Pucaguaico, on the side of the mountain Catopaxi.

This mountain we ascended the 21st of March, and on the 4th of April were obliged to return, after in vain endeavouring to finish our observations. For, not to mention our own sufferings, the frost and snow, together with the winds, which blew so violently, that they seemed endeavouring to tear up that dreadful volcano by its roots, rendered the making observations absolutely impracticable: such is indeed the rigour of this climate, that the very beasts avoid it; nor could our mules be kept at the place where we at first ordered the Indians to take care of them; so that they were obliged to wander in search of a milder air, and sometimes to such a distance, that we had often no small trouble in finding them.

At Pucaguaico we however saw the necessity of either erecting the signal farther to the south, or setting up another in the intermediate space. Several consultations were held to determine on the best method; but as other things were necessary to be done before we came to a conclusion, the operations were suspended, and the interval spent in making observations on the velocity of sound, and other physical subjects. Every thing being

being ready for renewing our operations, we a second time ascended Pucaguaico on the 16th of August, and it was our good fortune by the 22d to have finished all our necessary operations.

VIII. Signal on the desert Corazon.

On the 12th of July, before we had finished our operations at the station Pucaguaico, we ascended to the desert Corazon, where we staid till the 9th of August. This mountain is nearly of the same height with that of Pichincha, and its loftiest summit, like that of the former, a rock of considerable altitude. At the foot of this rock the signal was erected, and thus our station nearly resembled that on Pichincha. There was indeed this considerable difference, that our sufferings from the winds, frosts, and snows were considerably less.

IX. Signal on Papa-urco.

It had been determined that Papa-urco should be the place where the intermediate signal betwixt those of Pucaguaico and Vengotasin should be erected. This mountain, which is of a middling height, we ascended on the 11th of August, and continued on it till the 16th, when we returned to Pucaguaico; so that this easy mountain was a kind of resting place, between the two painful stations of Corazon and Pucaguaico.

X. Signal on the mountain of Milin.

This mountain, whose height is nearly the same with that of the Papa-urco, we ascended on the 23d of August, and by the 29th had finished all the necessary observations.

XI. Signal on the mountain Vengotasin.

The mountain of Vengotasin is not remarkably high, but our stay on it was longer than we at first imagined; for, after finishing our observations on the 4th of September, some difficulties which arose with regard to the position of the following signal towards the south, detained us till the 18th. However, the town of Latacunga being contiguous to the skirts of this mountain, and having several farms in its neighbourhood, we were at no loss for many conveniencies of which we were destitute in several other stations.

XII.

XII. Signal on the mountain of Chalapu.

Our ſtay on this mountain was ſhorter than on any other in the whole ſeries of triangles; for we continued only part of four days, going up the 20th and coming down the 23d. It is none of the higheſt mountains, and has in its neighbourhood the town of Hambato, and its ſkirts diverſified with ſeats and farms; but the acclivity is ſo ſteep, that the ſafeſt way is to aſcend it on foot.

XIII. Signal of Chichichoco.

The ſignal of Chichichoco was erected on the ſide of the mountain of that name, which is a branch of the famous ſnowy mountain of Carguairaſo. Here we ſtaid only from the 24th to the 29th of September. Tho' the ſpot where we placed the ſignal was of a very inconſiderable height, when compared with that of the other mountains, yet from its proximity to Carguairaſo, when the wind blew from that quarter, it was conſiderably cold, but not comparable to that we felt on the deſerts, where every part was covered with ice, hail, or ſnow. The day we left this place, while our Indians were loading the mules, and we in the tent ready to ſet out on our journey, an earthquake was felt, which reached four leagues round the country. Our tent rocked from ſide to ſide, in conformity to the undulating motion obſerved in the earth; this ſhock was only one of the ſmall concuſſions frequent in thoſe parts.

XIV. Signal of Mulmul.

This ſignal, and the three following, occaſioned ſeveral journeys from one to another; as, for the greater accuracy of the obſervations, auxiliary triangles were to be formed, in order to verify the diſtances reſulting from the principal. The difficulty alſo of reciprocally diſtinguiſhing ſome ſignals from others, obliged us to change their poſition, till they ſtood in proper places; and, conſequently, laid us under a neceſſity of going often from one ſtation to another. On the 8th of November, having finiſhed all our obſervations, the company removed to Riobamba, where I myſelf had been confined ever ſince the 20th of October, with a critical diſeaſe, which at firſt attacked me at Chichichoco, and increaſing at Mulmul, I was obliged to remain in a cow-houſe on that mountain, from whence

whence I was removed to Riobamba; and this accident hindered me from being present at the signals XV. XVI and XVII. which were those of Guayama, Llmal and Nabuso.

XVIII. Signal of Sisa-pongo.

At the signal of Sisa-pongo, we continued from the 9th to the end of November; and here the trigonometrical observations were intermitted, till Don George Juan and M. Godin returned from Quito, to which city they repaired in order to take some measures necessary for the continuation of the work. But that this interval might not be lost, M. Bouguer proposed to make some experiments, in order to demonstrate the system of attraction. The place he made choice of for these experiments was the mountain of Chimbarazo. In this station, and the following of the sandy desert of the same mountain, we suffered more than on any other.

XIX. Signal of Lalanguso.

On the desert of Lalanguso, our observations were continued from the 24th to the 31st of January, 1739.

XX. Signal on the desert of Chusay.

The station on the desert of Chusay was one of the most tedious in the whole series of triangles, being unavoidably detained on this disagreeable mountain from the 3d of February to the 24th of March. This delay was occasioned by the difficulty of pitching on proper places for erecting the succeeding signals, that they might stand in full view, be easily distinguished one from another, and form regular triangles. This was indeed a difficult task, the lofty summits of the mountains of the Cordillera of Azuay, where they were to be placed, intercepting each other from our sight. The tediousness of this station was increased by the rigour of the weather, the strength of the winds, and its great distance from any place where we could procure convenient shelter and refreshments.

XXI. Signal on the desert of Tialoma.

On the desert of Tialoma we continued from the 26th of March to the 25th of April; but had little, except the length of the time, to complain of.

XXII.

XXII. SIGNAL on the desert of Sinasaguan.

WE arrived at the desert of Sinasaguan on the 27th of April, and left it on the 9th of May, the only clear day we had during our stay; but as we have already mentioned our sufferings on this desert, it will be unnecessary to repeat them here.

XXIII. SIGNAL on the desert of Bueran.

WE continued on the desert of Bueran from the 10th of May to the 1st of June; but besides the small height of the mountain, the town of Cannar being only two leagues distant from it, we were in want of nothing. The temperature of the air was also much more mild than on the other deserts; besides, we had the great satisfaction of relieving our solitude by going to hear mass on Sundays, and other days of precept in the town. These comforts had however some allay; for while we continued on this desert, the animals, cottages, and Indians suffered three times in a very melancholy manner by tempests of lightning, which fell on the neighbouring plains; all those countries, especially the desert of Burgay, which borders on that of Bueran, being subject to very terrible storms.

XXIV. SIGNAL on the desert of Yasuay.

OUR observations at the signal of Yasuay were not finished till the 16th of July, there being a necessity, before we could conclude them, to pitch on the most convenient place for measuring a second base, in order to prove the accuracy of all the preceding geometrical operations; and after fixing on a proper spot, to determine where the signals between Yasuay and the base could be most properly placed. In order to this we went to Cuenca, and from thence proceeded to the plains of Talqui, and los Bannos. At last it was determined that the base should be measured in the former, by which the result of the triangles was to be verified by my company, and that of the other in the plain of los Bannos. The requisite signals also were erected, and we returned to the desert of Yasuay, where we continued our observations, which employed us from the 7th to the 16th of July. Tho' this mountain is one of the highest in the whole territory of Cuenca, and the ascent so steep that there is no going up but on foot, nor even by that method without great labour; yet the cold is far from being so intolerable as on Sinasaguan, and the deserts north of that mountain. So that we chearfully supported the inconveniencies of this station.

XXV.

XXV. Signal on the mountain of Borma.

This mountain is but low, as are all the others in the neighbourhood of Cuenca, so that here we were not impeded by any cloudy summits. It was also our good fortune that Yasuay, contrary to our apprehensions, was clear and visible the whole 19th of July; so that we finished our observations in two days very agreeably.

XXVI. XXVII. XXVIII. XXIX. Signals of Pugin, Pillachiquir, Alparupasca, and Chinan.

The two last being the north and south extremities of the base of Talqui, the four stations of Pugin, Pillachiquir, Alparupasca, and Chinan, did not require our attendance; for being near the base of Talqui, we daily went from the farmhouses where we lodged, and observed the angles, except that of Pillachiquir, to which, on account of its greater distance than that of the other signals, there was a necessity for our visiting; but happily concluding our observations the same day we reached it, there was no reason for our longer stay.

XXX. XXXI. Signals of Guanacauri, and the tower of the great church of Cuenca.

The series of triangles, except the two last at the extremities of the second base, being finished, it was necessary to form other triangles in order to fix the place of the observatory, where, when the geometrical observations were finished, the astronomical were to begin. Those which fell to my lot, were a signal on the mountain of Guanacauri, and the tower of the great church of Cuenca, and these angles were taken at the same time the astronomical observations were making.

At the north extremity of the arch of the meridian new triangles were afterwards formed, as we have already observed in the foregoing chapter. This rendered it necessary for us to make choice of different places on these mountains for erecting other signals in order to form these triangles. The same order which had been followed during the whole series of mensuration, that each person should take two angles of every triangle, was observed here, and those assigned to me were the following.

XXXII. XXXIII. XXXIV. XXXV. SIGNALS on Guapulo, the mountain of Campanario, and those of Cosin, and Mira.

THE observations to be made at these four stations, could not be finished till those alarming reasons which called us to Lima and Chili no longer subsisted, and we were returned to Quito; the work at the first and last stations were dispatched without the necessity of lodging there; for being near Quito, and the village of Mira, when the weather promised us a favourable opportunity, it was only an easy ride; but we found it very different with regard to the stations of Campanario and Cosin. However we left all the four at the same time, namely, on the 23d of May 1744; the day when John George and myself put the finishing hand to the astronomical observations which we had re-assumed on the 14th of February of the same year; and thus the whole process relative to the mensuration of an arch of the meridian was concluded.

Signals erected on deserts, &c. where the observations were conducted by Mr. Godin, *and* Don George Juan.

THE stations immediately subsequent to the admeasurement of the base of Yaruqui, in the year 1736, and afterwards not made use of, as we have already observed, were common to both companies; the method which was afterwards followed for every one to observe two angles in all the triangles, not having been thought of; tho' it both shortened the work, and at the same time rendered it much easier: so that Don George Juan and Mr. Godin were on the deserts of Yllahalo and Pambamarca, at the same time with Mess. Bouguer and Condamine and myself.

I. II. SIGNALS on the extremities of the base of Yaruqui.

IN order to make the necessary observations relating to these two signals, they left Quito on the 20th of August 1737, and had completely finished them by the 27th.

III. SIGNAL on the desert of Pambamarca.

AFTER they had concluded all the necessary observations at the extremities of the base, they went without delay to the desert of Pambamarca, and completely finished their operations by the 1st of September.

IV.

IV. Signal on the mountain of Tanlagua.

Having finiſhed their obſervations on the deſert they came down to the little town of Quenche in that neighbourhood, in order to proceed from thence to Tanlagua; but the Indians who were to accompany them, being no ſtrangers to the extreme ſeverity of the weather on that deſert, diſcouraged by their recent ſufferings on Pambamarca, and knowing they ſhould ſtill ſuffer more on Tanlagua, were not to be found; and the loweſt claſs of inhabitants in the town, apprehending that they ſhould be ſent on this painful ſervice, alſo left their habitations and abſconded; ſo that the joint endeavours of the alcalde and prieſt to diſcover them, proved ineffectual; and after a delay of two whole days, the curate, with great difficulty, prevailed on the Sacriſtan, and other Indians employed in the ſervice of the church, to accompany them, and take care of the loaded mules as far as the farm-houſe of Tanlagua, where they arrived the 5th of September. The next day they began to aſcend the mountain, which being very ſteep took them up a whole day in climbing it. But this being more than the Indians were able to perform, as they carried the field-tents, baggage, and inſtruments, they were obliged to ſtop half-way; ſo that thoſe on the top were under a neceſſity of paſſing the night there without any ſhelter; and a hard froſt coming on, they were almoſt periſhed with cold; for they were ſo greatly affected by it, that they had no uſe of their limbs till they returned to a warmer air. After all theſe hardſhips the gentlemen could not finiſh their obſervations, ſome of the ſignals being wanting, having either been blown down by the winds, or carried away by the Indian herdſmen: ſo that during the interval, while perſons were employed in erecting others, they returned to Quito, and applied themſelves to examine the diviſions of the quadrants. Theſe operations being very tedious, employed them till the month of December, when all the ſignals which were wanting being replaced, they again, on the 20th of December, repaired to their poſt at Tanlagua; and on the 27th finiſhed the obſervations neceſſary to be made at that ſtation.

V. Signal on the mountain of Guapulo.

The ſignal of Guapulo being erected on a mountain of no great height, and in the neighbourhood of Quito, their reſidence was not neceſſary: for by ſetting out from the city at day-break, they could reach the field-tent where the inſtruments were left, early in the morning. Theſe journeys were repeat-

ed every day; and tho' every moment of time was improved to the greatest advantage, it was the 24th of January 1738, before they finished the observations, with that accurate precision so conspicuous in all their operations.

VI. SIGNAL on the Cordillera and desert of Guamani.

THEY were obliged to make two journeys to the mountain of Guamani, the signal having been first misplaced, so as not to be seen from that erected on Corazon; and consequently there was a necessity for removing it. And tho' in order to do this, they ascended the mountain on the 28th of January, they found it necessary to return thither on the 7th of February, when they were fortunate enough to finish every thing remaining the very next day.

VII. SIGNAL on the desert of Corazon.

THIS mountain also the gentlemen were obliged to visit twice; the first journey was on the 20th of January, and the second on the 12th of March, 1738.

VIII. SIGNAL of Limpie-pongo, on the desert of Cotopaxi.

THEY went up to the desert of Cotopaxi on the 16th of March, and remained there till the 31st; when they observed that the signal of Guamani was not visible from thence, and therefore it was necessary to erect another in the intermediate space; which being completed on the 9th of August, they again repaired to the signal of Limpie-pango, on Cotopaxi; where they finished all their operations by the 13th of the same month, and left every thing in exact order. In ascending the mountain in this second journey, the mule on which Don George Juan rode, fell down a breach, four or five toises deep, but providentially without receiving the least hurt.

As they had been obliged to erect another signal between those of Guamani and Limpie-pongo, in order to continue the series of triangles; so there was also a necessity for returning to some stations to observe again the angles which had before been determined. These operations, together with the experiments on the velocity of sound, and the observations at the new signal, filled up the interval from the time the operations were suspended on Limpie-pongo, till they returned to finish them.

IX.

IX. Signal on the desert of Chinchulagua.

The operations of the signal of Chinchulagua, erected on the desert of the same name, were completed on the 8th of August; but a doubt arising with regard to one of the angles observed, for the greater certainty, they returned to this station, and again examined the angle in question, after they had finished their observations at Limpie-pongo.

X. Signal on the mountain of Papa-urco.

After verifying the observation on Chinchulagua, they removed to the signal of Papa-urco, and finished their observations in the same month of August. Here they for some time suspended their operations, being called to Quito on affairs of importance relating to the French academicians.

XI. Signal on the mountain of Milin.

The affairs which had required Mr. Godin's presence at Quito being terminated within the month, they returned on the 1st of September, to make the necessary observations at the signal of Milin, where they continued till the 7th, when they left it, having completely finished their operations.

XII. Signal on the desert of Chulapu.

From Milin they proceeded to the desert of Chulapu, where they remained till the 18th of September, when they had finished all their observations. Till this signal exclusive, each company had observed the three angles of all the triangles; both because they differed from one another, and to prove by this precision the errors in the divisions of the quadrants, before observed by other methods. But from this signal inclusive, each company observed two angles only of the other triangles, as had been agreed on.

XIII. Signal in Jivicatsu,

In Jivicatsu they remained from the 18th to the 26th of September. This station was one of the most agreeable; for besides the height on which the signal was erected, the temperature of the air, and the chearful aspect of the country, the town

of Pilaro was in the neighbourhood, so that they wanted for nothing.

XIV. XV. Signals on the deserts of Mulmul, and Guayama.

These two deserts are placed together, because their summits are united by gentle eminences; on one of which is a cow-house, used by the Indians when they go in search of their cattle, which feed on the sides of this mountain. In this cow-house Don George Juan, Mr. Godin, and their attendants, took up their quarters on the 30th of September, and every morning when the weather was favourable, repaired to the signal erected on one or other of the eminences. But the distance between the two stations being very small, and the observations made there requiring to be verified by those of other auxiliary triangles, it was absolutely necessary to determine exactly the stations where these triangles were to be formed; and to remain there till the distances were settled, and the observations relating to them concluded; which operations, notwithstanding the greatest diligence was used, employed them till the 20th of October.

Every thing at the two preceding stations being finished, they repaired to the village of Riobamba, determining to continue their work without interruption; but meeting with some difficulties concerning the most advantageous position of the subsequent triangles, and money beginning to grow short with our whole society, both Spaniards and French, it was thought necessary to make use of the interval while the proper places erecting the signals were determined, to procure supplies. Accordingly Mr. Godin and Don George Juan, again set out from Riobamba for Quito on the 7th of November; but it was the 2d of February following, before we had the pleasure of congratulating them on their return, the former having been seized with a fever, which brought him very low, and detained them a considerable time at Quito.

XVI. XVII. Signals on Amula and Sisa-pongo.

The observations necessary at the signal of Amula were finished before the journey to Quito; and from the second of February 1739, when they returned to Riobamba, till the 19th, they were employed in those relating to Sisa-pongo.

XVIII.

XVIII. SIGNAL on the mountain of Sesgum.

ON the mountain of Sesgum they had occasion to stay only from the 20th to the 23d of February. For this signal stood on the declivity of a mountain, and they vigilantly employed every moment when the other deserts were free from those clouds in which they are usually involved.

XIX. SIGNAL on the desert of Senegualap.

THE observations at the signal of Senegualap detained them from the 23d of February, to the 13th of March. The length of the time was indeed the most disagreeable part, as otherwise, they did not place this among the worst stations they had met with during their course of observations.

XX. SIGNAL on the desert of Chusay.

FROM Senegualap they proceeded to the desert of Chusay, a station which gave these gentlemen no less trouble than it had done us. Our company had no concern with the station on this desert; for according to the alternative established between the two companies, that of Senegualap was the place to which we were to repair. But after finishing the observations at Lalanguso, being uneasy at the long stay of Mr. Godin and Don George Juan at Quito, to divert our thoughts by some laborious employment, we divided our company into two, in order to prosecute the mensuration, till those gentlemen returned. Accordingly M. Bouguer, at the head of one detachment, went to the signal of Senegualap, and M. de la Condamine and myself repaired to that of Chusay. But Mr. Godin and Don George Juan joining us there, we returned to our proper company; and the operations were continued in the order agreed on.

XXI. SIGNAL on the desert of Sinasaguan.

THIS desert was one of those common to both companies; and that of Don George Juan remained on it till the 29th of May, when the observations of both were finished. Thus every member of the two companies equally shared in the fatigues of the operations, and in the hardships unavoidable in such dreary regions.

XXII. Signal on the desert of Quinoaloma.

The desert of Quinoaloma, like the former, may be classed among the most disagreeable stations in the whole series; for though they repaired hither from Sinasaguan, it was the 31st of the same month before they could finish the observations relating to this signal.

In their road from Quinoaloma they passed thro' the town of Azogues; where leaving their instruments and baggage, they went to Cuenca, to survey the plains of Talqui, and los Bannos, in order to make choice of one of them for measuring the base; and having pitched on the latter, and consulted with us relating to the signals wanting, they returned to the town of Azogues.

XXIII. Signal on the desert of Yasuay.

On the 15th of June they proceeded to the desert of Yasuay, and continued there till the 11th of July; when having finished their observations they returned to Cuenca, where they employed themselves in measuring the base on the plain of los Bannos, and in beginning the astronomical observation. This they prosecuted with incessant diligence till the 10th of December following, when in order to continue them with the greater precision and certainty, a new instrument became necessary, and for this purpose they repaired to Quito.

XXIV. XXV. XXVI. XXVII. Signals of Namarelte, Guanacauri, los Bonnos, and the tower of the great church of Cuenca.

Whilst they were making the astronomical observations at Cuenca, they also, by unwearied diligence, finished those relating to the geometrical mensuration at the four stations of Namarelte, Guanacauri, los Bannos, and the tower of the great church of Cuenca. The first three stations were to connect the base (which reached from Guanacauri to los Bonnos) with the series of triangles, and the last served for the observatory jointly with the base. The observations at all these were completely finished at this time; for tho' the next year we found it necessary to go to Cuenca to repeat the astronomical observations, yet all the operations relating to the geometrical mensurations were accurately finished at this time.

XXVIII.

XXVIII. XXIX. XXX. XXXI. XXXII. SIGNALS on the mountains of Guapulo, Pambamarca, Campanario, Cuicocha, and Mira.

IN the year 1744, when we returned to the province of Quito, in order to conclude the whole work, having conquered the difficulties which obliged us to intermit the aſtronomical obſervations, as we have already obſerved, Don George Juan added ſix ſtations to the ſeries of triangles, there being a neceſſity for repeating the obſervations of Guapulo and Pambamarca, in order to extend the ſeries of triangles farther to the northward, and of his repairing again to the mountains of Campanario and Cuicocha. Here, and at Pambamarca, he was obliged to remain amidſt all the inconveniences and hardſhips of thoſe dreadful regions, till he had compleated the neceſſary obſervations: all which he bore with great magnanimity: but at thoſe of Guapulo and Mira, which ſerved to conneſt the obſervatory, thoſe inconveniences were avoided; but as the obſervations at the laſt ſtation were jointly performed by both companies, the particulars of them have been already mentioned.

CHAP. IV.

Deſcription of the City of Quito.

AS in the preceding deſcriptions of the ſeveral cities and towns through which we paſſed, I have not ſwelled the accounts with chronological and hiſtorical remarks, I ſhall obſerve the ſame method with regard to Quito, and only give an accurate account of the preſent ſtate of this country, the manners and cuſtoms of the inhabitants, and the ſituation of the ſeveral places; that ſuch as know them only by name, may avoid thoſe dangerous errors which too often reſult from forming a judgment of things, without a thorough knowledge of them. It may not, however, be amiſs to premiſe, that this province was ſubjected to the empire of Peru, by Tupac-Inga-Yupanqui, the eleventh Ynca.

GARCILASO, in his hiſtory of the Yncas of Peru, the beſt guide we can follow on this ſubject, obſerves, that this conqueſt was made by the army of that emperor, commanded by his eldeſt ſon Hueyna-Capac, who alſo ſucceeded him in the empire. Hueyna-Capac, among other natural children, had one called Ata-Hualpa, by a daughter of the laſt king of Quito; and being

being extremely fond of him, on account of his many amiable qualities and accomplishments, in order to procure him an honourable settlement, prevailed on his legitimate and eldest son Huascar, to allow him to hold the kingdom of Quito as a fief of the empire; it being an invariable law, that all conquests were to be perpetually annexed to the empire, and not allienated from it on any account whatever. Thus Hueyna-Capac enjoyed the satisfaction of seeing his favourite a sovereign of large dominions. But on the death of his father, this prince of whom such great hopes had been conceived, ungratefully rebelled, seized on the empire, imprisoned his brother, and soon after put him to a violent death. His prosperity was however but of short continuance; for he suffered the same fate by order of Don Francisco Pizarro, who had sent Sebastian de Belalcazar to make a conquest of the kingdom of Quito. He routed the Indians wherever they ventured to face him; and having soon, by a series of victories, made himself master of the kingdom, and in the year 1534 rebuilt the capital, which had suffered extremely from intestine commotions, called it San Francisco de Quito, a name it still retains, tho' it was not till seven years after that the title of city was conferred upon it.

We found from accurate observations, that the city of Quito is situated in the latitude of 0 deg. 13. min. 33. sec. south, and in 298 deg. 15 min. 45 sec. of longitude from the meridian of Teneriff. It stands in the inland parts of the continent of South America, and on the eastern skirts of the west Cordillera of the Andes. Its distance from the coasts of the South-sea is about 35 leagues west. Contiguous to it on the north-west is the mountain and desert of Pichincha, not less famous among strangers for its great height than among the natives for the great riches it has been imagined to contain ever since the times of idolatry; and this only from a vague and unsupported tradition. The city is built on the acclivity of that mountain, and surrounded by others of a middling height, among the breaches or guaycos, as they are called here, which form the eminences of Pichincha. Some of these breaches are of a considerable depth, and run quite through it, so that great part of the buildings stand upon arches. This renders the streets irregular and extremely uneven, some parts of the city being built on the ascents, descents and summits of the breaches. This city, with regard to magnitude may be compared to one of the second order in Europe; but the unevenness of its situation is a great disadvantage to its appearance.

Near

NEAR it are two ſpacious plains; one on the ſouth called Turu-bamba, three leagues in length; and the other on the north, termed Inna-Quito, about two leagues in extent. Both are interſperſed with ſeats, and cultivated lands, which greatly add to the proſpect from the city, being continually covered with a lively verdure, and the neighbouring plains and hills always enamelled with flowers, there being here a perpetual ſpring. This ſcene is beautifully diverſified with large numbers of cattle feeding on the eminences, tho' the luxuriancy of the ſoil is ſuch that they cannot conſume all the herbage.

THESE two plains contract as they approach the city, and at their junction form a neck of land, covered with thoſe eminences, on which part of Quito ſtands. It may perhaps appear ſtrange, that notwithſtanding two ſuch beautiful and extenſive plains are ſo near the city, a ſituation ſo very inconvenient ſhould be preferred to either. But the firſt founders ſeem to have had leſs regard for convenience and beauty, than for preſerving the remembrance of their conqueſt, by building on the ſite of the antient capital of the Indians, who made choice of ſuch places for erecting their towns; probably from their being better adapted to defence. Beſides, the Spaniards, during the infancy of their conqueſt, little imagined this place would ever increaſe to its preſent magnitude. Quito, however, was formerly in a much more flouriſhing condition than at preſent; the number of its inhabitants being conſiderably decreaſed, particularly the Indians, whole ſtreets of whoſe huts are now forſaken, and in ruins.

SOUTH-WEST from Quito, on the neck of land belonging to the plain of Turu-bamba, is an eminence called Panecillo, or the little loaf: from its figure reſembling a ſugar-loaf. Its height is not above an hundred toiſes, and between it and the mountains covering the eaſt part of the city, is a very narrow road. From the ſouth and weſt ſides of the Panecillo iſſues ſeveral ſtreams of excellent water; and from the eminences of Pichincha ſeveral brooks flow down the breaches, and by means of conduits and pipes plentifully ſupply the whole city with water; whilſt the remainder, joining in one ſtream, forms a river called Machangara, which waſhes the ſouth parts of the city, and is croſſed over by a ſtone bridge.

PICHINCHA, in the Pagan times, was a volcano, and even ſome fiery irruptions have been known ſince the conqueſt. The mouth or aperture was in a pic nearly of the ſame

ſame height with that on which we took our ſtation; and the top of it is now covered with ſand and calcined matter. At preſent no fire is ejected, nor does there any ſmoak iſſue from it. But ſometimes the inhabitants are alarmed by dreadful noiſes, cauſed by winds confined in its bowels, which cannot fail of recalling to their minds the terrible deſtruction formerly cauſed by its eructations, when the whole city, and neighbouring country, were often, as it were, buried under a deluge of aſhes, and the light of the ſun totally intercepted for three or four days ſucceſſively, by impenetrable clouds of duſt. In the center of the plain of Inno-Quito is a place called Rumi-bamba, i. e. a ſtony plain, being full of large fragments of rocks thrown thither by the ejections of the mountain. We have already obſerved that the higheſt part of Pichincha is covered with ice and ſnow, conſiderable quantities of which are brought down to the city and mixed with the liquors drank by people of faſhion.

The principal ſquare in Quito has four ſides, in one of which ſtands the cathedral, and in the oppoſite the Epiſcopal palace; the third ſide is taken up by the town-houſe, and the fourth by the palace of the audience. It is very ſpacious, and has in the center an elegant fountain. It is indeed rather diſfigured than adorned by the palace of the audience; which inſtead of being kept in repair conformable to the dignity of government, the greateſt part of it has been ſuffered to fall into ruins, and only a few halls and offices taken any care of; ſo that even the outward walls continually threaten to demoliſh the parts now ſtanding. The four ſtreets terminating at the angels of the ſquare, are ſtrait, broad, and handſome; but at the diſtance of three or four quadras (or the diſtance between every two corners, or ſtacks of building, and which here conſiſts of about a hundred yards, more or leſs) begin the troubleſome declivities. This inequality deprives the inhabitants of the uſe of coaches, or any other wheel-carriage. Perſons of rank, however, to diſtinguiſh themſelves, are attended by a ſervant carrying a large umbrella: and ladies of the firſt quality are carried in ſedans. Except the four ſtreets above mentioned, all the reſt are crooked, and deſtitute both of ſymmetry and order. Some of them are croſſed by breaches, and the houſes ſtand on the ſides of their winding courſe and irregular projections. Thus ſome parts of the city are ſituated at the bottom of thoſe breaches, while others ſtand on their ſummits. The principal ſtreets are paved; but thoſe which are not, are almoſt impaſſable after rain, which is here very common.

Besides

BESIDES the principal ſquare, there are two others in Quito, and both very ſpacious, together with ſeveral others that are ſmaller. In theſe the greateſt part of the convents are ſituated, and thence make a very handſome appearance; the fronts and portals of thoſe edifices dedicated to religion, being adorned with all the embelliſhments of architecture; particularly the convent of the order of Franciſcans, which being wholly of free-ſtone, muſt have coſt a prodigious ſum; and indeed the juſtneſs of the proportions, the diſpoſition of the parts, the elegant taſte and execution of the whole work, render it equal to moſt of the admired buildings in Europe.

THE principal houſes are very large, and ſome of them have ſpacious and well-contrived apartments, tho' none are above one ſtory in height, which is ſeldom without a balcony towards the ſtreet; but their doors and windows, particularly thoſe within, are very low and narrow, following in theſe particulars the old cuſtom of the Indians, who, as it was a conſtant maxim among them to build their houſes among breaches and inequalities, were alſo careful to make the doors very narrow. The Spaniards plead in defence of this cuſtom, that the apartments are freer from wind; but be that as it may, I am inclined to think that this peculiarity owed its origin to be a blind imitation of the Indians.

THE materials made uſe of in building at Quito are adobes, or unburnt bricks, and clay; and to the making of the former the earth is ſo well adapted, that they laſt a long time, provided they are defended from the rain. They are cemented or joined together by a certain ſubſtance called ſangagua, a ſpecies of mortar of uncommon hardneſs, and was made uſe of by the ancient Indians for building houſes and walls of all kinds, ſeveral remains being ſtill to be ſeen near the city, and in many other parts of the kingdom, notwithſtanding the remarkable inclemency of the weather; a ſufficient proof of its ſtrength and duration.

THE city is divided into ſeven pariſhes, the Segrario, St. Sebaſtian, St. Barbaria, St. Roque, St. Mark, and St. Priſca, St. Blaize. The cathedral, beſides the richneſs of its furniture, is ſplendidly adorned with tapeſtry hangings, and other coſtly decorations; but in this reſpect the other pariſh churches are ſo mean, as to have ſcarce neceſſaries for performing divine worſhip. Some of them are without pavement, and every other particular is of a piece with that mark of poverty. The chapel del Sagrario is very large, wholly of ſtone, and

its

its architecture executed in an elegant taste; nor is the disposition of the inside inferior to the beauty of its external appearance.

THE convents of Monks in Quito, are those of the Augustines, Dominicans, and the Fathers of mercy; which are the heads of provinces; but besides these there is another of Franciscan recollects, another of Dominicans, and another of the Fathers of mercy. In this city is also a college of Jesuits, two colleges for seculars; one called St. Lewis, of which the Jesuits have the direction; and the other St. Ferdinand, and is under the care of the Dominicans. In the first are twelve royal exhibitions for the sons of Auditors and other officers of the crown. It is also an university under the patronage of St. Gregory. That of the second is a royal foundation, and dedicated to St. Thomas; the salaries of the professors are paid by the crown. Some of the chairs in this college are filled by graduates, as those appropriated to the canon and civil law, and physic; but the latter has been long vacant for want of a professor, tho' the degrees would be dispensed with. The Franciscan convent has a college called San Buena Ventura for the religious of its order; and, tho' under the same roof with the convent, has a different government and œconomy.

QUITO has also several nunneries, as that of the Conception, the orders of St. Clare, St. Catharine, and two of barefooted Theresians. Of these one was originally founded in the town of Latacunga; but having, together with the place itself, being destroyed by an earthquake, the nuns removed to Quito, where they have ever since continued.

THE college of Jesuits, as well as all the convents of Monks, are very large, well built, and very splendid. The churches also, tho' the architecture of some is not modern, are large and magnificently decorated; especially on solemn festivals, when it is amazing to behold the vast quantities of wrought plate, rich hangings, and costly ornaments, which heighten the solemnity of the worship, and increase the reputation of these churches for magnificence. If those of the nunneries do not, on those occasions, exhibit such an amazing quantity of riches, they rather exceed them in the elegance and delicacy of their decorations. It is quite otherwise in the parish churches, where poverty is conspicuous, even on the most solemn occasions, tho' this is partly imputed to those who have the care of them.

HERE

HERE is alſo an hoſpital, with ſeparate wards for men and women; and tho' its revenues are not large, yet by a proper œconomy they are made to anſwer all the neceſſary expences. It was formerly under the direction of particular perſons of the city, who, to the great detriment of the poor, neglected their duty, and ſome even embezzled part of the money received; but it is now under the care of the order of our Lady of Bethlehem, and by the care of theſe fathers every thing has put on a different aſpect, the whole convent and infirmary having been rebuilt, and a church erected, which tho' ſmall is very beautiful and finely decorated.

THIS order of our Lady of Bethlehem, has been lately founded under the name of a congregation, and had its origin in the province of Guatemala. The name of the founder was Pedro de San Joſeph Betaneur, a native of the town of Chaſna (or Villa Fuerte) on the iſland of Teneriff, in the year 1626. After his death, which happened in the year 1667, his congregation was approved of by a bull of Clement X. dated the 16th of May 1672; and ſtill more formally in another of 1674. In 1687 Innocent XI. erected it into a community of regulars; ſince when it has begun to encreaſe in theſe countries as a religious order. It had indeed before paſſed from Guatemala to Mexico, and from thence in the year 1671 to Lima, where the fathers had the care of the hoſpital del Carmen. In the city of St. Miguel de Piura, they took poſſeſſion of the hoſpital of St. Ann in the year 1678; and of that of St. Sebaſtian in Truxillo in 1680. And their probity and diligence in diſcharging theſe truſts, induced other places to ſelect them as directors of their hoſpitals, and among the reſt the city of Quito; where, notwithſtanding they have been only a few years, they have repaired all former abuſes, and put the hoſpital on a better footing than it had ever known before.

THE fathers of this order go bare-footed, and wear a habit of a dark brown colour, nearly reſembling that of the capuchins, which order they alſo imitate in not ſhaving their beards. On one ſide of their cloak is an image of our Lady of Bethlehem. Every ſixth year they meet to chuſe a general, which ceremony is performed alternately at Mexico and Lima.

AMONG the courts, whoſe ſeſſions are held at Quito, the principal is that of the Royal Audience, which was eſtabliſhed there in the year 1563, and conſiſts of a preſident, (who is alſo governor of the province with regard to matters of law)

law) four auditors, who are at the ſame time civil and criminal judges, and a royal fiſcal, ſo called, as beſides the cauſes brought before the audience, he alſo takes cognizance of every thing relating to the revenue of the crown. Beſides this there is alſo another fiſcal called Protector de los Indios, "protector of the Indians," who ſolicits for them, and when injured pleads in their defence. The juriſdiction of this court extends to the utmoſt limits of the province, with no other appeal than to the council of the Indies, and this only in caſe of a rejection of a petition, or flagrant injuſtice.

NEXT to the audience is the exchequer or chamber of finances; the chief officers of which are an accomptant, a treaſurer, and a royal fiſchal. The revenues paid into the receipt of this court are the tributes of the Indians of this juriſdiction and thoſe of Otabalo, Villa de San Miguel de Ibara, Latacunga, Chimbo, and Riobamba; and alſo the taxes levied in thoſe parts, and the produce of the cuſtoms at Babahoyo, Yaquache, and Caracol: which ſums are annually diſtributed, partly to Carthagena and Santa Martha, for paying the ſalaries of the preſidents, fiſcals, corregidors, together with the ſtipends of the prieſts, and the governors of Maynas and Quijos; partly for the officers of the Commandries, and partly for the Caciques of the villages.

THE tribunal de Cruzada or Croiſade, has a commiſſary, who is generally ſome dignitary of the church; and a treaſurer, who is alſo the accomptant, and thro' whoſe hands every thing paſſes relating to the Groiſade.

HERE is alſo a treaſury for the effects of perſons deceaſed, an inſtitution long ſince eſtabliſhed all over the Indies, for receiving the goods of thoſe whoſe lawful heirs were in Spain, that thus they might be ſecured from thoſe accidents to which, from diſhoneſty or negligence, they would be liable in private hands, and ſecurely kept for the perſons to which they belong: an inſtitution originally very excellent; but now greatly abuſed, great defalcations being made in the eſtates before they are reſtored to their proper owners.

BESIDES the above-mentioned tribunals, here is alſo a commiſſary of the inquiſition, with an alguazil major, and familiars appointed by the holy office at Lima.

THE corporation conſiſts of a corregidor, two ordinary alcaldes choſen annually, and regidores. Theſe ſuperintend the election of the alcaldes, which is attended with no ſmall diſturbance in this city, perſons of all ranks being divided into the two parties of Creoles and Europeans or Chapitones, to the great detriment of private repoſe, and ſociability.

This

This assembly also nominates the alcalde major of the Indians, who must be a governor of one of the Indian towns within five leagues of the city; and has under him other inferior alcaldes for the civil government of it. And this alcalde major, together with the others, are little more than the alguazils, or officers of the corregidor or ordinary alcaldes of the city; though at first, they were invested with much greater power. Besides these here are others called alcaldes de harrieros, whose business it is to provide mules, &c. for travellers. And tho' all these are subordinate to the alcalde major, yet he has very little authority over them.

THE cathedral chapter consists of the bishop, dean, archdeacon, chanter, treasurer, a doctoral, a penitentiary, a magistral, three canons by presentation, four prebends, and two demi-prebends, with the following revenues. That of the bishop 24,000 dollars; the dean 2500; the four succeeding dignitaries 2000 each; the canons 1500 each; the prebends 600, and the demi-prebends 420. This church was erected into a cathedral in the year 1545; and among other festivals are celebrated in it, with amazing magnificence, those of Corpus Christi, and the conception of our Lady, when all the courts, offices, and persons of eminence never fail to assist. But the singular pomp of the procession of the host in the former, and the dances of the Indians, must not be omitted. Every house of the streets through which it passes, are adorned with rich hangings; and superb triumphal arches, are erected, with altars at stated distances, and higher than the houses, on which as on the triumphal arches, the spectator sees with admiration immense quantities of wrought plate, and jewels, disposed in such an elegant manner as to render the whole even more pleasing than the astonishing quantity of riches. This splendor, together with the magnificent dresses of the persons who assist at the procession, render the whole extremely solemn, and the pomp and decorum are both continued to the end of the ceremony.

With regard to the dances, it is a custom, both among the parishes of Quito and all those of the mountains, that the priest, a month before the celebration of the feasts, selects a number of Indians, who are to be the dancers. These immediately begin to practice the dances they used before their conversion to christianity. The musick is a pipe and tabor, and the most extraordinary of their motions some aukward capers; in short the whole is little to the taste of an European. Within a few days of the solemnity they dress themselves in a doublet, a shirt and a woman's petticoat, adorned in the finest manner

possible. Over their stockings they wear a kind of pinked buskins, on which are fastened a great number of bells. Their head and face they cover with a kind of mask, formed of ribbands of several colours. Dressed in this fantastical garb, they proudly call themselves angels, unite in companies of eight or ten, and spend the whole day in roving about the streets, highly delighted with the gingling of their bells, and frequently stop and dance to gain the applauses of the ignorant multitude, who are strangers to elegant dancing. But what is really surprizing, is that without any pay, or view of interest, unless they think it a religious duty, they continue this exercise a whole fortnight before the grand festival, and a month after it; without minding either their labour or families; rambling about and dancing the whole day without being either tired or disgusted, tho' the number of their admirers daily decrease, and the applause is turned into ridicule.

THE same dress is worn by them in other processions, and at the bull-feasts, when they are excused from labour, and therefore highly pleased with them.

THE corporation and cathedral chapter, keep, by vow, two annual festivals in honour of two images of the Virgin, which are placed in the villages of Guapulo and Quinche, belonging to this jurisdiction. They are brought with great solemnity to Quito, where a festival is celebrated, with great magnificence and rejoicing, and is succeeded by nine days devotion, the audience and other courts assisting at the festival. The statues are afterwards returned with the same solemnity to their respective churches, the first of which is one league from Quito, and the other six. These festivals are held in commemoration of the mercy and assistance vouchsafed by the holy Virgin at the time of an earthquake, and terrible ejections from Pichincha, by which Latacunga, Hambato, and a great part of Riobamba, were utterly destroyed; while the prayers offered up at Quito to the holy Virgin, induced her to interpose in so singular a manner, that not the least misfortune attended this city, tho' apparently in equal danger with those which suffered.

CHAP. V.

Of the Inhabitants of Quito.

THIS city is very populous, and has among its inhabitants some families of high rank and distinction; though their number is but small, considering its extent, the poorer class bearing

bearing here too great a proportion. The former are the descendants either of the original conquerors, or of presidents, auditors, or other persons of character, who at different times came over from Spain invested with some lucrative post, and have still preserved their lustre both of wealth and descent by intermarriages, without intermixing with meaner families, tho' famous for their riches.

THE commonalty may be divided into four classes, Spaniards or Whites, Mestizos, Indians or natives, and Negroes, with their progeny. These last are not proportionally so numerous as in the other parts of the Indies; occasioned by it being something inconvenient to bring Negroes to Quito, and the different kinds of agriculture being generally performed by Indians.

THE name of Spaniard here has a different meaning from that of Chapiton or European, as properly signifying a person descended from a Spaniard without a mixture of blood. Many Mestizos, from the advantage of a fresh complexion, appear to be Spaniards more than those who are so in reality; and from only this fortuitous advantage are accounted as such. The Whites, according to this construction of the word, may be considered as one sixth part of the inhabitants.

THE Mestizos are the descendants of Spaniards and Indians, and are to be considered here in the same different degrees between the Negroes and Whites, as before at Carthagena; but with this difference, that at Quito the degrees of Mestizos are not carried so far back, for even in the second or third generations, when they acquire the European colour, they are considered as Spaniards. The complexion of the Mestizos is swarthy and reddish, but not of that red common in the fair Mulattos. This is the first degree, or the immediate issue of a Spaniard and Indian. Some are, however, equally tawny with the Indians themselves, tho' they are distinguished from them by their beards; while others, on the contrary, have so fine a complexion, that they might pass for Whites, were it not for some signs, which betray them when viewed attentively. Among these the most remarkable is the lowness of the forehead, which often leaves but a small space between their hair and eyebrows; at the same time the hair grows remarkably forward on the temples, extending to the lower part of the ear. Besides the hair itself is harsh, lank, coarse, and very black; their nose very small, thin, and has a little rising on the middle, from whence it forms a small curve, terminating in a point, bending towards the upper lip. These marks, besides some dark spots on the body are so constant and invariable, as to make it

very difficult to conceal the fallacy of their complexion. The Meſtizos may be reckoned a third part of the inhabitants.

The next claſs is the Indians, who form about another third; and the others, who are about one ſixth, are the Caſts. Theſe four claſſes, according to the moſt authentic accounts taken from the pariſh regiſters, amount to between 50 and 60,000 perſons, of all ages, ſexes, and ranks. If among theſe claſſes the Spaniards, as is natural to think, are the moſt eminent for riches, rank, and power. It muſt at the ſame time be owned, however melancholy the truth may appear, they are in proportion the moſt poor, miſerable, and diſtreſſed; they refuſe to apply themſelves to any mechanic buſineſs, conſidering it as a diſgrace to that quality they ſo highly value themſelves upon, which conſiſts in not being black, brown, or of a copper-colour. The Meſtizos, whoſe pride is regulated by prudence, readily apply themſelves to arts and trades, but chuſe thoſe of the greateſt repute, as painting, ſculpture, and the like, leaving the meaner ſort to the Indians. They are obſerved to excel in all, particularly painting and ſculpture; in the former a Meſtizo, called Miguel de Santiago, acquired great reputation, ſome of his works being ſtill preſerved and highly valued, while others were carried even to Rome, where they were honoured with the unanimous applauſes of the virtuoſi. They are remarkably ready and excellent at imitation, copying being indeed beſt adapted to their phlegmatic genius. And what renders their exquiſite performances ſtill more admirable is, that they are deſtitute of many of the inſtruments and tools requiſite to perform them with any tolerable degree of accuracy. But with theſe talents they are ſo exceſſively indolent and ſlothful, that, inſtead of working, they often loiter about the ſtreets during the whole day. The Indians, who are generally ſhoemakers, bricklayers, weavers, and the like, are not more induſtrious. Of theſe the moſt active and tractable are the barbers and phlebotomiſts, who in their reſpective callings are equal to the moſt expert hands in Europe. The ſhoemakers on the other hand, diſtinguiſh themſelves by ſuch ſupineneſs and ſloth, that very often you have no other way left to procure the ſhoes you have beſpoke, than to procure materials, ſeize on the Indian, and lock him up till they are finiſhed. This is indeed partly owing to a wrong cuſtom of paying for the work before it is done; and when the Indian has once got the money, he ſpends it all in chicha *, ſo that while

* A kind of beer or ale made of maize, and very intoxicating.

while the money lasts he is never sober; and it is natural to think that it will not be easy afterwards to prevail on him to work for what he has spent.

The dress here is something different from that used in Spain, but less so in that of the men than in that of the women. The former who wear a black cloak have under it a long coat, reaching down to their knees, with a close sleeve, open at the side, without folds; and along the seams of the body, as well as those of the sleeves, are button holes, and two rows of buttons for ornament. In every other particular people of fortune affect great magnificence in their dress, wearing the finest cloths, and other woollen or silk stuffs, and very commonly gold and silver tissues.

The Mestizos in general wear a blue cloth manufactured in this country. And tho' the lowest class of Spaniards are very ambitious of distinguishing themselves from them, either by the colour or fashion of the clothes, little difference is to be seen betwixt them.

The most singular dress, with regard to its meanness, is that of the Indians, which consists only of white cotton drawers, made either from the stuffs of the country, or from other brought from Europe. They come down to the calf of the leg, where they hang loose, and are edged with a lace suitable to the stuff. The use of a shirt is supplied by a black cotton frock, wove by the natives. It is made in the form of a sack, with three openings at the bottom, one in the middle for the head, and the others at the corners for the arms, and thus covers their naked bodies down to the knees. Over this is a capisayo, a kind of serge cloak, having a hole in the middle for putting the head through, and a hat, made by the natives. This is their general dress, and which they never lay aside, not even while they sleep. And use has so inured them to the weather, that without any additional cloathing or covering for their legs or feet, they travel in the coldest parts with the same readiness as in the warmest.

The Indians who have acquired some fortune, particularly the barbers and phlebotomists, are very careful to distinguish themselves from their countrymen, both by the fineness of their drawers, and also by wearing a shirt, tho' without sleeves. Round the neck of this shirt they wear a lace four or five fingers in breadth, hanging entirely round like a kind of ruff or band. One favourite piece of finery is silver or gold buckles for their shoes; but they wear no stockings or other coverings on their legs. Instead of the mean capisayo they wear a

cloak of fine cloth, and often adorned with gold or silver lace.

The dress of the ladies of the first rank consists of a petticoat already described in our acccount of Guayaquil. On the upper parts of their body they wear a shift, on that a loose jacket laced, and over all a kind of bays; but made into no form, being worn just as cut from the piece. Every part of their dress, is, as it were, covered with lace; and those which they wear on days of ceremony, are always of the richest stuffs, with a profusion of ornaments. Their hair is generally made up in tresses, which they form into a kind of cross, on the nape of the neck; tying a rich ribband, called balaça, twice round their heads, and with the ends form a kind of rose at their temples. These roses are intermixed with diamonds and flowers, and have a very pleasing effect. When they go to church they sometimes wear a full petticoat; but the most usual dress on these occasions is the veil.

The Mestizo women affect to dress in the same manner as the Spanish, tho' they cannot equal them in the richness of their stuffs. The meaner sort wear no shoes, but go barefooted, like the men of the poorer class. Two kinds of dresses are worn by the Indian women; but both of them made in the same plain manner with those worn by the men: the whole consisting of a short petticoat and a veil of American bays. The dress of the lowest class of Indian women, is in effect only a bag, of the same make and stuff as the frocks of the men, and called anaco. This they fasten on the shoulders with two large pins called tupu, and by corruption topo. The only particular in which it differs from the frock is, that it is something longer, reaching down to the calf of the leg, and fastened round the waste with a kind of girdle. Instead of a veil, they wear about their neck a piece of the same coarse stuff died black, and called Lliella; but their arms and legs are wholly naked. Such is the habit with which the lower class of Indian women are contented.

The caciquesses or Indian women who are married to the alcaldes majors, governors, and others, are careful to distinguish themselves from the common people by their habits, which is a mixture of the two former, being a petticoat of bays adorned with ribbands; over this instead of the anaco, they wear a kind of black manteau, called acso. It is wholly open on one side, plaited from top to bottom, and generally fastened round the waste with a girdle. Instead of the scanty Lliella which the common Indian women wear hanging from their shoulders, these appear in one much fuller, and all over plaited, hanging down from the back part of their head almost to the bottom

bottom of the petticoat. This they fasten before with a large silver bodkin, called also tupu, like those used in the anaco. Their head-dress is a piece of fine linen curiously plaited, and the end hanging down behind: this they call colla, and is worn both for distinction and ornament, and to preserve them from the heat of the sun; and these ladies, that their superiority may not be called in question, never appear abroad without shoes. This dress together with that universally worn by Indians, whether men or women, are the very same with that used in the time of Yncas, for the propriety of distinguishing the several classes. The Caciques at present use no other than that worn by the more wealthy Mestizos, namely, the cloak and hat; but the shoes are what chiefly distinguishes them from the common Indians.

The men, both Creoles and Spaniards, are well made, of a proper stature, and of a lively and agreeable countenance. The Mestizos, in general, are also well made, often taller than the ordinary size, very robust, and have an agreeable air. The Indians, both men and women, are generally low, but well proportioned, and very strong; tho' more natural defects are to be observed among them than in the other classes of the human species: some are remarkably short, some ideots, dumb and blind, and others deficient in some of their limbs. Their hair is generally thick and long, which they wear loose on their shoulders, never tying or tucking it up, even when they go to sleep. But the Indian women plait theirs behind with ribband, and the part before they cut a little above the eye-brows from one ear to another; which form of hair they call urcu, and are so fond of this natural ornament, that the greatest affront possible to be offered to an Indian of either sex, is to cut off their hair; for whatever corporal punishment their masters think proper to inflict on them, they bear with a dutiful tranquillity, but this is a disgrace they never forgive; and accordingly it was found necessary for the government to interpose, and limit this punishment to the most enormous crimes. The colour of their hair is generally a deep black; it is lank, harsh, and as coarse as that of horses. The Mestizos, on the other hand, by way of distinguishing themselves from the Indians, cut off their hair; but the women do not in this respect follow the example of their husbands. The Indians have no beard, and the greatest alteration occasioned by their arriving at years of maturity, is only a few straggling hairs on the chin, but so short and thin, as never to require the assistance of the razor; nor have either males or females any indications of the age of puberty.

THE youths of family are here instructed in philosophy and divinity, and some proceed to the study of the civil law, but follow that profession with reluctance. In these sciences they demonstrate a great deal of judgment and vivacity, but are very deficient in historical and political knowledge, as well as other sciences, which improve the human understanding, and carry it to a certain degree of perfection not otherwise attainable. This is however their misfortune, not their fault; being owing to the want of proper persons to instruct them; for with regard to those who visit this country on commercial affairs, their minds have generally another turn, and their whole time is devoted to acquire riches. Thus after seven or eight years of scholastic instruction, their knowledge is very limited; tho' endowed with geniuses capable of making the greatest progress in the sciences.

IN the women of rank here, their beauty is blended with a graceful carriage, and an amiable temper; qualities indeed common to the whole sex in this part of America. Their children are always educated under their own eyes, tho' little to their advantage, their extreme fondness preventing them from seeing those vices which so often bring youth to ruin and infamy; nor is it uncommon for them to endeavour to hide the vices of the son from the knowledge of the father; and in case of detection, to interpose passionately in defence of their favourite, in order to prevent his being properly corrected.

THIS country is observed to abound more in women than men, a circumstance the more remarkable, as those causes which in Europe induce men to leave their country, namely, travelling, commerce, and war, can hardly be said to subsist here. Numbers of families may be found in this country, that have a great variety of daughters, but not one son among them. Nature also in the male sex, especially those who have been tenderly brought up, begins to decay at the age of thirty; whereas the females rather enjoy a more confirmed state of health and vigour. The cause of this may, in a great measure, be owing to the climate; food may also contribute to it; but the principal cause, I make no doubt, is their early intemperance and voluptuousness; this debilitates the stomach, so that the organs of digestion cannot perform their proper office; and accordingly many constantly eject their victuals an hour or two after their meals. Whether this be owing to a custom now become natural, or forced, the day they fail of such ejection, they are sure to find themselves indisposed. But amidst all their weaknesses and indispositions they live the general time and many even arrive at a very advanced age.

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THE only employment of persons of rank, who are not ecclesiastics, is from time to time to visit their estates or chacaras, where they reside during the time of harvest; but very few of them ever apply themselves to commerce, indolently permitting that lucrative branch to be possessed entirely by the Chapitones or Europeans, who travel about the country, and pursue their interest with great assiduity. Within the city, however, some few Creoles and Mestizos so far overcome their indolent dispositions as to keep shops.

THE want of proper employments, together with the sloth so natural to the inhabitants of this country, and the great neglect of education in the common people, are the natural parents of that fondness so remarkable in these parts for balls and entertainments; and these at Quito, are both very frequent, and carried to such a degree of licentiousness and audacity, as cannot be thought of without detestation; not to mention the many tumults and quarrels which thence derive their origin. But such brutality may be considered as the natural consequence of the rum and chicha, which on these occasions are drank in enormous quanitities. It must however be remembered, that no person of any rank or character is ever seen at these meetings, their festivity being conducted with the strictest decency and decorum.

RUM is commonly drank here by persons of all ranks, tho' very moderately by those of fashion; particularly at entertainments, when it is made into a kind of cordial. They prefer it to wine, which they say disagrees with them. The Chapitones also accustom themselves to this liquor; wine, which is brought from Lima, being very scarce and dear; but their favourite liquor is brandy, brought also from Lima, and is less inflammative than rum. The disorders arising from the excessive use of spirituous liquors are chiefly seen among the Mestizos, who are continually drinking, while they are masters of any money. The lower class of women among the Creoles and Mestizos, are also excessively addicted to the same species of debauchery, and are able to drink a much larger quantity of these ardent spirits than seems natural to their sex.

ANOTHER common liquor in this country is the mate, which answers to tea in the East Indies, tho' the method of preparing and drinking it is something different. It is made from an herb, which, in all these parts of America, is known by the name of Paraguay, as being the produce of that country. Some of it is put into a calebash tipped with silver, called here mate or totumo, with a sufficient quantity of sugar, and some cold water, to macerate it. After it has continued

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in this manner some time, the calebash is filled with boiling water, and the herb being reduced to a powder, they drink the liquor thro' a pipe fixed in the calebash, and having a strainer before the end of it. In this manner the calebash is filled several times with water and fresh supplies of sugar, till the herb subsides to the bottom, a sufficient indication that a fresh quantity is wanting. It is also usual to squeeze into the liquor a few drops of the juice of lemons or Seville oranges, mixed with some perfumes from odoriferous flowers. This is their usual drink in the morning fasting, and many use it also as their evening regale. I have nothing to object against the salubrity and use of this liquor; but the manner of drinking it is certainly very indelicate, the whole company drinking successively thro' the same pipe. Thus the mate is carried several times round the company, till all are satisfied. The Chapitones make very little use of it; but among the Creoles it is the highest enjoyment; so that even when they travel, they never fail to carry with them a sufficient quantity of it. This may indeed be owing in some measure to the dispatch and facility with which it is prepared; but till they have taken their dose of mate they never eat.

THERE is no vice to which idleness is not a preliminary; nor is sloth ever unaccompanied with some vice or other. What must then be the state of morality in a country, where the greatest part of the people have no work, employment, or calling to take up their thoughts; nor any idea of intellectual entertainment. The prevalance of drunkenness has been already mentioned, and the destructive vice of gaming is equally common. But in the latter persons of rank and opulence, whose example is always followed, have led the way; and their inferiors have universally followed in their destructive paths, to the ruin of families, and the breach of conjugal affection; some losing their stocks in trade, others the very clothes from their backs, and afterwards those belonging to their wives, risking the latter to recover their own. This propensity in the Indians for gaming, has by some been imputed to causes in which I can perceive no manner of relation. To me it plainly appears owing to the excessive leisure of some, who know not how to spend their time, and to the natural sloth and idleness of others.

THE common people and Indians are greatly addicted to theft, in which it must be owned they are very artful and dextrous. The domestics also cannot be said to be entirely free from this fault, which is attended with the inconvenience of reserve and suspicion on the part of their master. The Mesti-

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zos do not want for audacity in any theft or robbery, tho' in themſelves arrant cowards. Thus even at an unſeaſonable hour, they will not venture to attack any one in the ſtreet; but their common practice is to ſnatch off the perſon's hat, and immediately ſeek their ſafety in their flight; ſo that before the perſon robbed can recover himſelf the thief is out of ſight. However trifling this may ſeem, yet ſometimes the capture is very conſiderable, the hats generally worn by perſons of any rank, and even by the wealthy citizens when dreſſed in their cloaks, are of white beaver, and of themſelves worth 15 or 20 dollars or more of the Quito currency, beſides a hatband of gold or ſilver lace, faſtened with a gold buckle ſet with diamonds or emeralds. It is very rare that any ſuch thing as a robbery on the highway is heard of; and even theſe may be rather accounted houſe-breaking, as they are either committed by the carriers themſelves or their ſervants. In order to execute their moſt remarkable pieces of villainy within the city, they ſet fire, during the darkneſs of the night, to the doors of ſuch ſhops or warehouſes, where they flatter themſelves with the hopes of finding ſome ſpecie; and having made a hole ſufficiently large for a man to creep through, one of them enters the houſe, while the others ſtand before the hole to conceal their accomplice, and to receive what he hands out to them. In order to prevent ſuch practices, the principal traders are at the expence of keeping a guard, which patroles all night thro' the ſtreets where attempts of this kind are moſt to be apprehended; and thus the ſhops are ſecured; for in caſe any houſe or ſhop is broke open, the commander of the guard is obliged to make good the damage received.

Neither the Indians, Meſtizos, or any of the loweſt claſs of people, think the taking any eatables a robbery; and the Indians have a particular rule of conduct in their operations, namely, if one of them happens to be in a room where there are ſeveral veſſels of ſilver, or other valuable effects, he advances very ſlowly, and with the utmoſt circumſpection not to be ſeen, and uſually takes only one piece, and that the leaſt valuable; imagining that it will not be ſo ſoon miſſed as if he had taken ſeveral pieces, or one of greater price; and if detected in the very fact, he reſolutely denies it, with a yanga, a very expreſſive word in his language, and now often uſed by the Spaniards of this country, ſignifying that it was done without any neceſſity, without any profit, without any bad intention. It is indeed a word of ſuch extent in diſculpating, that there is no crime to which it is not applicable with regard to the acquittal

quittal of the delinquent. If an Indian has not been seen in the very fact, be the circumstances ever so plain against him, the theft can never be ascertained, no Indian having ever been known to confess.

In Quito, and in all the towns and villages of its province, different dialects are spoken, Spanish being no less common than the Inga. The Creoles, in particular, use the latter equal with the former, but both are considerably adulterated with borrowed words and expressions. The first language generally spoken by children is the Inga, the nurses being Indians, many of whom do not understand a word of Spanish. Thus the children being first used to the Indian pronunciation, the impression is so strong on their minds, that few can be taught to speak the Spanish language before they are five or six years old; and the corruption adheres so strongly to them, that they speak a jargon composed of both; an impropriety which also gains ground among the Europeans, and even persons of rank when they begin to understand the language of the country. But what is still more inconvenient, they use improper words, so that a Spaniard himself not accustomed to their dialect, has often need of an interpreter.

The sumptuous manner of performing the last offices to the dead, mentioned in the foregoing description of Carthagena, is frugal and simple, if compared to that used at Quito, and all its jurisdiction. Their ostentation is so enormous in this particular, that many families of credit are ruined by a preposterous emulation of excelling others. The inhabitants may therefore be properly said to toil, scheme, and endure the greatest labour and fatigue, merely to enable their successors to bury them in a pompous manner. The deceased must have died in very mean circumstances indeed, if all the religious communities, together with the chapter of the cathedral, are not invited to his funeral, and during the procession the bells tolled in all the churches. After the body is committed to the earth, the obsequies are performed in the same expensive manner, besides the anniversary which is solemnized at the end of the year. Another remarkable instance of their vanity is never to bury in their own parish church; so that any one seen to be buried in that manner, may be concluded to have been of the lowest class, and to have died wretchedly poor. The custom of making an offering, either at the obsequies or anniversary, is still observed, and generally consists of wine, bread, beasts or fowls, according to the ability or inclination of the survivor.

Tho' Quito cannot be compared to the other cities in these parts for riches, yet it is far removed from poverty. It appears

pears from ſeveral particulars to have been in a much more flouriſhing ſtate; but at preſent, tho' it has many ſubſtantial inhabitants, yet few of them are of diſtinguiſhed wealth, which, in general, conſiſts in landed eſtates, applied to ſeveral uſes, as I ſhall ſhew in the ſequel. Here are alſo no very ſplendid fortunes raiſed by trade. Conſequently it may be inferred, that the city is neither famous for riches, nor remarkable for its poverty. Here are indeed conſiderable eſtates, tho' their produce is not at all equal to their extent. But the commerce, tho' ſmall, is continual. It muſt alſo be obſerved, to the credit of this city, that the more wealthy families have very large quantities of plate, which is daily made uſe of; and thus proportionally thro' the ſeveral claſſes, their tables are never deſtitute of one piece of plate at leaſt.

CHAP. VI.

Of the temperature of the air at Quito; *diſtinction between winter and ſummer; inconveniencies, advantages, and diſtempers.*

TO form a right judgment of the happy temperature of the air at Quito, experience muſt be made uſe of to correct the errors which would ariſe from mere ſpeculation; as without that unerring guide, or the information of hiſtory, who would imagine that in the center of the torrid zone, or rather under the equinoctial, not only the heat is very tolerable, but even, in ſome parts, the cold painful; and that others enjoy all the delights and advantages of a perpetual ſpring, their fields being always covered with verdure, and enamelled with flowers of the moſt lively colours. The mildneſs of the climate, free from the extremes of cold and heat, and the conſtant equality of the nights and days, render a country, which uninformed reaſon would, from its ſituation, conclude to be uninhabitable, pleaſant and fertile: nature has here ſcattered her bleſſings with ſo liberal a hand, that this country ſurpaſſes thoſe of the temperate zones, where the viciſſitudes of winter and ſummer, and the change from heat to cold, cauſe the extremes of both to be more ſenſibly felt.

THE method taken by nature to render this country a delightful habitation, conſiſts in an aſſemblage of circumſtances of which, if any were wanting, it would either be utterly uninhabitable, or ſubject to the greateſt inconveniencies. But by this extraordinary aſſemblage, the effect of the rays of the ſun is averted, and the heat of that glorious planet moderated.

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The principal circumstance in this assemblage is its elevated situation above the surface of the sea, or rather of the whole earth; and thus not only the reflection of the heat is diminished, but by the elevation of this country, the winds are more subtile, congelation more natural, and the heat abated. These are such natural effects as must doubtless be attributed to its situation; and is the only circumstance from whence such prodigies of nature, as are observed here, can proceed. In one part are mountains of a stupendous height and magnitude, having their summits covered with snow; on the other, volcanoes flaming within, while their summits, chasms, and apertures are involved in ice. The plains are temperate; the breaches and valleys hot; and, lastly, according to the disposition of the country, its high or low situation, we find all the variety of gradations of temperature, possible to be conceived between the two extremes of heat and cold.

QUITO *is so happily situated, that neither the heat nor cold* is troublesome, tho' the extremes of both may be felt in its *neighbourhood; a singularity sufficiently demonstrated by the* following thermometrical experiments. On the 31st of May 1736, the liquor in the thermometer stood at 1011; at half an hour after twelve at noon at 1014; on the 1st of June at six in the morning at 1011; and at noon at 1012½. But what renders this equality still more delightful is, that it is constant throughout the whole year, the difference between the seasons being scarce perceptible. Thus the mornings are cool, the remainder of the day warm, and the nights of an agreeable temperature. Hence the reason is plain why the inhabitants of Quito make no difference in their dress during the whole year; some wearing silks or light stuffs, at the same time others are dressed in garments of substantial cloth; and the former as little incommoded by the cold, as the latter are by heat.

THE winds are healthy and blow continually, but never with any violence. Their usual situations are north and south, tho' they sometimes shift to other quarters, without any regard to the season of the year. Their incessant permanence, notwithstanding their constant variations, preserves the country from any violent or even disagreeable impressions of the rays of the sun. So that, were it not for some inconveniencies to which this country is subject, it might be considered as the most happy spot on the whole earth. But when these disagreeable incidents are considered, all its beauties are buried in obscurity; for here are dreadful and amazing tempests of thunder and lightning, and the still more destructive subterraneous earthquakes

quakes, which often surprize the inhabitants in the midst of security. The whole morning, till one or two in the afternoon, the weather is generally extremely delightful; a bright sun, serene and clear sky, are commonly seen; but afterwards the vapours begin to rise, the whole atmosphere is covered with black clouds, which bring on such dreadful tempests of thunder and lightning, that all the neighbouring mountains tremble, and the city too often feels their dreadful effects. Lastly, the clouds discharge themselves in such impetuous torrents of rain, that in a very short time the streets appear like rivers, and the squares, though situated on a slope, like lakes. This dreadful scene generally continues till near sun-set, when the weather clears up, and nature again puts on the beautiful appearance of the morning. Sometimes indeed the rains continue all the night, and they have been known to last three or four days successively.

On the other hand, this general course of the weather has its exceptions, three, four, six, or even eight fine days succeeding each other; tho' after raining six or eight days, in the manner above mentioned, it is rare that any falls during the two or three succeeding. But from the most judicious observations it may be concluded, that these intervals of fine or foul weather makes up only one fifth of the days of the year.

The distinction of winter and summer, consists in a very minute difference observable between the one and the other. The interval between the month of September and those of April, May, or June, is here called the winter season; and the other months compose the summer. In the former season the rain chiefly prevails, and in the second the inhabitants frequently enjoy intervals of fine weather; but whenever the rains are discontinued for above a fortnight, the inhabitants are in the utmost consternation, and public prayers are offered up for their return. On the other hand, when they continue any time without intermission, the like fears return, and the churches are again crowded with supplicants for obtaining fine weather. For a long drought here is productive of dangerous distempers; and a continual rain, without any intervals of sunshine, destroys the fruits of the earth: thus the inhabitants are under a continual anxiety. Besides the advantages of the rains for moderating the intense rays of the sun, they are also of the greatest benefit in cleansing the streets and squares of the city, which, by the filthiness of the common people, both men and women, at all hours, are every where full of ordure.

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EARTHQUAKES cannot be accounted a less terrible circumstance than any of the former, and if not so frequent as in other cities of these parts, they are far from being uncommon, and often very violent. While we continued in this city and its jurisdiction, I particularly remember two, when several country-seats and farm-houses were thrown down, and the greatest part of the numerous inhabitants buried in their ruins.

IT is doubtless to some unknown quality of the temperature of the air, that the city owes one remarakable convenience, which cannot fail of greatly recommending it; namely, its being totally free from Moschitos or other insects of that kind, which almost render life a burthen in hot countries. They are not even known to the inhabitants; and even a flea is seldom seen here: nor are the people molested with venomous reptiles. In short, the only troublesome insect here is the pique or nigua, whose noxious effects have been already treated of at large.

THO' the plague or pestilence, in its proper sense, be not known here, no instances of its ravages having appeared in any part of America, yet there are some distempers which have many symptoms of it, but concealed under the names of malignant spotted fevers and pleurisies; and these generally sweep away such prodigious numbers, that when they prevail, the city may with propriety be said to be visited with a pestilential contagion. Another disease common here is that called mal del valle, or vicho; a distemper so general, that, at the first attack of any malady, they make use of medicines adapted to the cure of it, from its usually seizing a person two or three days after a fever. But M. de Jussieu often observed that the remedies were generally administered to persons not at all affected by the distemper, which, in his opinion, is a gangrene in the rectum; a disease very common in that climate, and consequently at the first attack all means should be used to prevent its progress. Persons who labour under a flux are most liable to that malady; but the inhabitants of this country being firmly persuaded that there can be no distemper that is not accompanied with the vicho, the cure is never delayed.. The operation must be attended with no small pain, as a pessary composed of gun-powder, Guinea-pepper, and a lemon peeled, is insinuated into the anus, and changed two or three times a day till the patient is judged to be out of danger.

THE venereal disease is here so common, that few persons are free from it, tho' its effects are much more violent in some than in others; and many are afflicted with it, without any of its external symptoms. Even little children, incapable by their age of having contracted it actively, have been known to be attacked

attacked in the same manner by it, as persons who have acquired it by their debauchery. Accordingly there is no reason for caution in concealing this distemper, its commonness effacing the disgrace that in other countries attend it. The principal cause of its prevalence is negligence in the cure. For the climate favours the operations of the medicines, and the natural temperature of the air checks the malignity of the virus more than in other countries. And hence few are salivated for it, or will undergo the trouble of a radical cure. This disease must naturally be thought in some measure to shorten their lives; tho' it is not uncommon to see persons live seventy years or more, without ever having been entirely free from that distemper, either hereditary or contracted in their early youth.

During the continuance of the north and north-east winds, which are the coldest from passing over the frosty deserts, the inhabitants are afflicted with very painful catarrhs called pechugueras. The air is then something disagreeable, the mornings being so cold as to require warmer cloathing; but the sun soon disperses this inconvenience.

As the pestilence, whose ravages among the human species in Europe and other parts, are so dreadful, is unknown both at Quito and throughout all America, so is also the madness in dogs. And tho' they have some idea of the pestilence, and call those diseases similar in their effects, by that name, they are entirely ignorant of the canine madness; and express their astonishment when an European relates the melancholy effects of it. Those inhabitants, on the other hand, are here subject to a distemper unknown in Europe, and may be compared to the small-pox, which few or none escape; but having once got thro' it, they have nothing more to apprehend from that quarter. This distemper is one of those called peste; and its symptoms are convulsions in every part of the body, a continual endeavour to bite, delirium, vomiting blood; and those whose constitutions are not capable of supporting the conflicts of the distemper, perish. But this is not peculiar to Quito, being equally common throughout all South America.

CHAP. VII.

Fertility of the territories of Quito, *and the common food of its inhabitants.*

THO' an account of the fruits should naturally succeed that of the climate, I determined, on account of their

variety, and their being different in different parts, to defer a circumstantial description, till I come to treat more particularly of each of the jurisdictions. So that I shall here only take a transient view of the perennial beauty and pleasantness of the country; which has hardly its equal in any part of the known world: the equability of its air exempts it from any sensible changes, whereby the plants, corn, and trees, are stripped of their verdure and ornaments, their vegetative powers checked, and themselves reduced to a torpid inactivity. The fertility of this country, if fully described, would appear to many incredible, did not the consideration of the equality and benignity of the climate inforce its probability. For both the degrees of cold and heat are here so happily determined, that the moisture continues, and the earth seldom fails of being cherished by the fertilizing beams of the sun some part of every day; and therefore it is no wonder that this country should enjoy a greater degree of fertility than those, where the same causes do not concur; especially if we consider, that there is no sensible difference throughout the year; so that the fruits and beauties of the several seasons are here seen at the same time. The curious European observes, with a pleasing admiration, that whilst some herbs of the field are fading, others of the same kind are springing up; and whilst some flowers are losing their beauty, others are blowing to continue the enamelled prospect. When the fruits of the trees have obtained their maturity, and the leaves begin to change their colour, fresh leaves, blossoms, and fruits are seen in their proper gradations in size and ripeness on the same tree.

The same incessant fertility is conspicuous in the corn, both reaping and sowing being carried on at the same time. That corn which had been recently sown is coming up; that which has been longer sown is in its blade, and the more advanced begins to blossom. So that the declivities of the neighbouring hills exhibit all the beauties of the four seasons at one single view.

Tho' all this is generally seen, yet there is a settled time for the grand harvest. But sometimes the most favourable season for sowing in one place, is a month or two after that of another, tho' their distance is not more than three or four leagues; and the time for another at the same distance not then arrived. Thus, in different spots, sometimes in one and the same, sowing and reaping are performed throughout the whole year, the forwardness or retardment naturally arising from the different situations, as mountains, rising grounds, plains,

plains, valleys and breaches; and the temperature being different in each of these, the times for performing the several operations of husbandry must also differ. Nor is this any contradiction to what I have before advanced, as will be seen in the following account of the jurisdiction.

THIS remarkable fecundity of the soil is naturally productive of a great plenty of fruits and corn of every kind, and also of their goodness, as is evident from the delicacy of the beef, veal, mutton, pork and poultry of Quito. Here is also wheat bread in sufficient plenty; but the fault is, that the Indian women, whose business it is to make it, are ignorant of the best methods both of kneading and baking it; for the wheat of itself is excellent, and the bread baked in private houses equal to any in the known world. The beef, which is not inferior to that of Europe, is sold in the markets by the quarter of the hundred for four rials of that country money, and the buyer has the liberty of chusing what part he pleases. Mutton is sold either by the half or quarter of a sheep; and when fat, and in its prime, the whole carcase is worth about five or six rials. Other species of provisions are sold by the lump, without weight or measure, and the price regulated by custom.

THE only commodity of which there is here any scarcity is pulse; but this deficiency is supplied by roots, the principal of which are the camates, arucachas, yucas, ocas, and papas; the three former are the natives of hot countries, and cultivated in the plantations of sugar canes, and such spots are called valles, or yungas, tho' these names have different senses, the former signifying plains in a bottom, and the latter those on the sides of the Cordillera; but both in a hotter exposure. In these are produced the plantanes, guincos, Guinea-pepper, chirimogas, aguacates, granadillas, pinas, guayabas, and others natural to such climates as I have already observed in other countries. The colder parts produce pears, peaches, nectarines, quaitambos, aurimelos, apricots, melons, and water-melons; the last have a particular season, but the others abound equally throughout the whole year. The parts which cannot be denominated either hot or cold, produce frutillas, or Peru strawberries, and apples. The succulent fruits which require a warm climate are here also in great plenty throughout the whole year, as China and Seville oranges, citrons, lemons, and limes, cidras and toronjas. These trees are full of blossoms and fruit all the year round, equally with those which are natives of this climate. These fruits abundantly supply the tables of the inhabitants, where they

are always the first served up, and the last taken away. Besides the beautiful contrast they form with the other dishes, they are also used for increasing the pleasure of the palate, it being a custom among the people of rank here, to eat them alternately with their other food, of which there is always a great variety.

The chirimoyas, aguacates, guabas, granadillas, and Peruvian strawberries, being fruits of which, as well as of the ocos and papas, I have not yet given any description, I shall here give the reader a brief account of them. The chirimoya is universally allowed to be the most delicious of any known fruit either of India or Europe. Its dimensions are various, being from one to five inches in diameter. Its figure is imperfectly round, being flatted towards the stalk; where it forms a kind of navel; but all the other part nearly circular. It is covered with a thin soft shell, but adhering so closely to the pulp, as not to be separated without a knife. The outward coat, during its growth, is of a dark green, but on attaining its full maturity, becomes somewhat lighter. This coat is variegated with prominent veins, forming a kind of net-work all over it. The pulp is white, intermixed with several almost imperceptible fibres, concentring in the core, which extends from the hollow of the excrescence to the opposite side. As they have their origin near the former, so in that part they are larger and more distinct. The flesh contains a large quantity of juice resembling honey, and its taste, sweet mixed with a gentle acid, but of a most exquisite flavour. The seeds are formed in several parts of the flesh, and are about seven lines in length, and three or four in breadth. They are also somewhat flat, and situated longitudinally.

The tree is high and tufted, the stem large and round, but with some inequalities; full of elliptic leaves, terminateing in a point. The length is about three inches and a half, and the breadth two or two and a half. But what is very remarkable in this tree is, that it every year sheds and renews its leaves. The blossom, in which is the embryo of the fruit, differs very little from the leaves in colour, which is a darkish green, But when arrived to its full maturity is of a yellowish green. It resembles a caper in figure, but something larger, and composed of four petals. It is far from being beautiful; but this deficiency is abundantly supplied by its incomparable fragrancy. This tree is observed to be very parsimonious in its blossoms, producing only such as would ripen into fruits, did not the extravagant passion of the ladies

for

for the excellence of the odour, induce them to purchase the blossoms at any rate.

The aguacate, which in Lima and other parts of Peru is known by the ancient Indian name Plata, may also be classed among the choicest fruits of this country. Its figure in some measure resembles the calabashes of which snuff-boxes are made, that is, the lower part is round, and tapers away gradually towards the stalk; from whence to its base, the length is usually between three and five inches. It is covered with a very thin glossy and smooth shell, which, when the fruit is thoroughly ripe, is detached from the pulp. The colour, both during its growth, and when arrived at perfection is green, but turns something paler as it ripens; the pulp is solid, but yields to the pressure of the finger; the colour white, tinged with green, and the taste so insipid as to require salt to give it an agreeable relish. It is somewhat fibrous, but some more so than others. The stone of this fruit is two inches long, one and a half in thickness, and terminates in a point. The taste is sour. It may be opened with a knife, and consists of two lobes, between which may be distinctly perceived the germ of the tree. Within the shell is a very thin tegument which separates it from the pulp, tho' sometimes the tegument adheres to the pulp, and at others to the shell. The tree is lofty and full of branches; the leaf both in dimensions and figure something different from that of the chirimoyo.

In the province of Quito, they give the name of guabas to a fruit, which, in all the other parts of Peru, is called by its Indian name pacaes. It consists of a pod like that of the algarobo, a little flat on both sides. Its usual length is about a foot, tho' there are different sizes, some larger and others smaller, according to the country where they grow. Its outward colour is a dark green, and covered with a down which feels smooth when stroaked downwards, and rough when the hand is moved in the contrary direction, as in velvet. The pod, opened longitudinally, is found divided into several cells, each containing a certain spungy medulla, very light, and equal to cotton in whiteness. In this are inclosed some black seeds of a very disproportionate size, the medulla, whose juice is sweet and cooling, not being above a line and a half in thickness round each seed.

The granadilla resembles a hen's egg in shape, but larger. The outside of the shell is smooth and glossy, and of a faint carnation colour, and the inside white and soft. It is about a line and a half in thickness, and pretty hard. This shell contains a viscous and liquid substance, full of very small

and delicate grains less hard than those of the pomegranate. This medullary substance is separated from the shell, by an extreme fine and transparent membrane. The taste of this fruit is of a delightful sweetness, blended with acidity, very cordial and refreshing, and so wholesome that there is no danger in indulging one's appetite. The two former are also of the same innocent quality. The granadilla is not the produce of a tree, but of a plant, the blossom of which resembles the passion flower, and of a most delicate fragrance. But we must here observe a remarkable singularity in the fruits of this country, namely, that they do not ripen on the trees, like those of Europe, but must be gathered and kept some time; for if suffered to hang on the trees they would decay.

The last of the fruits I shall mention is the frutilla, or Peru strawberry, very different from that of Europe in size; for tho' generally not above an inch in length, and two thirds of an inch in thickness, they are much larger in other parts of Peru. Their taste, tho' jucy and not unpalatable, is not equal to those of Europe. The whole difference between the plant and that known in Spain consists in its leaves being somewhat larger.

The papas are natives of a cold climate, and being common in several parts of Europe, where they are known by the name of potatoes, all I shall say of them is, that they are a favourite food with the inhabitants of these countries, who eat them instead of bread, nor is there a made dish or ragout in which they are not an ingredient. The Creoles prefer them to any kind of meat, or even fowl. A particular dish is made of them, and served up at the best tables, called locro; and is always the last, that water may be drank after it, which they look upon as otherwise unwholsome. This root is the chief food of the lower class; and they find it so nutritive and strengthening, that they are not desirous of more solid food.

The oca is a root about two or three inches in length, and about half an inch, or something more in thickness, tho' not every where equal, having a kind of knots where they twist and wreath themselves. This root is covered with a very thin and transparent skin, whose colour is in some yellow, in some red, and others orange. It is eaten either boiled or roasted, and has nearly the same taste as a chestnut; with this difference, however, common to all the fruits of America, that the sweetness predominates. It is both pickled and preserved, the latter being what the Americans are very fond of. This root is also an ingredient in many made dishes.

The

The plant is ſmall like the camote, yucas, and others already deſcribed.

WITH regard to the corn of this country, there is no neceſſity for enumerating the ſpecies, they being the ſame with thoſe known in Spain. The maize and barley are uſed by the poor people, and particularly by the Indians in making bread. They have ſeveral methods of preparing the maize; one is by perching, which they call camea. They alſo make from this grain a drink called chica, uſed by the Indians in the times of the Yncas, and ſtill very common. The method of making it is this: they ſteep the maize in water till it begins to ſprout, when they ſpread it in the ſun, where it is thoroughly dried; after which they roaſt and grind it, and of the flour they make a decoction of what ſtrength they pleaſe. It is then put into jars or caſks, with a proportional quantity of water. On the ſecond or third day it begins to ferment, and when the fermentation is completed, which is in two or three days more, they eſteem it fit for drinking. It is reckoned very cooling; and that it is inebriating, is ſufficiently evident from the Indians; thoſe people have indeed ſo little government of themſelves, that they never give over till they have emptied the caſk. Its taſte is not unlike cider; but ſeems in ſome meaſure to require the diſpatch of the Indians, turning ſour in ſeven or eight days after the fermentation is completed. Beſides its ſuppoſed quality of being cooling, it is, among other medical properties, confeſſedly diuretic; and to the uſe of this liquor the Indians are ſuppoſed to be indebted for their being ſtrangers to the ſtrangury or gravel. It is alſo not ſurprizing that thoſe people who drink it, without any other food than cancha, mote and muchea, are, with the help of this liquor, healthy, ſtrong, and robuſt.

MAIZE boiled till the grains begin to ſplit, when it is called mote, ſerves for food to the Indians; the poor people and ſervants in families, who being habituated to it, prefer it to bread.

MAIZE before it is ripe, called chogllos, is ſold in the ear, and among the poorer ſort of inhabitants eſteemed a great dainty.

BESIDES the grains of the ſame ſpecies with thoſe in Spain, this country has one peculiar to itſelf; and very well deſerves to be ranked among the moſt palatable foods; but ſtill more valuable for its being one of the beſt preſervatives againſt all kinds of abſceſſes and impoſthumes. This uſeful ſpecies of grain is here called quinoa, reſembles a lentile in ſhape, but much leſs, and very white. When boiled it opens, and out

of it comes a ſpiral fibre, which appears like a ſmall worm, but whiter than the huſk of the grain. It is an annual plant, being ſowed and reaped every year. The ſtem is about three or four feet in height, and has a large pointed leaf, ſomething like that of the malloro; the flower is of a deep red, and five or ſix inches in length, and in it are contained the grains or ſeed. The quinoa is eaten boiled like rice, and has a very pleaſant taſte; and the water in which it has been boiled, is often uſed as an apozem. The quinoa is often uſed in external applications, in order to which it is ground and boiled to a proper conſiſtence; after which it is applied to the part affected, from which it ſoon extracts all corrupt humours occaſioned by a contuſion.

Besides domeſtic animals, here are great numbers of rabbits caught on the deſerts. The partridges are not very plenty, and rather reſemble a quail than thoſe of Europe. Turtle-doves abound here, greatly owing to the indolence of the inhabitants in not endeavouring to take them.

But one of the principal foods uſed by the inhabitants is cheeſe, of which it is computed that the quantity annually conſumed amounts to between 70 and 80 thouſand dollars of that country money. It is uſed in various manners, and is the chief ingredient in many diſhes. The neighbourhood of Quito alſo affords excellent butter, and of which there is a great conſumption, but falls far ſhort of that of cheeſe.

The fondneſs of theſe people for ſweetmeats exceeds every thing I have ever mentioned of other countries; and this neceſſarily occaſions a great conſumption of ſugar and honey. One method of indulging this appetite is to ſqueeze the juice out of the ſugar canes, let it ſettle, and curdle it, out of which they make ſmall cakes, which they call raſpaduras. This is ſo highly valued by the lower claſs, that with a ſlice of it, and another of bread and cheeſe, they make as hearty a meal as the rich with all their variety of diſhes. Thus it appears, that if there be ſome difference between the foods uſed here and thoſe of Spain, the difference in their preparing them is ſtill greater.

CHAP. VIII.

Of the commerce of the province of Quito.

FROM the two preceding chapters, a ſufficient judgment may be formed of the products and manufactures in the province of Quito, which are the ſources of its commerce. The

The persons who are the chief conductors of this commerce, are the Europeans or Chapitones; some settled here, and others coming occasionally. The latter purchase the country goods, and sell those of Europe. The manufactures of this province, as we have already noticed, are only cottons, some white called tucuyos, and others stripped bays and cloths, which meet with a good market at Lima for supplying all the inward provinces of Peru. The returns are made partly in silver, partly in gold and silver thread fringes made in that city, wine, brandy, oil, copper, tin, lead and quicksilver. The masters of the manufactures, either sell their goods to the traders, or employ them as their factors to dispose of them.

On the arrival of the galleons at Carthagena, these traders resort thither either by the way of Popayan or that of Santa Fé, to purchase European goods, which, at their return, they consign to their correspondents all over the province.

The products of the earth are chiefly consumed within the province, except the wheat produced in the jurisdictions of Riobamba and Chimbo, part of which are sent to Guayaquil. But this is a trade carried on only by Mistizos and poor people. It would indeed admit of great improvements were not the freights so excessively high, which raise the price so enormously, that the trouble and expence of carrying them from Guayaquil to other countries, where there is a scarcity of them, renders it impossible to get a living profit.

Goods fabricated in the public manufactures, or wove by private Indians, are, together with some kinds of provisions, tho' in small quantities, sent to the jurisdiction of Barbacoas; and this is the commerce in which the Chapitones make the first essay of their abilities for trade. These provisions are exchanged for gold, found in that country, and which is afterwards sent to Lima, where it bears a greater price. Their stuffs also find a vent in the governments of Popayan and Santa Fé; and this commerce is perpetually carried on; but the only return in the Tiempo Muerto, or absence of the galleons, is gold, which, like that from Barbacoas, is sent to Lima.

The coast of New Spain supplies this province with indigo, of which there is a very large consumption at the manufactories, blue being universally the colour which this people affect in their apparel. They also import by the way of Guayaquil, iron and steel both from Europe and the coast of Guatemala;

Guatemala; and tho' it fetches so high a price, that a quintal of iron sells for above a hundred dollars, and the same quantity of steel for a hundred and fifty, there is a continual demand in order to supply the peasants with the necessary instruments of agriculture.

THE inland or reciprocal commerce, consists in the consumption of the products of one jurisdiction in another; and is a constant incentive to industry among the inhabitants of the villages, and the lower class. Those of the province of Chimbo purchase home-made tucuyos and bags in those of Riobamba and Quito, in order to vend them at Guayaquil, bringing thence in return, salt, fish, and cotton, the latter of which being wove in the looms of Quito, is again sent to Guayaquil in stuffs. The jurisdictions of Riobamba, Alausi and Cuenca, by means of the ware-houses at Yaguache, and Noranjal, carry on a considerable trade with Guayaquil.

THIS trade in the manufactures of the country, which consist only of three sorts, cloth, bags, and linen, is attended with considerable profit to the traders, and advantage to the country, as all the poor people, who are remarkably numerous, and persons of substance except those of the capital, wear the goods manufactured in the country; those of Europe being so prodigiously dear, that only Spaniards of large fortune, and persons of the highest distinction, can afford to purchase them. The quantity of cloth and stuffs wove in this country, and all by Indians, either in the public manufactures or their own houses, appear from hence to be prodigiously great: and to this, in a great measure, is owing the happy state of this province: the masters and traders soon raising fortunes, and the servants and dependants contented with the fruits of their industry.

DESCRIP-

DESCRIPTION

OF THE

PROVINCE of QUITO:

With Geographical, Hiſtorical, Political, and Phyſical Obſervations.

BOOK VI.

CHAP. I.

Extent of the province of Quito, *and the juriſdiction of its audience.*

IN the five preceding books we have endeavoured, as far as the nature of the ſubjects would permit, to follow the order which the ſeries of our voyage required; and we flatter ourſelves it will appear, that though our principal attention was directed to the aſtronomical obſervations, we have not omitted any intereſting particular, relating to the towns and provinces through which we paſſed. We were always perſuaded, that if the former tended to the improvement of ſcience, and agreeable to thoſe who profeſs it; the latter might prove uſeful to hiſtorians, and be acceptable to thoſe, who apply themſelves to the ſtudy of the conſtitution, ſtate, cuſtoms, and genius of nations. We cloſed the fifth book with an account of the city of Quito; and this we ſhall employ in treating of the province; which being equally an object of curioſity, we are enabled to gratify the reader in the moſt ſatisfactory manner; having in the courſe of our obſervations not only ſurveyed its whole extent, but by our long ſtay, obtained the acquaintance of many perſons of undoubted judgment and veracity, on whom we could rely for ſome particulars, which we could not have known from ocular inſpection. So that we have ſufficient reaſon for warranting the truth of the contents of this hiſtory.

THE

THE large province of Quito, at the time when the Spaniards first settled in it, was annexed to the kingdom of Peru, and continued so till the year 1718, when a new vice-royalty being erected at Santa Fé de Bogota, the capital of the new kingdom of Granada, it was dismembered from Peru, and annexed to Granada. At the same time the audience of Quito was suppressed, together with that of Panama, in the kingdom of Terra Firma; tho' the latter continued dependant on the vice-roys of Lima. The intention in this frugal scheme, was that the salaries of the great number of officers in both, which ceased on this abolition, should be applied to the support of the new vice-royalty, in order to prevent any additional burden on the royal revenue; a consequence otherwise unavoidable. But experience has shewn the impropriety and insufficiency of this measure; and that the tribunals abolished were of indispensible necessity in their respective cities; and insupportable detriment resulting to the inhabitants from the vast distance of the audiences assigned them; which were Lima, for the kingdom of Terra Firma, and those of the province of Quito were to apply for justice to the audience of Sante Fé. And as the amount of all the salaries suppressed, besides the prejudicing many families, was not sufficient to support the dignity of a vice-roy, new ideas succeeded; and rather than keep it up at the expence of the royal revenue, the vice-royalty was suppressed, and things placed again on their antient footing in the year 1722: the officers were restored to their former posts, which they had so worthily filled, and the audiences have continued the same as before. But the motives for erecting a new vice-royalty at Santa Fé, being confessedly of the greatest importance, its restitution was again brought on the carpet; and the great difficulty of supporting it, without detriment either to the public, or the audiences, the suppression of which had been so detrimental to the inhabitants, being overcome, the dignity of vice-royalty was again erected in the year 1739, Don Sebastian de Eslaba, lieutenant-general, being appointed the first vice-roy, and arrived in the beginning of the year 1740 to take possession of his government, which included the whole kingdom of Terra Firma, and the province of Quito.

THIS province is bounded on the north by that of Santa Fé de Bogota, and includes part of the government of Papayan; on the south it is limited by the governments of Piura and Chachapoyas; eastward it extends over the whole government of Maynas, and the river of the Amazons, to the meri-

meridian of demarcation, or that which divides the dominions of Spain and Portugal. Its weſtern boundary is the ſea, from the coaſt of Machala in the gulph of Puna, to the coaſt of the government of Atacames and the juriſdiction of Barbacoas in the bay of Gorgona. Its greateſt breadth from north to ſouth is about 200 leagues, and its length from eaſt to weſt, the whole extent from Cape de Santa Elena, in the ſouth-ſea, to the meridian above-mentioned; which, by the moſt accurate computation, is 600 leagues. But a very great part of theſe vaſt dominions, are, it muſt be owned, either inhabited by nations of ſavage Indians, or have not hitherto been ſufficiently peopled by the Spaniards, if, indeed, they have been thoroughly known. All the parts that can properly be ſaid to be peopled, and actually ſubject to the Spaniſh government, are thoſe intercepted by the two Cordilleras of the Andes, which, in compariſon to the extent of the country, may be termed a ſtreet or lane, extending from the juriſdiction of the town of St. Miguel de Ibarra, to that of Loga; the country from hence to the government of Popayan, and alſo that comprehended between the weſtern Cordillera and the ſea. With this limitation, the extent of the juriſdictions from eaſt to weſt will be fifteen leagues or ſomething more, being the diſtance intercepted between the two Cordilleras. But to this muſt be added the countries comprehended in the governments of Jaen de Bracamoras, which borders on the juriſdiction of Loja, and the extremity of the whole province, and ſituated on the eaſt ſide of the eaſtern Cordillera; and, to the northward, the government of Quixos, and that of Maynas, to the eaſtward of it; but ſeparated by large tracts of land, inhabited by wild Indians: and on the north ſide of the province, from that of Papayan; tho' the latter is properly a diſtinct province from that of Quito. Thus, on the weſt ſide of that interval between the two Cordilleras, lies the lately erected government of Atacames, and the juriſdiction of Guayaquil: on the eaſt ſide, the three governments above-mentioned; and on the north, that of Papayan.

This province, excluſive of theſe five governments, conſiſts of nine juriſdictions, which in that country are called provinces, that of Quito being ſubdivided into as many others as there are governments and juriſdictions; which it is neceſſary for the reader to obſerve, in order to avoid any perplexity or miſtake, when a juriſdiction happens to be called a province; tho' I ſhall be careful to avoid it as much as poſſible. The juriſdictions in the province of Quito, beginning with the moſt northern, are the following.

I. The

I. The town of San Miguel de Ibarra.
II. The village of Otabalo.
III. The city of Quito.
IV. The aſſiento of Latacunga.
V. The town of Riobamba.
VI. The aſſiento of Chimbo, or Guaranda.
VII. The city of Guayaquil.
VIII. The city of Cuenca.
IX. The city of Loja.

Of theſe nine juriſdictions I ſhall give a ſuccinct account in this and the following chapter, and then proceed to the governments.

I. The town of San Miguel de Ibarra, is the capital of the juriſdiction of that name, which alſo contains eight principal villages or pariſhes, the names of which are,

I. Mira.	V. Salinas.
II. Pimanpiro.	VI. Tumbabiro.
III. Carangue.	VII. Quilca.
IV. San Antonio de Carangue.	VIII. Caguaſqui.

This juriſdiction formerly included that of Otabalo; but, on account of its too enormous extent, it was prudently divided into two.

The town of San Miguel de Ibarra, ſtands on the extremity of a very large plain or meadow, at a ſmall diſtance from a chain of mountains to the eaſtward of it, and betwixt two rivers, which keep this whole plain in a perpetual verdure. The ſoil is ſoft and moiſt, which not only renders the houſes damp, but alſo cauſes the foundations of the buildings often to ſink. It is of a middling bigneſs, with ſtrait, broad ſtreets, and the greateſt part of the houſes of ſtone, or unburnt bricks, and all tiled. The town is ſurrounded by ſuburbs inhabited by the Indians, whoſe cottages make the ſame appearance as in all other mean places; but the houſes in the town are neat and uniform, tho' they are but low, having only a ground floor, except thoſe in the ſquare, which have one ſtory. The pariſh church, is a large and elegant ſtructure, and of the ſame materials as the houſes. It is alſo well ornamented. This town has convents of Franciſcans, Dominicans, the Fathers of Mercy, a college of Jeſuits, and a nunnery of the order of the conception. Its inhabitants of all ages, ſects, and claſſes, are computed at ten or twelve thouſand ſouls.

Within the limits of this juriſdiction, is the lake of Yagarchoca, famous for being the ſepulchre of the inhabitants of

of Otabalo on its being taken by Huayna-Capac, the twelfth Ynca, who, instead of shewing clemency to their magnanimity, being irritated at the noble resistance they made against his army, ordered them all to be beheaded, both those who had quietly surrendered, as well as those taken in arms, and their bodies to be thrown into the lake; and from the water of the lake being tinged of a bloody hue, it acquired its present name, which signifies a lake of blood.

The air is very mild, less cold than that of Quito, and at the same time the heat is not at all inconvenient. The temperature of the air is different in all the villages of this jurisdiction, but is most warm, on account of their low situation. These parts are all over this country called Valles, as I have already observed; and the names of those in the jurisdiction of San Miguel de Ibarra, are Chota, Carpuela, and several others. Most of the farms in them have plantations of sugar canes, and mills for extracting the juice, from whence they make great quantities of sugar, and very white: some are planted with the fruits common in a hot climate; and in others cotton only is cultivated, which here arrives to the greatest perfection.

The sugar canes do not ripen here so late as in the jurisdiction of Quito; but they may be committed at any time to the mill, there being no necessity for cutting them at any precise time, retaining all their goodness even when suffered to stand two or three months after they are ripe; so that they are cut every quarter, and the mills, by that means, kept at work during the whole year.

The farms situated in a less hot part are employed for cultivating maize, wheat and barley, in the same manner as in the jurisdiction of Otabalo, and which we shall explain in its proper place. Here are also large numbers of goats, but not many sheep; and tho' the manufactures here, are not so numerous as in the jurisdiction of Otabalo, yet the Indians weave a considerable quantity of cloth, and cotton.

In the neighbourhood of the village of Salinas are salt mines, which, besides the home consumption, supply the countries to the northward of it. This salt has some mixture of nitre, and tho' it may thence be concluded to be less wholesome, yet it is attended with no ill consequence to those who are accustomed to it: but not answering the intention in salting, that from Guayaquil is used instead of it.

Within the district of the village of Mira, are great numbers of wild asses, which increase very fast, and are not easily caught. The owners of the grounds where they are bred, suffer all persons to take as many as they can, on paying a small

a ſmall acknowledgment, in proportion to the number of days their ſport has laſted. The manner of catching them is as follows: a number of perſons go on horſeback, and are attended by Indians on foot. When arrived at the proper places they form a circle, in order to drive them into ſome valley; where at full ſpeed, they throw the nooſe and halter them; for theſe creatures, on finding themſelves incloſed, make very furious efforts to eſcape, and if only one forces his way through, they all follow with an irreſiſtible impetuoſity. But when the hunters have nooſed them, they throw them down, and ſecure them with fetters, and thus leave them till the hunting is over; when, in order to bring them away with the greater facility, they pair them with tame beaſts; but this is not eaſily performed, for theſe aſſes are ſo remarkably fierce, that they often hurt the perſons who undertake to manage them. They have all the ſwiftneſs of horſes, and neither acclivities nor precipices retard them in their career; and, when attacked, defend themſelves with their heels and mouth, with ſuch activity, that without ſlackening their pace, they often maim their purſuers: but the moſt remarkable property in theſe creatures is, that after carrying the firſt load, their celerity leaves them, their dangerous ferocity is loſt, and they ſoon contract the ſtupid look and dulneſs peculiar to the aſinine ſpecies. It is alſo obſervable that theſe creatures, will not permit any horſe to live among them; and if one of theſe creatures happens to ſtray into the places where they feed they all fall upon him, and without giving him the liberty of flying from them, they bite and kick him till they leave him dead on the ſpot. They are very troubleſome neighbours, making a moſt horrid noiſe; for whenever one or two of them begins to bray, they are anſwered in the ſame vociferous manner by all within the reach of the ſound, which is greatly increaſed and prolonged by the repercuſſions of the valleys and breaches of the mountains.

II. The juriſdiction joining on the ſouth to that of St. Miguel de Ibarra, is called Otabalo; in the juriſdiction of which are the following eight principal villages or pariſhes.

I. Cayambe.	V. Cotacache.
II. Tabacundo.	VI. San Pablo.
III. Otabalo.	VII. Tocache.
IV. Atontaqui.	VIII. Urquuqui.

The pariſh of Otabalo is well ſituated, and ſo large and populous, that it is ſaid to contain eighteen or twenty thouſand ſouls, and among them a conſiderable number of Spaniards. But the inhabitants of all the other villages are univerſally Indians.

The

THE lands of this jurisdiction are laid out in plantations like those of the former, except that here are not such great numbers of sugar mills; but this is compensated by its great superiority in manufactures, a consequence resulting from the multitudes of Indians residing in its villages, who seem to have an innate inclination to weaving; for besides the stuffs made at the common manufactories, such Indians as are not Mitayos, or who are independant, make, on their own account a variety of goods, as cottons, carpets, pavilions for beds, quilts in damask work, wholly of cotton, either white, blue, or variegated with different colours; but all in great repute, both in the province of Quito and other parts, where they are sold to great advantage.

THE method of sowing wheat and barley in this jurisdiction is very different from that used in any of the former; for instead of scattering the seeds, as is commonly practised, they divide the ground, after it is plowed, into several parts by furrows, and along the sides of them, they make little holes a foot distant from one another, putting five or six corns into each. However tedious this may be, it is abundantly made up to the farmer by the uncommon increase, which is usually above an hundred fold.

THIS jurisdiction has a great number of studs of horses, and multitudes of black cattle, from whose milk large quantities of cheese are made. This country is happily situated for pasture, being every where watered with an infinite number of rivulets. It has also large flocks of sheep, tho' these seem to be neglected, in comparison of the others.

THE village of Cayambe, stands in the middle of a spacious plain, at the end of which is the foot of the mountain Cayamburo, one of the largest mountains of the Cordilleras in this part of the country, being equal in height to that of Chimborazo, and its summits covered with snow and ice. Its altitude is so much greater than the rest between it and Quito, that it may be plainly seen from that city. The vicinity of this mountain renders the whole plain of Cayambe cold, which is increased by the violence and continuance of the winds. In the territories of this jurisdiction are two lakes, very disagreeable, one called San Pablo, from a village of that name on its banks; it is a league in length, and about half a league in breadth. This lake is every where surrounded with a species of rushes called there totoral, among which are vast flocks of wild geese and gallaretes. This lake receives its water from the mountain of Mojanda; and from it issues one of the branches of the Rio Blanco. The other lake, which has nearly the same dimensi-

ons as the former, is called Cuicocha, and is situated in a plain on the side of a mountain of the same name. Near the middle of this lake are two islands, both which abound with wild Cuyes, a species of rabbits, and deer, which often swim to main land; but when pursued by the hunters, disappoint them by gaining the lake, and swimming back to their retreat. Several small fish are found in this lake, resembling the cray-fish, but without a shell. They are called by the inhabitants of the adjacent country, Prennadillas, and are sent in pickle to Quito, where they are the more esteemed, as being the only fresh water fish that can be bought in that city. Nor are these caught in any great quantities, tho' they are also found in the lake of San Pablo.

III. The jurisdiction of Quito consists of the following twenty-five parishes, besides those in the city:

I. St. Juan Evangelista.
II. Santa Maria Magdalena.
III. Chilogalle.
IV. Cono-coto.
V. Zambiza.
VI. Pintac.
VII. Sangolqui.
VIII. Amaguana.
IX. Guapulo.
X. Cumbaya.
XI. Co-collao.
XII. Puembo, and Piso.
XIII. Yaruqui.
XIV. El Quinche.
XV. Guayllabamba.
XVI. Machacha.
XVII. Aloasio.
XVIII. Aloa.
XIX. Yumbicho.
XX. Alangasi.
XXI. Pomasque.
XXII. San Antonio de Lulum-bamba.
XXIII. Perucho.
XXIV. Cola-cali.
XXV. Tumbaco.

This jurisdiction, tho' called Sinco Leguas, five leagues, extends in some parts, a great deal farther, and the lands are as it were covered with plantations, some situated in the plains, some in the capacious breaches, and others on the summit of the mountains; and all producing according to the quality, situation, and exposure of the ground. Those on the temperate plains yield plentiful harvests of maize; those at the bottoms of deep breaches, being in a hot temperature, are planted with sugar canes, from whence they extract great quantities of sugar and rum. From the fruits peculiar to such a temperature, are made a variety of sweet-meats here called rayados; and of which there is a great consumption among the inhabitants.

The sugar cane ripens very slowly in this jurisdiction; for tho' the plantations enjoy a hot air, yet it is not of that degree of heat requisite to its speedy maturity; so that it is three years

years after they are planted, before they are fit to be cut. Nor are they ever cut but once, the ſecond crop only producing the ſoca or germ, which ſerves for replanting.

THE guarapo, which we have had occaſion to mention, is nothing more than the juice of the cane, as it flows from the mill, and afterwards ſuffered to ferment. It is very pleaſant, its taſte being a ſweetiſh acidity, and at the ſame time, very wholeſome; but inebriating if drank to exceſs. This liquor is a favourite regale among the vulgar.

THE plantation near the ſummits of the mountains, from their having a variety of temperatures, produce wheat, barley, pot herbs of all kinds, and potatoes.

ABOVE theſe plantations are fed thoſe numerous flocks of ſheep, producing that wool, which, from the ſeveral operations it undergoes, affords employment for ſuch multitudes of people. Some farmers here make it their ſole buſineſs to breed cows, principally for the advantage they derive from their milk in making cheeſe and butter. In other farm-houſes you ſee various occupations carried on at the ſame time, namely, the breeding of cattle, agriculture, and manufactures, particularly of cloth, bays and ſerges.

FROM what has been ſaid, it is evident that neither this, nor the preceding juriſdiction, has any general temperature, the degree of cold and heat depending on the ſituation. And that to this difference is owing the delightful, and even profitable variety of all kinds of fruits and grains, each finding here a temperature agreeable to its nature. Accordingly in travelling only half a day you paſs from a climate where the heat ſufficiently indicates that you are in the torrid zone, to another where you feel all the horrors of winter. And what is ſtill more ſingular, and may be eſteemed an advantage, no change occurs during the whole year; the temperate parts never feeling the viciſſitudes of cold and heat. This, however, muſt be allowed not to hold preciſely with regard to the mountainous parts, the coldneſs of which is increaſed by the violence of the winds, or a change of weather, called tiempo de paramos, when the clouds involve the greateſt part of theſe mountains, and precipitate themſelves in a ſleet; at which time the cold becomes intollerable: and, on the other hand, when thoſe frigorific clouds are diſperſed and the wind allayed, ſo that the rays of the ſun reach the earth, they feel the comfortable heat of his chearing beams.

MOST of theſe villages are built with very little regularity. The principal part of them is the church and parſonage,

which they call the convent, from the priests being all formerly religious. These structures have some appearance of decency; but the other parts of the village, consist of a number of huts with mud-walls, scattered all over the country, where every one has his spot of ground, which he tills for his subsistence. A great part, and in some villages, the whole of the inhabitants are Indians, who live there when out of place. Though in some parts the inhabitants are Mestizos, and here and there a Spanish family; but these are extremely poor.

IV. The first jurisdiction to the southward of that of Quito, is the Assiento Latacunga. The word Assiento implies a place less than a town, but larger than a village. This place stands in a wide plain, having on the east side the eastern Cordillera of the Andes, from whence projects a very high mountain, and at a small distance from its foot is situated Latacunga, in 55 min. 14 sec. 30 thirds south latitude. On the west side of it is a river, which, tho' sometimes fordable, on any increase of the waters must be passed over the bridge. This Assiento is large and regular; the streets broad and strait; the houses of stone, arched, and well contrived: But, on account of the dangerous consequences so often resulting from earthquakes, without any story. This precaution the inhabitants were taught by a dreadful destruction of all the buildings on the 20th of June 1698. This terrible concussion was general all over the province of Quito; and its effects, as we shall shew in the sequel, in many other places, equally melancholy. Out of six hundred stone houses, the number of which this Assiento then consisted, only a part of one, and the church of the jesuits were left standing; and even these were so greatly damaged, that there was a necessity for pulling them down. But the greatest misfortune was, that most of the inhabitants were buried under their ruins, the earthquake beginning at one in the morning, a time of general silence and security, and continued its concussions, at short intervals, the greatest part of the day.

The stone of which the houses and churches are built, is a kind of pumice, or spungy stone ejected from volcanoes, inexhaustible quarries of it being found in the neighbourhood. It is so light that it will swim in water, and from its great porosity the lime cements the different pieces very strongly together; whence and from their lowness, the houses are now enabled to support themselves during a concussion, much better than before the earthquake, when few were without a story; and

and if they ſhould be unfortunately thrown down, the cruſh in all probability would be much leſs fatal.

The juriſdiction contains ſeventeen principal villages, which are;

I. Zicihos Mayor.
II. Zicheos Menor.
III. Yungas, or Colorados.
IV. Yſilimbi.
V. Chiſa-Halo, or Toacaſo.
VI. Pillaro.
VII. San Phelipe.
VIII. Mula-Halo.
IX. Alaquez.
X. San Miguel de Molleambato.
XI. Saquiſili.
XII. Pugili.
XIII. Tanicuchi.
XIV. Cuzubamba.
XV. Tiſaleo.
XVI. Angamarca.
XVII. Pila-Halo.

THE air of this Aſſiento is the colder from the place being only ſix leagues from the mountain of Cotopaxi, which, as it is not leſs in height and extent, than thoſe of Chimborazo and Cayamburo, ſo it is, like them, covered with ice and ſnow. The combuſtible ſubſtances within the bowels of this mountain firſt declared themſelves in 1533, when Sebaſtian and Belalcazar, who undertook the conqueſt of this province, had entered it, and proved very favourable to the enterprize. For the Indians, poſſeſſed with truth of a prediction of their prieſts, that on the burſting of this volcano, they would be deprived of their country, and reduced under the government of an unknown prince, were ſo ſtruck with the concurrence of the burſting of this volcano, and the invaſion of a foreign army, that the ſpirit, which univerſally began to ſhew itſelf in the preparatives every where made for a vigorous reſiſtance, entirely left them, and the whole province eaſily conquered, all its Caciques ſubmitting to the king of Spain. The large plain in which the Aſſiento ſtands, is full of fragments of rocks, ejected at that ſuppoſed ominous eruption, and ſome of them to the diſtance of five leagues from its roots. In the year 1743, while we were on the coaſt of Chili, a ſecond eruption happened, the particulars of which we ſhall relate in another place.

THE temperature of the air is very different in the ſeveral villages of this juriſdiction; being hot in thoſe lying in the valleys; temperate in thoſe ſituated on the plains; whilſt the air in thoſe bordering on the mountains, like that of the Aſſiento, is cold, and ſometimes to an exceſſive degree. The villages are in general larger and more populous than thoſe of the other juriſdictions in the ſame province. Their inhabitants are Indians, Meſtizos, and a few Spaniards.

BESIDES the parish church, which is served by two priests, one for the Spaniards and the other for the Indians, this Assiento has convents of franciscans, augustins, dominicans, the fathers of mercy, and a college of jesuits. The churches of these religious are well built, decently ornamented, and kept very neat. The inhabitants, by the nearest computation, amount to between ten and twelve thousand, chiefly Spaniards and Mestizos. Among the former are several families of eminent rank and easy circumstances, and of such virtues and accomplishments as add a lustre to their happy situation. The Indians, as at Quito, live in a separate quarter adjoining to the country.

IN this Assiento all kinds of trades and mechanic arts are carried on; and, as in all the other parts of its jurisdiction, has a considerable number of manufactories of cloth, bays, and tucuyos. Great quantities of pork are salted here for exportation to Quito, Guayaquil, and Riobamba, being highly esteemed for the peculiar flavour given to it in the pickling, and which it ever after retains.

ALL the neighbouring country is sowed with clover, and interspersed with plantations of willows, whose perpetual verdure gives a chearful aspect to the country, and heightens the pleasantness of the Assiento.

THE Indians of Pugili and Saquisili, are noted for making earthen ware, as jars, pans, pitchers, &c. which are greatly valued all over the province of Quito. The clay of which they are made is of a lively red, very fine, and emits a kind of fragrancy, and the workmanship very neat and ingenious.

V. THE next jurisdiction to the southwards, is that of Riobamba, the capital of which is the town of the same name. Its jurisdiction is divided into two departments, the corregidor, who resides at Riobamba, appointing a deputy, who lives at the Assiento of Hambato, situated between the capital and Latacunga. In the former department are the following eighteen principal villages.

I. Calpi.
II. Lican.
III. Yaruquiz.
IV. San Luis.
V. Cajabamba.
VI. San Andres.
VII. Puni.
VIII. Chambo.
IX. Quimia.
X. Pungala.
XI. Lito.
XII. Guano.
XIII. Hilapo.
XIV. Guanando.
XV. Penipe.
XVI. Cubijies.
XVII. Cevadas.
XVIII. Palactanga.

THE

THE department of the *Assiento of Hambato*, has, in its jurisdiction, six principal villages.

I. Isamba.	IV. Pelileo.
II. Quisupincha.	V. Patate.
III. Quero.	VI. Santo Rosa de Pilaguin.

THIS Assiento stands in the latitude of 1° 41′ 40″ south and 22′ west of the city of Quito. In 1533, it was an Indian town, of which Sebastian de Belalcazar having made himself master; the following year Marshal Diego de Almagro, laid the foundation of the present Assiento. It stands in a very large plain surrounded by mountains; particularly on the north side which is bounded by Chimborazo, from the foot of which it is at no great distance. On the south side is a lake, called Colta, about a league in length and three quarters of a league in breadth, where there are great numbers of wild geese and gallaretas; and its banks covered with plantations.

THE principal square and streets are very regular, strait and airy; the houses of a light stone, but something heavier than the pumice made use of at Latacunga. Some, especially those in and near the square, have a story; but the others are universally without any, being built low on account of the earthquakes, which this place has often felt, particularly that already mentioned of 1698, when many of its houses and public buildings were thrown down. The Indians who inhabited this place, and all those to the southward in this jurisdiction, before their conversion to Christianity, were known by the name of Puruayes; and are to this day distinguished from all the other Indians in the whole province.

BESIDES the great church, here is another called St. Sabastian, with convents of the same orders as at Latacunga, and a nunnery of the conception; contributions are also still raised for the use of the hospital, tho' it is in so ruinous a condition, as not to admit of any patients.

ON the west side of the Assiento is a river cut into small channels or trenches, for watering the adjacent fields, and by which means they are rendered so remarkably fertile, that they produce clover all the year round.

THE number of inhabitants, according to an accurate calculation, amounts to between sixteen and twenty thousand souls. The manners and customs here are nearly the same as those at Quito; the greatest part of the families of distinction in that city owing their origin to this place. For at the be-

ginning of the conquests, many of the most eminent families which came from Spain, settled here at the conclusion of the war, and have been very careful not to diminish either the lustre of their families, or their wealth, by promiscuous alliances, marrying only into one another.

THE magistracy consists of regidores, who are always persons of the first distinction, and from among those are annually chosen the ordinary alcaldes, with this singularity, that the validity of the election depends on its being unanimous, a single vote rendering it void. Besides the person elected with this precision is either confirmed or rejected by the townsmen; a privilege known in no other part of the whole province.

THE air is colder here than at Quito, owing in a great measure to the neighbourhood of the mountain of Chimborazo, and, when the wind blows from that quarter, the weather is so sharp, that the rich families leave the town, and retire to their estates situated in a warmer air, tho' at no great distance. This uncomfortable season generally lasts from December to June, the north and north-west winds then principally prevailing. It is, however, in a great measure, free from those violent showers and tempests so common at Quito, that sometimes for many days successively, it enjoys serene and delightful weather; and the same may be said of the greatest part of its jurisdiction.

HERE are many plantations or farms, and most of them very considerable; and for the number and largeness of its manufactories, it surpasses every other part of this province; tho' the Indians seem born with an inclination for weaving, particularly those of the village of Guano, who are famed for their manufactures of worsted stockings, and is indeed the only place in the whole province where they are made. This industrious disposition probably gave rise to the large flocks of sheep in this jurisdiction, whence these manufactories are never in want of wool. The soil is very fertile, producing all kinds of grain and pulse in abundance. And here is most frequently seen what I have observed elsewhere, namely, that in one part the husbandmen are sowing, and in another reaping; and the landscape is elegantly adorned with such an enchanting variety of colours as painting cannot equal.

IN this jurisdiction is a large plain lying south of the town of Tiocaxas, and famous for a battle between the Spaniards commanded by Beladcazar, and the Purunyes Indians, before their courage had been depressed by the ominous explosion of the mountain. Both armies fought with great obstinacy, tho' neither gain'd the victory. THE

The Assiento of Hambato, the second department of this jurisdiction, stands in a wide plain at the bottom of a mountain. On the north side of it runs a large river over, which a bridge has been built, it being never fordable on account of its depth and extreme rapidity. This Assiento is finely situated, and in extent and populousness nearly equal to Latacunga, the number of its inhabitants amounting to eight or nine thousand. The houses are of unburnt bricks, well contrived, and make a good appearance. With regard to their lowness, it is owing to a discreet precaution against the melancholy shocks of earthquakes. It has a parish church, two chapels of ease, and a convent of Franciscans. The earthquake which made such terrible havock in the Assiento of Latacunga, proved also fatal to this. The earth near it opened in several places, of which there still remains an astonishing monument on the south side of the Assiento, being a casm four or five feet broad, and about a league in length, north and south. And on the north side of the river are several openings of the same kind. The horror of the shock was greatly increased by terrible eruptions from Mount Carguairaso, from whence a muddy torrent, formed of ashes, cinders and snow melted by the flames from the aperture, precipitated down the sides of the mountain, overflowing the fields, sweeping away the cattle, and every other object, by its violence. A track of this impetuous current is still to be seen on the south side of the Assiento.

The inhabitants in their manners and customs resemble those of Quito; but with regard to families of distinction, it is much inferior to Riobamba. Courage is an innate quality of the natives, but blended with such vices, that both their neighbours, and the inhabitants of the other parts of the province, will have no concerns with them, except those absolutely necessary; and in all dealings with them, take care to guard equally against their deceit and violence.

This jurisdiction in several of its products and manufactures excels all the rest: one of which is bread, particularly that made at the Assiento, which is famous all over the province; and accordingly it is sent to Quito and other parts, without losing any thing of its goodness by length of time. The Indian inhabitants of the village of Quero, make all sorts of cabinet work, for which there is a great demand all over the province, as besides the goodness of the workmanship, this is the only place where goods of this kind are made. The jurisdiction of Patate is equally famous for the plenty of

sugar

ſugar canes, and the goodneſs of the ſugar made from them, being the fineſt ſort. That of Santa Roſa de Pilaguin, which, with its fields lies on the ſide of Carguiaraſo, is famous for the particular goodneſs of its barley, as the diſtrict bordering on the Aſſiento is for the exquiſiteneſs of its fruits; and to this diſtrict Quito owes moſt of the European kinds ſold in that city, the temperature of the air being peculiarly adapted to the perfection of thoſe fruits.

VI. On the weſt ſide of the juriſdiction of Riobamba, between it and Guayaquil, lies that of Chimbo, whoſe juriſdiction conſiſts of an Aſſiento, and ſeven villages; the former, being the capital, is called Chimbo, and was the reſidence of the corregidor, till it was thought proper, for the conveniency of commerce, to remove it to Guaranda. This Aſſiento does not contain above eighty families; ſome of which are Spaniards, but all poor. The names of the villages are,

I. San Lorenzo.
II. Aſaneoto.
III. Chapacoto.
IV. San Miguel.
V. Guaranda.
VI. Guanujo.
VII. Tomabelas.

The moſt conſiderable of their villages is that of Guaranda, tho' the inhabitants are, in general, Meſtizos; there are indeed ſome Indians, but very few Spaniards.

The juriſdiction of Chimbo, being the firſt of the Serrania, or ridge of mountains, bordering on that of Guayaquil, carries on, by means of innumerable droves of mules, the whole trade of Quito and the other provinces, by the way of Guayaquil, carrying the bales of cloth, and ſtuffs, together with the meal, corn, and other products of the country, from the former to the latter; and returning with wine, brandy, ſalt, cotton, fiſh, oil, and other goods wanted in the provinces of the mountains. This traffick is of inconceivable benefit to the inhabitants; but it can only be carried on during the ſummer, the roads in the winter being abſolutely impracticable to beaſts of any kind. This intermiſſion of trade they call 'Cerrarſe la Montana,' The ſhutting up of the mountains.

The temperature of the air at Guaranda, and that of the greateſt part of the juriſdiction of Chimbo, from the proximity of Chimborazo, ſo often mentioned for its frigorific effects, is very cold. The country is large and fertile, like thoſe already mentioned; but the haciendas, or farms, are in general appropriated to the breeding of mules; a few only being ſown with different ſpecies of grain.

VII. THE jurisdiction of Guayaquil is the last; but this has been already treated of at large.

CHAP. II.

Sequel of the account of the jurisdictions in the province of Quito.

VIII. THE jurisdiction confining on the southern parts of Riobamba, is that of Cuenca, whose capital is the city of the same name, founded in the year 1557, by Gil Ramirez Davalos. Its jurisdiction is divided into two departments, of which the capital is one, and that of Alausi the other; the last reaches to Riobamba, and is governed by a deputy of the corregidor. Besides the Assiento it contains only the four following villages.

I. Chumche.	III. Cibambe.
II. Guasuntos.	IV. Ticsan.

BUT that of the city of Cuenca, includes ten:

I. Azogues.	VI. Paccha.
II. Atuhcanar.	VII. Gualaseo.
III. Giron.	VIII. Paute.
IV. Canary-bamba.	IX. Delec.
V. Espiritu Santo.	X. Molleturo.

THE city of Cuenca lies in 2° 53′ 49″ south latitude, and 29′ 25″ west of the meridian of Quito. It stands in a very spacious plain, along which, at about half a league to the northward of the city, runs a little river called Machangara; and close to the south side of the city runs another known by the name of Matadero. Besides these, at the distance of a quarter of a league, runs another called Yanuncay; and at about the same distance is another termed Los Banos, from a village of that name, thro' which it flows. All these rivers are at some seasons fordable; but at others can only be crossed with safety over the bridges.

THE plain in which this city stands, reaches about six leagues from north to south, and the four rivers, whose courses are nearly in the same direction, form at a small distance by the conflux of their streams, a very large river. To the south of the city is another plain of about two leagues in extent, and, with its great variety of regular plantations of trees, and other rural improvements, makes a very delightful appearance, all the year round.

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THIS city may be classed among those of the fourth order. Its streets are strait, and of a convenient breadth: the houses of unburnt bricks, tiled, and many of them have one story, the owners, from a ridiculous affectation of grandeur, preferring elegance to security. The suburbs, inhabited by the Indians, are, as usual, mean and irregular. Several streams of water, by great labour are brought from the above rivers, and flow through the streets; so that the city is plentifully supplied with water; and for its admirable situation and the fertility of the soil, it might be rendered the paradise, not only of the province of Quito, but of all Peru; few cities being able to boast of so many advantages as concentre here; but either from supineness or ignorance, they are far from being duly improved. One circumstance, which adds a singular beauty to its situation, is, that the mountains here are not so high, as to intercept the view of this beautiful country; but at a proper distance they rise again to their stupendous height, as is seen in the mountain Azuay, which divides this jurisdiction from that of Alausi.

CUENCA contains three parishes; that of the great church consists of Spaniards and Mestizos; the two others, which are called San Blas and San Sebastian, are for the Indians. Here are convents of franciscans, dominicans, augustins, and the fathers of mercy; a college of jesuits, and two nunneries, one of the Conception, and the other of Santa Teresa. Here is also a hospital, but through ill management now almost in ruins.

THE magistracy is composed of regidores and ordinary alcaldes, which, according to the general custom, are chosen annually; and at their head is the corrigedor. Here is a chamber of finances, under the direction of an accomptant and treasurer. It was formerly kept in the city of Sevilla del Oro, a jurisdiction, and the capital of the department of Macas; but on the loss of the city of Logrono, the village of Guambaya and other places, it was removed to Loja, and since to Cuenca. The revenues paid into it consist of the tribute of the Indians of this department, together with that of Alausi, the jurisdiction of Loja, and the government of Jaen de Bracamoros; the duties on provisions, and the customs collected at Naranjal.

THE inhabitants here, tho' of the same classes with those of Quito, differ something in their genius and manners; particularly in a most shameful indolence, which seems so natural to them, that they have a strange aversion to all kinds of work; the vulgar are also rude, vindictive, and, in short, wicked

wicked in every ſenſe, From this general reproach, the women muſt, however, be excepted, being remarkable for an uncommon ſpirit of induſtry; as if they were determined to atone for the indolence of the other ſex. They ſpin and weave bays, which, for their goodneſs, and eſpecially the brilliancy of the colours, are famous in every part of Peru. They alſo weave ſome tucuyos; and make bargains with the merchants or traders. They buy and ſell, and in ſhort, manage entirely that little commerce, by which their families are ſupported: whilſt their huſbands, brothers, and fathers, give themſelves up to ſloth and idleneſs, with all its infamous concomitants. The whole number of inhabitants of this city is computed at twenty or thirty thouſand ſouls; and both thoſe of the city, and of the juriſdiction, are commonly known by the general name of Morlacos.

THE pleaſures ariſing from the fertility of the ſoil are increaſed by the mildneſs of the climate, the liquor of the thermometer fluctuating the whole year between 1013, and 1015; ſo that the cold is very little felt, and the heat very ſupportable. With regard to rains and tempeſts of thunder and lightning, they are as common here as at Quito. In calm weather, the ſky is ſerene, and the inhabitants healthy; nor are malignant fevers and pluriſies, tho' common to the whole province, ſo often known as at Quito. The country is finely interſperſed with farm-houſes and plantations of ſugar canes; ſome parts are cultivated for corn, and others applied to the feeding of ſheep and horned cattle, from the laſt of which they make great quantities of cheeſe, not inferior to that of Europe; and accordingly there is a very conſiderable demand for it all over theſe parts.

THE village of Atun-canar, or Great Canar, is famous for its extenſive corn fields, and the rich harveſts they afford. It is alſo remarkable for the riches concealed in its mountains, the bravery of its ancient inhabitants, and their unſhaken loyalty to Ynca Tupac-Yupanqui, to whom, when his army intended for this country was arrived near the frontiers, ſenſible of their inability of making any effectual reſiſtance, they ſubmitted, and paid him all the honours which denoted a voluntary ſubjection: and theſe marks of loyalty ſo poſſeſſed the emperor in their favour, that to encourage them to cheriſh ſuch good diſpoſitions, he ordered ſeveral magnificent temples, ſplendid palaces, and forts all of ſtone, to be built here, in the manner of thoſe of Cuſco, and the inſide of the walls to be plated over with gold. And of theſe works ſome monuments ſtill remain in

a fort

a fort and palace, and of which neither time nor accidents have obliterated their aſtoniſhing magnificence; a deſcription will be given of both in another place. Theſe works had ſuch happy effects on the grateful inhabitants, that they fell at laſt victims to their loyalty; for having ſided with the Ynca Hueſcar, their lawful ſovereign, againſt his brother Ata Huallpa, and the former loſing a deciſive battle, the conqueror inhumanly abuſed his victory by deſtroying thoſe unhappy perſons, who had done no more than their duty, no leſs than 60,000 of them being maſſacred in cold blood.

These Indians were united with the Guaſantos, and thoſe of Pamallacta, in which diſtrict are ſtill to be ſeen the ruins of another fort, built by the Yncas. The intimacy between the inhabitants of theſe countries was ſo very remarkable, that they were all called Canarejos, that under one name they might form one body.

The Aſſiento of Alauſi, the chief place of the ſecond department, is not very populous, tho' among its inhabitants are ſome ſome Spaniſh families of the firſt rank. The other inhabitants are Meſtizos and Indians, but both claſſes in mean circumſtances. The parochial church is the only eccleſiaſtical ſtructure; nor has this the ornaments which decency requires.

The village of Ticſan, which ſtood in this department, was totally deſtroyed by an earthquake, and the inhabitants removed to a ſafer ſituation. The marks of theſe dreadful convulſions of nature are ſtill viſible in ſeveral caſms among the mountains, many being two or three feet broad; a convincing proof of the violent concuſſions in the bowels of the earth at the time of that cataſtrophe. The temperature of the air is here ſomething colder than at Cuenca; but not in a degree ſufficient to leſſen the exuberent fertility of the ſoil.

Among the great variety of mines in the juriſdiction of Cuenca, and which I ſhall conſider more at large in the ſequel, thoſe of gold and ſilver, according to the common opinion, are not the leaſt numerous. Report has, indeed, magnified them to ſuch a degree, that to prove the aſtoniſhing quantity of thoſe metals, the inhabitants relate the following ſtory, the truth of which I do not pretend to warrant. It exhibits indeed, an inſtance, ſo contrary to the common order of things, as to be ſcarce reconcileable to reaſon. I ſhall, however, venture to relate it, becauſe, if the reader ſhould think it incredible, it will at leaſt ſerve to convey an idea of the riches ſuppoſed to be concealed in the bowels of the mountains.

Be-

BETWEEN the valleys of Chugui-pata, which extend from the village and jurisdiction of Los Azogues southward, and that of Poute running eastward along the banks of the same name, are several eminences which divide the two plains, and among these one higher than the rest called Supay-Urco, a name said to have been given it on the following account. An inhabitant of the province Estramadura in Spain, from the extremity of his distress, abandoned himself to despair; and in the frenzy of his wild imagination, sometimes, imploring the assistance of Satan, and sometimes cursed the moment that gave birth to his wretched being, and was for laying violent hands upon himself. The devil taking advantage of his condition appeared to him, but in a dress which sufficiently concealed his nature, and courteously asked the cause of his excessive melancholy; and being informed that it was owing to an unhappy change of circumstances, from a plentiful fortune to the most extreme poverty, the devil, with a chearful air, told him, that he would shew him a spot from whence he might have what quantity of gold he pleased, the mine being absolutely inexhaustible. The Spaniard embraced the offer with the greatest transport of joy; and concluding that it would at least prove a journey of some days, purchased, with the penurious remains of his substance, a few loaves, which he packed up in his wallet. And his mind being something easier from these flattering promises, laid himself down to rest, till the time appointed, when he was to call upon his guide. But when he awaked, he found himself in a country absolutely unknown, the plain of Chuquipata lying before him, and himself reclined on the eminence of Supay-Urco. His astonishment at viewing such multitudes of strange objects can be much better conceived than expressed. For some time, indeed, he doubted whether they were real or illusive, till tired with uncertainties, and determined to know in what country he was, he directed his way to a house of some figure, which he saw at a distance. This happened fortunately to belong to a Spaniard, who was a native of the same province of Estramadura; and being informed by his servants that a stranger of the same country was at the gate, the master, pleasing himself with the hopes of hearing some news from his native land, ordered him to be brought in, received him with great marks of friendship, and being at breakfast, made him sit down with him; and began to enter on the pleasing enquiry after his friends and relations; but his guest taking out one of his loaves, which the gentleman

tleman knew was baked in Spain, and finding it quite new, was so lost in astonishment, that he forgot both his breakfast and relations, insisting (tho' afraid to hear) that his apparent countryman should inform him how it was possible to make so long a voyage in so short a time. The other readily satisfying his desire, they both agreed that this must have been an action of that enemy to mankind, who had brought the poor Spaniard thither to enrich himself from the treasures concealed in the bowels of the hill on which he had laid him; and ever since it has been called Supay-Urco, or the devil's hill. This story is well known throughout all the jurisdiction of Cuenca; even the children are acquainted with it; and father Manuel Rodriguez, in his 'Hitoria del Maranon, 'y Amazonas, lib. ii. cap. 4.' mentions it. From all which it may be inferred, that it is, in reality, of as antient a date, as the inhabitants of Cuenca pretend; that it has descended thro' a long series of time without alteration; and that from this story, tho' destitute of proof, the notion that this hill contains an inexhaustible treasure, had its rise.

IX. The last jurisdiction of the province of Quito, on this side, is that of Loja, the capital of which is called by the same name, and was founded in the year 1546 by captain Alonso de Mercadillo. It resembles in extent, form, and buildings, the city of Cuenca; but the temperature of the air is considerably hotter. In its district are the following fourteen villages.

I. Saraguro, and Ona.	VIII. Zozoranga.
II. San Juan del Valle.	IX. Dominguillo.
III. Zaruma.	X. Catacocha.
IV. Yuluc.	XI. San Lucas de Amboca.
V. Guachanama.	XII. El Sisne.
VI. Gonzanama.	XIII. Malacatos.
VII. Cariamanga.	XIV. San Pedro del Valle.

The city of Loja, besides two churches, has several convents, a nunnery, a college of Jesuits, and an hospital.

In the territory of this jurisdiction is produced that famous specifick for intermitting fevers, known by the name of Cascarilla de Loja, or Quinquina. Of this specific there are different kinds, one of which is more efficacious than the others. M. de Jusieu, whom I have already had occasion to mention more than once, being sent to make botanical observations, and take care of the health of the academicians, took the trouble of making a journey to Loja, purely to examine the tree which produces it; and, in a full description

tion which he drew up for the satisfaction of botanists and other curious persons, enters, with his known skill and accuracy, into a very minute distinction of the several species, and enumerates the smallest circumstances. At the same time he was pleased to inform the corregidor of the differences, and to instruct the Indians employed in cutting it, to distinguish each species, that the best sort only might be sent unmixed to Europe. Nor was this all; he farther instructed them how to make an extract of it, and prevailed on the inhabitants of that territory to use it, where its virtues had till that time been neglected, tho' intermitting fevers are there as common as in any other parts. Before he undeceived them, the natives imagined, that it was exported to Europe only as an ingredient in dying; and tho' they were not entirely ignorant of its virtues, they made no use of it, little imagining that a simple of so hot a nature could be good for them. But this ingenious physician convinced them of their mistake, by many happy effects; so that now it is generally used in all kinds of fevers: and persons of undoubted veracity, who have since visited Loja, have given me very pleasing accounts of its happy effects.

The tree which produces the cascarilla, is not of the largest size, its usual height being about two toises and a half, and the body and branches of a proportionate thickness. In this, however, there is some difference, and in that consists the goodness of the cascarilla, the largest branches not yielding the best. There is also a difference both in the blossom and seed. The Indians, in order to take off the cascarilla or cortex, cut down the tree; after which they bark it, and dry the quinquina. There are here large and thick forests of this tree; but notwithstanding this, there is a very sensible diminution of them, occasioned by the Indians not sowing the seed, those growing spontaneously being by no means equal to those cut down.

In the jurisdiction of Cuenca, have also been discovered many woody parts, in which this valuable tree is found: and when I was in that country, a priest at Cuenca procured a large quantity of cascarilla, and sent it to Panama, the only place from whence it is exported. This instance, together with his assurances, that it was of the same kind with that of Loja, induced several of the inhabitants of Cuenca to attempt the discovery, and were soon convinced that the jurisdiction contained large forests of this tree, which had been neglected by them, whilst their neighbours reaped so great advantages from it.

THE jurisdiction of Loja has also a very great advantage from breeding the cochineal, and which intelligent persons reckon of equal goodness with that of Oaxaca in New Spain; but the inhabitants are so far from applying themselves to the breeding that insect, sufficient to supply the demands of a particular trade, that they breed no more than what they imagine will be sufficient for the dyers in that and the neighbouring jurisdiction of Cuenca. To this elegant and lasting colour it is probably owing that the bays of Cuenca, and the carpets of Loja are preferred to all others: tho' the beauty of the colours may in some measure proceed from the superior skill of the workmen of Loja and Cuenca, over those of Quito, and other parts of the province where the same goods are manufactured. The cochineal is also bred in the department of Hambato, tho' without any constant gatherings of that insect. It is not however to be doubted, but that a more careful attention would ensure them the same success in great, as in small quantities.

HAVING mentioned this insect, so highly valued in every part of the world, for the incomparable beauty of its red colour, which it equally communicates to wool, silk, linen and cotton, it may, perhaps be expected, especially from an author who has been in the country, that I should give some farther account of it; and as I should be sorry to disappoint any rational curiosity of my readers, and at the same time to insert any thing that is not strictly true, I was unwilling to rely wholly on my own experience, together with the accounts I procured at Loja and Hambato, especially as Oaxaca is the principal place where this insect is produced; I therefore made it my business to consult persons well acquainted with the subject, and received the following account, in which they all unanimously agreed.

THE cochineal is bred on a plant known in Oaxaca, and all those parts where it abounds, by the name of nopal*, or nopalleca, the Indian fig-tree, which, except in the difference of the foliage, resembles the tunos, so common in the kingdom of Andalusia. The leaf of the tuna being broad, flat and prickly, and that of the nopal, oblong, with several eminences; and instead of spines has a fine smooth membrane, of a permanent and lively green.

THE method of planting the nopal is by making rows of holes about half a yard deep, and about two yards distant from

* This plant is called by botanists, *Opuntia maxima, folio oblongo rotundo majore, spinalis obtusis mollibus & innocentibus obsito, flore striis rubris varigato.* Sloan's Catalogue.

from one another. In each of these holes is placed one or two leaves of the nopal, in a flat position, and then covered with earth. This leaf soon after shoots up into a single stem, which, during its growth divides into several branches, and these successively produce fresh leaves, the largest being nearest to the stem, which is full of knots, as are also the branches, and from these the leaves have their origin. The usual height of this plant is about three yards, which it seldom exceeds. The season when the nopal displays all its beauty and vigour, is, like that of other plants, from the spring to the autumn, which at Oaxaca and other parts of North America, is at the same time as in Spain. Its blossom is small, of a bright red, and in the shape of a bud, from the centre of which proceeds the tuna, a name given to its fruit, and as this increases the blossom fades, till at length it falls. When the tuna, or fig is ripe, the outward skin becomes white; but the pulp is so fully impregnated with a deep red that it tinges the urine of those who eat it, of a blood colour, a circumstance attended with no small uneasiness to those who are unacquainted with this particular. Few fruits, however, are either more wholsome or pleasant.

The ground where the nopal is intended to be planted, must be carefully cleansed from all kinds of weeds, as they drain the soil of those juices which the nopal requires. Also after the cochineal is taken from the plant, which is never done till the insects are arrived at perfection, all the superfluous leaves are plucked off, that they may be succeeded by others the following year. For it must be observed, that the cochineal which are bred on young plants thrive much better, and are of a finer quality, than those produced on such as have stood some years.

The cochineal was formerly imagined to be a fruit or seed of some particular plant; an error which probably arose from an ignorance of the manner in which it is propagated; but at present every one is convinced of its being an insect, agreeable to its name, signifying a woodlouse, which generally breeds in damp places, especially in gardens. These insects, by rolling themselves up, form a little ball something less than a pea, and in some places are known by the name of Baquilas de San Anton, i. e. St. Anthony's little cows: and such is the figure of the cochineal, except that it has not the faculty of rolling itself up; and its magnitude, when at its full growth, does not exceed that of a tick, common in dogs and other animals.

THESE insects breed and are nourished on the nopals, where their eggs are placed among the leaves; the juice of the plant, which is their sole nourishment, becomes converted into their substance; when, instead of being thin and watery, and, to all outward appearance, of little or no use, is rendered a most beautiful crimson colour. The plant is in May or June, in its most vigorous state, and at this favourable season the eggs are deposited: and in the short space of two months, form an animalcule, the insect grows up to the size above-mentioned; but its infant state is exposed to a variety of dangers; the violent blasts of the north wind, sweep away the eggs from the foliage of the plant; and, what is equally fatal to their tender constitutions, showers, fogs, and frosts, often attack them, and destroy the leaves, leaving the careful cultivator this only resource, namely, that of making fires at certain distances, and filling the air with smoke, which frequently preserve them from the fatal effects of the inclemency of the weather.

THE breeding of cochineal is also greatly obstructed by birds of different kinds, which are very fond of these insects; and the same danger is to be apprehended from the worms, &c. which are found among the plantations of nopals: so that unless constant care be taken to fright the birds away from the plantation, and to clear the ground of those various kinds of vermin, which multiply so fast in it, the owner will be greatly disappointed in his expectations.

WHEN the insects are at their full growth, they are gathered and put into pots of earthen ware; but great attention is requisite to prevent them from getting out, as, in that case, great numbers of them would be lost; tho' there is no danger of it, where they are at liberty on the nopal leaves, those being their natural habitation, and where they enjoy a plenty of delicious food; for tho' they often remove from one leaf to another, they never quit the plant; nor is it uncommon to see the leaves entirely covered with them, especially when they are arrived at maturity. When they have been confined some time in these pots, they are killed and put in bags. The Indians have three different methods of killing these insects, one by hot water, another by fire, and a third by the rays of the sun; and to these are owing the several gradations of the colour, which in some is dark, and in others bright; but all require a certain degree of heat. Those therefore who use hot water are very careful to give it the requisite heat, and that the quantity of water be proportioned to the number of insects. The method of killing the creatures by fire, is to put them on shovels into an oven moderately heated for that intention;

tention; the fine quality of the cochineal depending on its not being over dried at the time of killing the insects: and it must be owned, that among the several ways made use of to destroy this valuable creature, that of the rays of the sun seems to bid fairest for performing it in the most perfect manner.

Besides the precaution requisite in killing the cochineal, in order to preserve its quality, it is equally necessay to know when it is in a proper state for being removed from the leaves of the nopal; but as experience only can teach the cultivator this necessary criterion, no fixed rule can be laid down. Accordingly in those provinces where the cultivation of these insects is chiefly carried on, those gathered by Indians of one village, differ from those gathered in another; and even those gathered by one person in the same village, are often different from those gathered by another; every individual adhering to his own method.

The cochineal insect may, in some circumstances, be compared to the silk worm, particularly in the manner of depositing its eggs. The insects destined for this particular are taken at a proper time of their growth, and put into a box well closed, and lined with a coarse cloth that none of them be lost; and in this confinement they lay their eggs and die. The box is kept close shut till the time of placing the eggs on the nopal, when, if any motion is perceived, it is a sufficient indication that the animalcule has life, tho' the egg is so minute as hardly to be perceived; and this is the seed placed on the foliage of the nopal, and the quantity contained in the shell of a hen's egg is sufficient for covering a whole plant. It is remarkable that this insect does not, or, at least, in any visible manner, injure the plant, but extracts its nourishment from the most succulent juice, which it sucks by means of its proposcis thro' the fine teguments of the leaves.

The principal countries where the cochineal insects are bred, are Oaxaca. Flascala, Chulula, Nueva Gallicia, and Chiapa, in the kingdom of New Spain; and Hambato, Loja, and Tucuman in Peru. And tho' the nopal thrives equally in all, yet it is only in Oaxaca, that they are gathered in large quantities, and form a branch of commerce, the cultivation of these little creatures being there the chief employment of the Indians; whereas in others, where the inhabitants take but little trouble in their cultivation, they breed wild, and those gathered in them are accordingly called grana sylvestre *. Not that either the insects or nopals are of different species; for with

 regard

* This wild cochineal is generally known in England by the name of cochineal mestique.

regard to the disadvantageous difference between the colour of the wild cochineal and that of Oaxaca, it does not proceed from a difference of species, but from a want of proper care in its improvement; and were the culture every where alike, this difference would no longer subsist. But the Indians neglect it, either because no commerce of that kind has been opened among them; or from an aversion to the trouble and attention requisite to bring those insects to perfection; or lastly, from the apprehension that the fruits of all their time and care may be destroyed by one of the above-mentioned accidents.

THE temperature best adapted to the production of this insect cannot be precisely determined, there being in Oaxaca, as well as in the province of Quito, parts of very different temperatures, some hot, some temperate, and others cold; yet all breed the cochineal. It is, however, very probable, that the most proper climate is the temperate and dry, because in these the nopal thrives the best. And agreeably to this observation it is remarked, that Hambato and Loja are the countries in the province of Quito where they most abound; tho' they are also seen in other parts where both the heat and cold are greater.

HERE I cannot help observing, that Andalusia in Spain, appears to me extremely well situated for breeding cochineal, both from the nature of the climate, and the plantation of fig-trees, which there attain so great perfection. Here also neither frosts, fogs, or snows are to be apprehended, particularly in spring; and the happy medium between cold and heat is, as I have before observed, that which this creature is particularly fond of.

THE inhabitants of Loja, who are known all over this province by the name of Lojanos, do not exceed ten thousand souls, tho' formerly, when the city was in its greatest prosperity, they were much more numerous. Their character is much better than that of the inhabitants of Cuenca; and besides their affinity in customs and tempers, to the other villages, they cannot be branded with the character of being slothful. In this jurisdiction such numerous droves of horned cattle and mules are bred, that it supplies the others of this province, and that of Piura in Valles. The carpets also manufactured here are of such remarkable fineness, that they find a ready sale, wherever they are sent.

THE corregidor of Loja, is also governor of Yaguarsongo, and principal alcalde of the mines of Zaruma; and, as such, a chair of state is placed for him at all public solemnities of the church, where he is present; a distinguishing honour allowed

lowed only to the presidents or governors of those provinces. The post of governor of Yaguarsongo, is at present only a mere title without any jurisdiction; part of the villages which formed it being lost by the revolt of the Indians, and the others added to the government of Jaen; so that the corregidor of Loja enjoys only those honours intended to continue the remembrance of that government.

THE town of Zaruma, in the jurisdiction of which are those mines of gold I shall mention in another part, has presented the corregidor of Loja with the title of its alcalde mayor. It was one of the first towns founded in this province, and at the same time, one of the most opulent; but is at present in a mean condition, owing chiefly to the decay of its mines, on which account most of the Spanish families have retired, some to Cuenca, and others to Loja; so that at present its inhabitants are said not to exceed six thousand. The declension of these mines, which is not so much to be imputed to any scarcity of metal, as to the negligence of those concerned in working them, has been very disadvantageous to the whole department of Loja; and consequently diminished the number of its inhabitants.

HAVING thus described those nine jurisdictions, which form the most wealthy part of the province of Quito, I shall, in the following chapters, treat of the governments.

CHAP. III.

Account of the governments of Popayan *and* Atacames, *belonging to the Province of* Quito.

IN the former chapters we have given a just account of every thing worthy notice in the jurisdictions within the audience of Quito; and to render the narrative complete, it is necessary that we now proceed to the governments within the limits of that audience; as they jointly form the vast country of the province of Quito. And tho' they generally give the name of province to every government, and even to the departments into which both are subdivided, we shall not here follow this vulgar acceptation, it being in reality founded only on the difference of the notions of Indians, who formerly inhabited this country, every one being governed by its curaca, or despotic sovereign. These nations the Yncas subdued, and obliged them to receive the laws of their empire: but the curacas were confirmed in all those hereditary rights of sovereignty, compatible with the supreme prerogative. Were we indeed to

use the name of province in this sense, every village must be called so; for it may be easily shewn, that in the time of heathenism, every village had its particular curaca: and sometimes, as in Valles, in this jurisdiction of Popayan, in Maynas, and the Maragnon, there was not only a curaca in each village with all the appendices of government, but the inhabitants spoke a different language, had different laws and customs, and lived totally independent of each other. But these villages, and ancient provinces being now comprehended under the jurisdiction of one single tribunal; and those which before were under a multitude of curacas acknowledging one sovereign, and composing one province, where justice is administered to them in the name of the prince; and the governments being in juridical affairs, dependent on the audience of Quito, they can only be considered as parts of its province. It is therefore requisite, in order to form a proper idea of this country, that I should treat of them in the same circumstantial manner I have already observed in describing the jurisdictions.

I. The first government in the province of Quito, and which terminates it on the north, is that of Popayan. It is not indeed wholly dependent on it, being divided into two jurisdictions, of which that on the north and east, belong to the audience of Santa Fé, or the new kingdom of Granada; Quito having only those parts lying towards the south and west; so that without omitting any thing remarkable in the whole government, I shall be a little more explicit in my account of the department belonging to Quito.

The conquest of the whole country now containing the government of Popayan, or at least, the greater part of it, was performed by that famous commander Sebastian de Belalcazar, who, being governor of the province of Quito, where he had settled a perfect tranquillity, and finished the building of that city, being informed, that on the north side of his government lay a country of greater extent, and richer than the parts he already possessed; prompted by that spirit which had animated the Spaniards to extend their reputation by a series of amazing conquests in this part of the globe, he set out on his enterprize in 1536 at the head of 300 Spaniards, and after several sharp encounters with the Indians of Pasto, who first opposed his march, he proceeded in his conquests, and reduced the two principal curacas of that country, Calambas and Popayan (after whom both the country and chief town was called) two brothers equally respected for their power and military talents. This defeat opened him a passage to futu-

truo

ture conquests; and the neighbouring nations, terrified at the success of those illustrious warriors, submitted to the king of Spain. Belalcazar, after these exploits, in the prosecution of his conquests, had several other encounters with Indians, fired with the disdain of submitting to a foreign yoke. His conquests were, however, at last so rapid, that, at the close of the same year, he pitched his camp in the centre of that country, where the mildness of the climate, the fertility of the soil, and salubrity of the air, conspired to induce him to render it the seat of the Spanish government. Accordingly in 1537 he laid the foundation of the first city, which still retains the name of Popayan; and whilst the place was building, he, to keep his people in exercise, and prevent the Indians he had conquered from forming themselves into a new army, or carrying on any clandestine correspondence with those whom his arms had not reached, sent out detachments different ways, with orders to march into the neighbouring countries, that they might prevent the rising of some, and reduce others to obedience.

Belalcazar had scarce finished his new town, when the officers of these corps. on their return, made such a report of the riches and fertility of the country, that he determined to view it in person, increase the number of towns, and by that means secure the possession of it. Accordingly he continued his march to Cali, where he built a town, which still retains the same name, tho' in a different country; for after it was finished in the country of the Gorrones Indians, captain Miguel Munoz soon after removed it, on account of the unhealthiness of the air. Belalcazar founded also another town called Santa Fé de Antioquia; and, charmed with the fertility and richness of the country, he proceeded to people it every where.

Nor was this all; for Belalcazar, in order to inhance the glory and importance of this country, was very desirous of making a road from Quito to the North sea, as he had before done to the Pacific ocean. Among the discoveries made by his captains whilst he was employed in superintending the building of Popayan, one was, that at no great distance from that place, were two of the principal sources of the great river of Magdalena; whence he conceived they might easily find a passage to the North sea. This opinion the general had the pleasure of finding unanimously agreed to, which induced him to make every disposition for the security and welfare of his conquests, being determined to return by way of that river to Spain, in order to sollicit the title of governor of the country, which he

he had discovered, conquered and peopled. Accordingly the title was conferred on him, and in his government were comprehended all the territories then considered as within his conquests; but in the year 1730, the country of Choco was separated from it, and made a particular government, tho' the order was not carried into execution till the year 1735. This part belonging to the province of the new kingdom of Granada, does not come within our description.

THE city of Popayan, one of the most ancient in these parts, that title having been granted it on the 5th of July 1538, stands in a large plain, having on the north side an uninterrupted prospect of the country. Its latitude is 2° 28′ north, and lies about two degrees east of the meridian of Quito, on the east side of a mountain of a middling height called M, from the resemblance it bears to that letter; and being covered with a variety of trees, affords an entertaining prospect: the west side is also diversified with small eminences.

THE city is of a middling size, with broad, strait, and level streets; and tho' not every where paved, are equally convenient, the foot-path near the houses being paved in all parts; and the middle of the streets being composed of a hard small gravel, are never dirty in rainy weather, nor dusty in the great droughts of this climate; and hence the middle of the streets are more convenient for walking than even the pavement itself.

THE houses are built of unburnt bricks, as at Quito, and entirely of the same construction: all the houses of note have a story; but the others only a ground floor. An idea of the largeness and convenience of the offices and apartments, may be formed by their outward appearance, as well as the magnificence of the furniture, which is all brought from Europe; the expence of which must be enormously great, as beside the long voyage there is a necessity for bringing it a prodigious distance by land carriage, and subject to unknown dangers in these countries.

THE church was erected into a cathedral in the year 1547, and is the only parochial church in the city. Not that its extent is too small for maintaining others; but having originally been the only church, the prebends could never be brought to allow of its being subdivided, and part of its revenues applied to the support of other parishes. Here are also convents of franciscans, dominicans, and augustines, with a college of jesuits; all of them having churches. In the latter is also a grammar school. The plan of an university, under the direction of the same fathers, is in such forwardness, that the charter is already granted. The number of religious belonging to each of

of these convents is but small, some of them amounting to no more than six or eight. It is, however, very different with regard to one of the nunneries, that of the incarnation, the professed nuns being betwixt forty and fifty; but the whole number, nuns, seculars and servants included, exceeds four hundred. The other nunnery is of the order of Santa Teresa. All these convents and their churches are pretty large; and if the latter do not dazzle the sight with the splendor of their ornaments, they do not want any which decency requires. Here was formerly a convent of bare-footed carmelites, built on a spacious plain, near the top of the mountain of M, from whence, on account of the sharpness of the winds, the fathers some time after removed to the foot of the mountain. But they were also soon disgusted with their new situation, the dry and salted fish, sallads, and such like, being the only particulars which this country affords, suitable to the perpetual abstinence of their order; and accordingly they again retired to their original situation, chusing rather to suffer the inclemency of the weather, than be confined to disagreeable food. This was the case of another convent of the same order founded at Latacunga, where there is also no fresh fish of any sort to be had. It must however be observed, that the Teresian convents, who are under the same vow of abstinence, are not discouraged by these inconveniences; nor is there a single instance of any deficiency in the appointed number of nuns.

From the mountain of M, issues a river, which by running thro' the city, besides other conveniences, carries away all its soil. Two bridges are erected over it, one of stone and the other of wood. The name of this river is del Molino. Its waters have a particular medicinal virtue, which they are thought to derive from the many briars through which they flow. In this mountain is also a spring of very charming water; but not being sufficient to supply the whole city, it is conveyed to the nunneries, and the houses of men of rank. A little above a league to the north of Popayan, runs the river Cauca. It is very large and deep, its current rapid, and subject to dangerous swellings in the months of June, July, and August; the season when the horrors of the mountains of Guanacas, where it has its source, are at their height; so that the passage of it is extremely dangerous, as many travellers, rashly exposing themselves to the intenseness of its cold, amidst thick snows and violent winds, have fatally experienced.

The inhabitants of Popayan and Quito differ very sensibly in their Casts; for as at Quito and the other towns and villages

villages of its jurisdictions, the most numerous class of people is that of the Casts, originated from the intermarriages of Spaniards and Indians; so at Popayan, Carthagena and other parts, where Negroes abound, the lower class consists of Casts, resulting from the marriages of the Whites and Negroes; but very few Indian Casts. This is owing to the great multitude of Negro slaves, kept as labourers at the plantations in the country, the mines, and to do the servile offices in the city: so that the number of Indians here are very few, compared with the other parts of the province. This government has, however, many large villages of them, and it is only in the capital, and other Spanish towns, that they are so greatly out-numbered by the Negroes.

THE inhabitants of Popayan are computed at between twenty and twenty-five thousand; and among these are many Spanish families, particularly sixty, known to have been originally descended from very noble families in Spain. It is worth observing here, that while other towns see their inhabitants constantly decreasing, Popayan may boast of a daily increase. This has indeed nothing mysterious in it; the many gold mines worked all over its jurisdiction, afford employment to the indigent, and, consequently, occasion a great resort of people to these parts.

POPAYAN is the constant residence of the governor, whose office being purely civil, it is not requisite, as in many others, that he should be acquainted with military affairs. Within the jurisdiction of his government, all matters civil, political, and military, are under his direction. He is also the chief magistrate of the city; the others are the two ordinary alcaldes; chosen annually, and a proper number of regidores, the constitution being the same as in other cities.

HERE is a chamber of finances, into which are paid the several branches of the royal revenue, as the tribute of the Indians, the duties on goods, the fifth of the metals, and the like.

THE ecclesiastical chapter is composed of the bishop, whose revenue is settled at six thousand dollars annually, the dean who has five hundred, the archdeacon, chantor, rector, and treasurer, who have each four hundred. This see is a suffragan of the archbishopric of Santa Fé de Bogota.

POPAYAN lying within the jurisdiction of the inquisition of Carthagena, has a commissary from thence. Here is also another of the croisade; but the authority of these two judges does not extend beyond the diocese, which is far less than

than that of the government, a considerable part of it belonging to the archbishopric of Quito.

The jurisdiction of the government of Popayan, reaches southward to the river Mayo, and to Ipiales, where it confines on the jurisdiction of the town of San Miguel de Ibarra; north east it terminates with the province of Antioquia, the last of its provinces, and contiguous to that of Santa Fé; and northward borders on the government of Carthagena. Its antient western bounds were the south sea, but it has since been contracted by the new government of Choco, that the territory of Barbacoas is the only part of it which reaches to the sea; eastward it spreads itself to the sources of the river Coqueta, which are also thought to be those of the river Oronoco and Negro: its extent is not precisely determined, but a probable conjecture may be made, that from East to West it is about 80 leagues; and little less from North to South. This juridiction being so large and containing many towns and villages, is divided into several departments, over each of which the principal governor nominates a deputy for the administration of justice, and introduces them to the audience to which they belong, where his nomination is confirmed; a circumstance necessary to procure them all the weight and security in the several departments which are conferred on them. Those which form the government of Popayan are the following.

I. Santiago di Cali.
II. Santa Fe de Antioquia.
III. Las Quatro Ciudades.
IV. Timana.
V. Guadalajara de Buga.
VI. S. Sebastian de la Plata.
VII. Almaguer.
VIII. Caloto.
IX. San Juan de Pasto.
X. El Raposo.
XI. Barbacoas.

In each of these departments, besides the chief town, are several others very large and well peopled; and great numbers of seats and farm-houses, where the number of people employed gives them the appearance of villages rather than private dwellings.

Of the above mentioned departments those towards the North and East of the city of Popayan, as Santa Fé de Antioquia, Las quatro Ciudades, Timana and S. Sebastian de la Plata belong to the audience and province of Santa Fé; the others lying nearer to Quito belong to its province; and those of San Juan de Pasto and Barbacoas are within its diocese.

The

THE departments of Cali and Buga lying betwixt the governments of Popayan and Choco, thrive as being the channel of the commerce which is carried on continually betwixt those two governments: whereas it is otherwise with that of Almaguer, from the smallness of its jurisdiction, and the little traffick there. That of Caloto, as its extent is considerable, so is it rich and abounds in the products of the earth, the soil being very fertile, and the country every where interspersed with farms. That of El Raposo is on the same happy footing as the two first. That of Pasto is also large, but less wealthy. Barbacoas is very small; and in such a general want of provisions, that except a few roots and grains, peculiar to hot and moist climates, it is supplied with every thing from other provinces.

THE temperature of this government is entirely the same as that already spoken of in the other parts of the province of Quito; that is, it varies according to the situation of places; some being more cold than hot; others the reverse; and some throughout the whole year enjoy a continual spring, as particularly Popayan the capital. The like may be said of the soil, which exuberantly produces the grains and fruits proper to its situation: and the farms breed great numbers of horned-cattle and sheep for the consumption of the towns and country people: and in the territory of Pasto graizery is a very profitable article, large herds and flocks being driven to Quito, where they always find a good market. The jurisdiction of Popayan is more subject to tempests of thunder and lightning and earthquakes than even Quito. Tho' in the latter, as we have observed, they are so very frequent. No longer ago than the year 1735 at one in the afternoon on the second of February, the greatest part of the town was ruined by one. This remarkable frequency of tempests and earthquakes in the country of Popayan, may be conjectured to proceed from the great number of mines, in which it exceeds all the others within the province of Quito.

BUT of all the parts in this jurisdiction Caloto is accounted to be the most subject to tempests of thunder and lightning; this has brought into vogue Caloto bells, which not a few persons use, being firmly persuaded that they have a special virtue against lightning. And indeed so many stories are told on this head, that one is at a loss what to believe. Without giving credit to, or absolutely rejecting all that is reported, leaving every one to the free decision of his own judgment, I shall only relate the most received opinion here.

The

The town of Caloto, the territory of which contains a great number of Indians, of a nation called Paezes, was formerly very large; but those Indians suddenly assaulting it, soon forced their way in, set fire to the houses and massacred the inhabitants: among the slain was the priest of the parish, who was particularly the object of their rage, as preaching the gospel with which they were sensible their savage manner of living did not agree, exposing the folly and wickedness of their idolatry, and laying before them the turpitude of their vices. Even the bell of the church could not escape their rancor, as by its sound it reminded them of their duty to come and receive divine instruction. After many fruitless endeavours to break it, they thought they could do nothing better than to bury it under ground, that, by the sight of it, they might never be put in mind of the precepts of the gospel which tended to abridge them of their liberty. On the news of their revolt, the Spaniards in the neighbourhood of Caloto armed; and having taken a smart revenge of the insurgents in a battle, they rebuilt the town, and having taken up the bell, they placed it in the steeple of the new church; since which the inhabitants to their great joy and astonishment observed, that when a tempest appeared brooding in the air the tolling of the bell dispersed it, and if the weather did not every where grow clear and fair, at least the tempest discharged itself in some other part. The news of this miracle spreading every where; great solicitations were made for procuring pieces of it to make clappers for little bells, in order to enjoy the benefit of its virtue, which in a country where tempests are both so dreadful and frequent, must be of the highest advantage. And to this Caloto owes it reputation for bells.

In the valleys of Neyba, and others within the jurisdiction of Popayan, is a very remarkable insect, particularly famous for the power of the small quantity of venom in it; this insect, which is shaped like a spider, is much less than a bug. Its common name is Coya, but others call it Coyba; its colour is of a fiery red, and, like spiders, it is generally found in the corners of walls and among the herbage. Its venom is of such a malignity that on squeezing the insect, if any happen to fall on the skin either of man or beast, it immediately penetrates into the flesh, and causes large tumors which are soon succeeded by death. The only remedy hitherto known, is, on the first appearance of a swelling, to singe the party all over the body with the flame of straw or long grass growing in those plains. In order to this the Indians of that country lay hold of the patient, some by the

the feet and others by the hands, and with great dexterity perform the operation, after which the person is reckoned to be out of danger. But it is to be observed, that tho' this insect be so very noxious, yet squeezing it betwixt the palms of the hands is attended with no bad consequence: from whence the plain inference is, that the callus usual on the hands of most people, prevents the venom from reaching the blood. Accordingly the Indian muleteers to please the curiosity of the passengers, squeeze them betwixt the palm of their hands, tho' unquestionably should a person of a delicate hand make that trial, the effects would be the same as on any other part of the body.

NATURE is equally admirable in her works and in her care of them. Man is endued with discernment, knowledge and observation, that he may avoid whatever is hurtful to his being; and the irrational species receive the like notices from instinct, and are not less observant than man. The people who travel along these valleys, where they are so much in danger of these coyas, according to the warning before given them by the Indians who attend them, tho' they feel something stinging them or crawling on their neck or face, are careful not to scratch the part, nor even so much as lift up their hand to it, the coya being of such a delicate texture that it would immediately burst: and as there is no danger whilst they do not eject the humour in them, the person acquaints some person of the company with what he feels, and points to the place; if it be a coya, the other blows it away. The beasts who are not capable of such warning, are yet by instinct taught a precaution against the danger, which may result from these insects in the pastures; for before they offer to touch the herbage, they blow on it with all their force in order to disperse any of these pernicious vermin; and when their smell acquaints them that they are near a nest of coyas, they immediately leap back and run to some other part. Thus they secure themselves from the venom of these insects, tho' sometimes a mule after all its blowing has been known to take in some with its pasture, on which, after swelling to a frightful degree, they have expired on the spot.

AMONG the plants of the country of Popayan, in the jurisdiction of Timana, grows the cuca or coca, an herb so esteemed by the Indians in some provinces of Peru, that they would part with any kind of provisions, the most valuable metals, gems, or any thing else, rather than want it. It grows on a weak stem, which for support twists itself round another stronger vegetable, like the vine. Its leaf, is about an inch and a half or two inches in length, and extremely smooth; the use

use the Indians make of it is for chewing, mixing it with a kind of chalk or whitish earth called mambi. They put into their mouth a few coca leaves and a suitable portion of mambi, and chewing these together, at first spit out the saliva, which that manducation causes, but afterwards swallow it; and thus move it from one side of the mouth to the other, till its substance be quite drained; then it is thrown away, but immediately replaced by fresh leaves. This herb is so nutritive and invigorating, that they labour whole days without any thing else, and on the want of it, they find a decay in their strength: they also add, that it preserves the teeth sound, and fortifies the stomach.

In the southern provinces of Peru great quantities of it are produced, being cultivated by the Indians; but that growing wild in the neighbourhood of Cusco, is accounted the best of any. It makes no small article in trade, particularly vast quantities of it are carried to the mine-towns, that the owners of the mines may have wherewithal to furnish the Indians, who otherwise could not be brought to work, or would not have strength to go through it.

This coca is exactly the same with the betel of the East-Indies. The plant, the leaf, the manner of using it, its qualities are all the same: and the eastern nations are no less fond of their betel than the Indians of Peru and Popayan are of their coca; but in the other parts of the province of Quito, as it is not produced, so neither is it used.

In Pasto, one of the most southern districts of the government of Popayan, are certain trees which yield a resin called mopa-mopa; and of this is made a varnish, which besides its exquisite beauty will bear boiling water, and even acids. The method of applying it is to dissolve some of the resin in one's mouth, and then wet the pencil with it; afterwards it is dipped in the colour which is to be laid on, and when dried has all the lustre of the Chinese laque, but with this superior quality, that it nevers wears off, nor becomes moist tho' rubb'd with spittle. The cabinets, tables, &c. made by the Indians of this country and thus varnished, are carried to Quito, where they are highly valued.

Popayan is one of the best trading countries within the province of Quito, as all the vast variety of Spanish goods from Carthagena are consigned thither and forwarded to Quito; and great numbers of traders go their rounds thro' the several jurisdictions, to the great conveniency of the towns and villages which thus supply themselves. Besides this transitory commerce, as it may be called, it has also another reciprocal be-

twixt it and Quito, to which it exports horned cattle, and mules, and receives in return cloaths and bays. Its active commerce consists in dried beef, salted pork, roll-tobacco, hogs-lard, rum, cotton, pita, ribbons and other small wares, which are brought to Choco and there exchanged for gold; sugar and snuff are imported from Santa Fé and sent to Quito; and the returns to Santa Fé are home made cloaths and bays. Here is also another traffick, which consists in bartering silver for gold: for there being an abundance of the latter, and a scarcity of the former, silver is brought to exchange for gold; of which great profit is made by converting it into doubloons: the like is also practised at Choco and Barbacoas, which are in the same case as to metals.

The city of Popayan being the centre of all these several kinds of commerce, the most wealthy persons of the whole jurisdiction are here, and five or six of its inhabitants are reckoned to be masters of above 100,000, dollars; 20 to be worth betwixt 40 and 80,000, besides many of smaller, yet handsome fortunes: and this exclusive of their farms and mines, with which this country abounds. The former are the same with those I have had occasion to mention in the other parts of this province according to the quality of the temperature.

West of the western Cordillera of the Andes is the government of Atacames, which on this quarter confines on the jurisdictions of the corregemientos of Quito and the town of San Miguel de Ibarra; northward on the department of Barbacoas in the government of Popayan: its western boundary is the south sea; and southward it joins the territory of Guayaquil; thus it reaches along the coast from the island of Tumaco, and the house of Husmal which lie in 1 degree and ½ N. lat. to the bay of Caracas and the mountains of Balsamo in 34 min. S. lat.

The country of this jurisdiction lay a long time uncultivated; and if not wholly, at least the greatest part of it, unknown; for after its conquest by Sebastian de Belalcazar, the peopling of it was neglected, either because the Spaniards were more intent in regulating their conquests than in improving what they had got, or because the country did not seem to them so proper for a settlement as the Sierra or mountainous parts; or perhaps they judged it barren and unhealthy. And tho' care was taken to furnish Quito with priests to preserve its Indian inhabitants in an adherence to those precious truths they had embraced; yet it was with the total neglect of that improvement of the country which was seen in all the other parts where the Spaniards had settled. Thus these people, tho' christians by profession,

profession, remain in that rusticity and savageness natural to men who are out of the way of rational conversation and commerce to civilize them; an Indian only coming now and then from their woods with aji, achote and fruits to sell at Quito, where they seem struck with amazement at the sight of such a concourse of people in one place; it being indeed far beyond what could be imagined by such as seldom or never came to any distance, from their poor cottages dispersed and shut up in the woods and living among the wild beasts.

THO' the country of Atacames lay thus neglected for some years after the introduction of the Christian religion, and its inhabitants had performed homage to the king of Spain, yet the importance of making settlements here, and cultivating the ground, for facilitating the commerce betwixt the province of Quito and the kingdom of Terra Firma, was not unknown, as thereby an end would be put to the inconveniences of carrying it on by the way of Guayaquil; which being a great circuit the trade suffered in many particulars; and indeed could not long have subsisted without making a settlement of Spaniards in Atacames; as thus the way would be much shorter for the commerce betwixt Terra Firma and Quito, which now conveniently supplies it with provisions of all kinds, and receives European goods in return.

PURSUANT to these views Paul Durango Delgadillo was, in the year 1621, appointed governor of Atacames and Rio de las Esmaraldas. He had some years before entered into a contract with the marquis de Montes Claros for opening a way from the town of San Miguel de Ibarra to the river Santiago, one of those which traversed the country belonging to the jurisdiction of this government; and likewise to people and cultivate it. But failing of fulfilling the agreement, tho' he was not wanting in endeavours, the government, in the year 1626, was taken from him and conferred on Francisco Perez Menacho, who, however, had no better success than he who had been displaced.

AFTER these two came Juan Vincencio Justiniani in the same character; but he seeing the insuperable difficulties according to the methods of his predecessors, confidently offered to make the way by the river Mira, but also failed in the execution; and Don Hernando de Soto Calderon, who began it in the year 1713, and rather more sanguine in his assurances of success than the former, also disappointed the general expectation: and thus the so much desired communication of the province of Quito and the kingdom of Terra Firma remained as it was till the year 1735, when Don Pedro Vicente Maldonado

donado being invested with the same powers as his predecessors, surpassed them in execution; and in 1741 laid open a direct communication betwixt Quito and Rio de las Esmaraldas: and having verified his proceeding before the audiences, and obtained their approbation, he returned to Spain to solicit the confirmation of his employment as governor, and the rewards specified in the contract. On the favourable report of the supreme council of the Indies, his majesty, in the year 1746, confirmed him as governor of that country, which, in 1747 was formally erected into a government, by the commission then given to the above-mentioned gentleman, who, by his skill and resolution had so well deserved it.

The towns within the government of Atacames are at present but small and poor; having hitherto lain out of the way of traffick, and the country but little cultivated. However, this governor takes such measures for the improvement of it, that already the face of things begins to alter greatly for the better; and the fertility of the soil will naturally invite settlers, and the communication being opened thro' it betwixt the kingdom of Terra Firma and the province of Quito, will cause a circulation of money. In the mean time this government contains 20 towns, five of which are on the sea-coasts and stand the first in the following list: the others are inland places.

I. Tumáco.
II. Tola.
III. San Matheo de Esmeraldas.
IV. Atacàmes.
V. La Canoa.
VI. Lachas.
VII. Cayàpas.
VIII. Inta.
IX. Gualèa.
X. Nanegàl.
XI. Tambillo.
XII. Niguas.
XIII. Chachillàcta.
XIV. Mindo.
XV. Yàmbe.
XVI Cocanìguas.
XVII. Cansa-Coto.
XVIII. Santa Domingo.
XIX. San Miguel.
XX. Nono.

The inhabitants of the five first towns are Spaniards, Mestizos, Negroes and Casts originated from these three species. They of the other fifteen are in general Indians, having few Spaniards, Mulattos or Negroes among them. With the spiritual concerns are invested eleven priests, who continually reside in the great towns, and occasionally visit the others, where are chapels of ease.

The temperature of Atacames is like that of Guayaquil, and accordingly produces the same kinds of vegetables, grains, and fruits; tho' some of them to a much greater perfection; for

for by lying higher it is not subject to the inundations proceeding from the swellings of rivers: and thus the cacao in its plantations and forests, having all the moisture that plant delights in, without being drowned, is much superior to the other in size, oilinefs, and delicacy of flavour. It likewise produces in great abundance vanillas, achote, sarsaparilla and indigo; also a great deal of wax is made here: and the forests are so thick set with trees of a surprizing bulk and loftiness as to be impenetrable; and these trees, as in the forests of Guayaquil, are of an infinite variety; some fitter for land works; others for naval uses; and some excellent for both.

CHAP. IV.

Description of the governments of Quixos, *and* Macas; *with an account of* Jaen de Bracamoros, *the discovery and conquest of it.*

NEXT to the government of Popayan, which has been treated of in the foregoing chapter, follow those of Quixos and Macas, on the east side of the Cordillera of the Andes: It is divided into two districts, Quixos being the north part of the government, and Macas the south, with the country of Camelos lying betwixt them. As their situation and other circumstances require that each should be treated distinctly, I shall begin with Quixos, which, on the north side, confines on the jurisdiction of Popayan, eastward it reaches to the river Aguarico, and westward is separated from the jurisdictions of Quito, Latacunga, and the town of San Miguel de Ibarra, by the Cordileras of Cotopaxi and Cayamburo. The first discovery of the county of Quixos is owing to Gonzalo Diaz de Pineda in the year 1536, who among the officers sent from Popayan by Sebastian de Belalcazar, to trace the course of the river of Magdalena, and take a survey of the country adjacent to that which had been conquered, was appointed to go on discoveries in these parts, which he performed with great care and dispatch; and finding it to abound in gold and cassia trees, he returned to his commander; and on his report Gonzalo Pizaro, in the year 1539, at that time governor of Quito, marched to it with a design of reconnoitring its whole extent and making settlements. But his expedition miscarrying, the conquest of this country, tho' from Pineda's report very desirable, was suspended till the year 1549, when the marquis de Canete, viceroy of Peru, gave a commission to Gil Ramirez Davalos; a man of undaunted courage when interest was in view, for reducing the Indians

and making settlements in the country; which he accordingly accomplished, and founded the town of Baeza, the capital of the government, in the year 1559; and it was soon followed by other towns and villages, still existing; but with very little improvement beyond their first state.

The town of Baeza, tho' the most antient of the country and long the residence of the governors, has always remained very small, which is owing to the building of the two cities of Avila and Archidona, still subsisting, and at that time the chief object of the attention of the settlers, Baeza being left as first built; and these so far from having increased suitably to the title of cities, which was given them at their foundation, remain on their first footing. The cause of the low state of the places here is the nature of the country, which in air, fertility, and other enjoyments of life being inferior to that of Quito, few settle here who can live in the other. Baeza is indeed extremely declined, consisting only of 8 or 9 thatched houses, with about 20 inhabitants of all ages, so that from the capital it is become annexed to the parish of Papallacta, in which town resides the priest, who has besides under his care another town called Maspu. This decay was no more than a consequence of the removal of the governor, who of late has resided at Archidona.

The city of Archidona is a small place lying in 1 deg. and a few min. S. of the Equinoctial, and about 1 deg. 50 min. E. of the meridian of Quito. The houses are of wood, covered with straw, and the whole number of its inhabitants is reckoned at betwixt 650 and 700, consisting of Spaniards, Indians, Mestizos, and Mulattos; but has only one priest, under whose care are also three other towns called Misagualli, Tena, and Napo; the last receives its name from the river on the borders of which its stands; and this situation proved its ruin on the 30th of Nov. 1744, when by the explosion of the Volcano on Cotopaxi, of which a more particular account shall be given in another place, this river became so welled by the torrents of melted snow and ice, that it entirely bore down the town of Napo, and the houses were carried along by the impetuosity of the current.

The city of Avila, but very much below that title, stands in 00 degr. 40 min. S. Lat. and near 2 degr. 20 min. E. of Quito. It is so much less than the former, that its inhabitants scarce amount to 300 of both sexes. Its houses are built of the same materials, and it has also a priest, whose ecclesiastical jurisdiction comprehends six towns, some of them in largeness and number of inhabitants not inferior to the city. These are,

I. La

I. La Conception.
II. Loreto.
III. San Salvador.
IV. Motte.
V. Cota Pini.
VI. Santa Rosa.

THE foregoing towns constitute the chief part of this government, but it also includes the towns of the mission of Sucumbios, the chief of which is San Miguel. At the beginning of this century they were ten, but are now reduced to these five,

I. San Diego de los Palmares.
II. San Francisco de los Curiquaxes.
III. San Joseph de los Abuccèes.
IV. San Christoval de los Yaguages.
V. San Pedro de Alcantara de la Cocao, or Nariguera.

THE inhabitants of the two cities, and the villages in the dependencies, and those of Baeza, are obliged to be constantly upon their guard against the infidel Indians, who frequently commit depredations among their houses and plantations. They compose different and numerous nations; and are so dispersed all over the country, that every village is under continual apprehensions from those which live in its neighbourhood: And when an action happens between the inhabitants and those Indians to the advantage of the former, all they get by it is to return quietly to their dwellings with a few prisoners, no booty being to be had from a people who live without any settlement; and from mere savageness make no account of those things in which the bulk of mankind place their happiness. Their method in these incursions, is, after an interval of apparent quiet and submission, to steal up to the Spanish settlements at a time when they have reason to conclude that the inhabitants are off their guard; and if their intent be answered, they fall to pillaging and plundering; and having got what is nearest at hand, precipitately retire. This perpetual danger may also be reckoned among the circumstances which have hitherto kept the government in such low circumstances.

THE temperature of all this country is hot and very moist. The rains are almost continual; so that the only difference betwixt it, Guayaquil and Porto Bello is, that the summer is not so long here: but the distempers and inconveniencies of the climate are the same. The country is covered with thick woods; and in these are some trees of a prodigious magnitude. In the south and west part of the jurisdiction of Quixos is the Canela or cinnamon-tree, which, as I have before observed, being discovered by Gonzalo diaz de Pineda, he from them called the country Canelos, which name it still retains. A great

quantity of it is cut for the neceſſary conſumption, both in the provine of Quito and in Valles. The quality of this cinnamon does not come up to that of the Eaſt Indies; but in every other particular very much reſembles it; the ſmell, its circumference and thickneſs being nearly the ſame: The colour is ſomething browner, the great difference lying in the taſte, that of Quixos being more pungent and without the exquiſite flavour of that of the Eaſt Indies. The leaf is the ſame, and has all the delicate ſmell of the bark; but the flower and ſeed ſurpaſs even thoſe of India; the former particularly is of an incomparable fragrancy from the abundance of aromatick parts it contains; and this favours an opinion, that if the trees were duly cultivated, might be made in every reſpect equal to thoſe of the iſland of Ceylon.

The other products in the iſland of Quixos are the very ſame with thoſe in all the other lands in the ſame climate as this government. The like may be ſaid of fruits, roots and grains, as wheat, barley, and others which require a cold air, ſeldom thrive much in any of an oppoſite quality.

The other diſtrict of Macas is bounded on the eaſt by the government of Maynas; ſouthward by that of Bracamoros, and Yaguarſongo; and weſtward, the eaſt Cordillera of the Andes divides it from the juriſdictions of Rio Bamba and Cuenca. Its chief town bears the ſplendid title of the city of Mucas, being the common name given to the whole country. And this is better known than its proper ancient name of Sevilla del Oro. It lies in two degrees 30 min. S. lat. and 40 min. E. of Quito. Its houſes, which do not exceed 130, are built of timber and thatched. Its inhabitants are reckoned at about 1200; but theſe, and it is the ſame all over this diſtrict, are generally Meſtizos with Spaniards. The other towns belonging to this juriſdiction are,

I. San Miguel de Narbaes.	V. Zuna.
II. Barahonas.	VI. Payra.
III. Yuquipa.	VII. Copueno.
IV. Juan Lopez.	VIII. Aguayos.

The ſpiritual government of them all is lodged in two prieſts; one of whom reſiding in the city has the care of the four firſt: and to the latter, who lives at Zuna, belongs that town and the three others. At the conqueſt, and for ſome time after, this country was very populous, and in honour of the great riches drawn from its capital, was diſtinguiſhed by the name of Sevilla del Oro; but at preſent only the memory of its former opulence remains. Such an extreme declen-

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ſion proceeded from an inſurrection of the natives, who, after ſwearing allegiance to the king of Spain, took arms, and made themſelves maſters of the city of Logrono, and a town called Guamboya, both in the ſame juriſdiction, and very rich. Theſe devaſtations have ſo diſcouraged any farther ſettlement there, that the whole country lies as a waſte; no money goes current in it, and the only way the wretched inhabitants have to provide themſelves with neceſſaries, is by bartering their home products.

The nearneſs of Macas to the Cordillera of the Andes cauſes a ſenſible difference betwixt its temperature and that of Quixos: for tho' it be alſo a woody country, the diverſity betwixt the two moſt diſtant ſeaſons of the year is manifeſt; and as its territory is different from that of the juriſdictions of Quito, ſo the variety in the periods of the ſeaſons is alſo great. Thus winter begins here in April, and laſts till September, which is the time of ſummer betwixt the Cordilleras: and at Macas the fine ſeaſon is in September, and is the more delightful on account of the winds which are then moſtly northward; and thus charged with the frigorific particles which they have ſwept away from the ſnowy mountains over which they have paſſed. The atmoſphere is clear; the ſky ſerene; the earth cloathed in its various beauties; and the inhabitants gladdened by ſuch pleaſing objects, rejoice that the horrors of winter are paſſed, as they are no leſs dreadful and detrimental here than at Guayaquil.

In grains and other products which require a hot and moiſt temperature, the country is very fruitful; but one of the chief occupations of the country people here, is the culture of tobacco, which being of an excellent kind, is exported in rolls all over Peru. Sugar-canes alſo thrive well here; and conſequently cotton. But the dread of the wild Indians who have often ravaged their country, diſcourages them from planting any more than what juſt ſuffices for preſent uſe; they being here in the ſame unhappy ſituation as in Quixos, the villages having in their neighbourhood bands of thoſe ſavage Indians. And when they imagine them to be furtheſt off, are often ſuddenly aſſaulted by them, ſo that they muſt be ready at every inſtant to take arms.

Among the infinite variety of trees which crowd the woods of this country, one of the moſt remarkable is the ſtorax, the gum of which is of a moſt exquiſite fragrancy, but is ſcarce, the trees growing in places at ſome diſtance from the villages; and it is dangerous going to them by reaſon of the ſavage Indians who lie in wait like wild beaſts. The like may be

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ſaid with regard to the mines of Polvos Azules, or Ultramarine, from which, by reaſon of that danger, very little is brought, but a finer colour cannot be imagined.

THE territory belonging to Macas alſo produces cinnamon trees, which, as the reverend Don Juan Joſeph de Loza y Acuna, prieſt of Zuna, a perſon of eminent learning, and perfectly verſed in natural hiſtory, told me, is of a ſuperior quality to that of Ceylon, here known by the name of Spaniſh cinnamon; and this was confirmed to me by many other perſons of judgment. This cinnamon viſibly differs from that of Quixos, which, as the ſame perſons informed me, proceeds from the full expoſure of the Maca trees to the ſun, its rays not being intercepted by the foliage of any other trees near them; and theſe alſo are at a diſtance from the roots of other trees, which deprive them of part of the nouriſhment neceſſary to bring it to perfection. And this opinion is confirmed by a cinnamon tree planted either accidentally or by deſign near the city of Macas, the bark of which, and eſpecially the bloſſom, in its taſte, fragrancy and aromatick power, far exceeds that of the Eaſt Indies.

GREAT quantities of copal are brought from Macas, alſo wild wax; but the latter of little value; for beſides being reddiſh it never indurates; and the ſmell of it when made into candles, and theſe lighted, is very ſtrong and diſagreeable; and that of Guayaquil and Valles no better. Indeed all the wax in thoſe countries cannot come into competition with thoſe of Europe; tho' it muſt be obſerved that there is no ſmall difference in the bee, which in this country is much larger, and its colour inclinable to black. However it might be made ſomething better, if the inhabitants were acquainted with the art of cleanſing and working it as in Europe, and if it could not be brought to equal the European, a greater conſiſtence might be given to it, which would be no ſmall advantage.

THE government which on the ſouth limits the juriſdiction of the audience of Quito, and follows next to Macas, is that of Jaen, which was diſcovered and ſubdued by Pedro de Vargara in the year 1538, whom Hernando Pizarro had appointed to command in that expedition. Afterwards Juan de Salinas entered the country with the title of governor of it, and he having by his courage and courteſy reduced the Indians, and ingratiated himſelf with them, a more formal ſettlement was made, and ſeveral towns built, which are ſtill exiſting, tho' in no better condition than thoſe of Macas and Quixos. Some ſtill retain the appellation of city, not that their large-

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nefs, number of inhabitants, or wealth become the title, but on account of the privileges annexed to it.

At the time of the conquest this government was known by the names of Igualsongo and Pacamoros, since corrupted into Yaguarsongo and Bracamoros; the names of the government conferred on Juan de Salinus. And thus they continued to be called for many years, till the Indians of both territories in a sudden revolt destroyed the principal towns. Those which were spared, after passing near an age in wretchedness and barbarism, happily recovered themselves, became united to the city of Jaen, as part of a government, with the title of Jaen de Bracamoros; and the title of governor of Yaguarsongo was, as we have before related, kept up by being annexed to the corrigedor of Loja.

The town of Jaen with the addition of Pacamoros, or Bracamoros, from the reunion of the towns of that country to it, was founded in the year 1549 by Diego Palomino. It stands in the jurisdiction of Chaca-Inga, belonging to the province of Chuquimayo, and is the residence of the governor. It is situated on the north shore of the river Chinchipe, at its conflux into the Maranon. It lies in about five five degrees 25 min. S. lat. and its long. may be conjectured to be very little distant from the meridian of Quito, if not under it. The account given of the mean condition of the cities of Macas and Quixos also suits Jaen. We must however observe, that it is much more populous, its inhabitants being of all ages and sexes computed at 3 or 4000; tho' these for the most part are Mestizos, with some Indians, but very few Spaniards.

Juan de Salinas likewise founded in his government of Yaguarsongo three other cities still subsisting, but small, mean and defenceless, like Jaen. Their names are Valladolid, Loyola and Saniago de las Montagnas: The last borders on the government of Minas; and is only separated from its capital, the city of Borja, by the Pongo de Manceriche. In this country of Jaen de Bracamoros are several small villages, the names of which are,

I San Joseph.	VI. Chinchípe.
II. Chito.	VII. Chyrìnos.
III. Sànder.	VIII. Pomàca.
IV. Charape.	IX. Tomepènda.
V. Pucarà.	X. Chuchùnga.

The inhabitants of which are mostly Indians, with some Mestizos, but no great number of either.

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THO' Jaen ſtands on the bank of the river Chinchipe, and ſo near the Maranon, yet the latter is not navigable up to it, ſo that thoſe who are to embark on it go by land from Jaen to Chuchunga, a ſmall place on another river of that name, and in 25 degrees 29 min. lat. whence they fall down into the Maranon. This town, which may be accounted the port for Jaen, lies four days journey from the city, which is the method of calculating the diſtances here; the difficulties of the road increaſing them far beyond what they are in reality, that not ſeldom that which on good ground might be travelled in an hour or two, take up a half and ſometimes a whole day.

THE climate of Jaen, and the ſame may be ſaid of the whole juriſdiction of this government, is like that of Quixos, except that the rains are neither ſo laſting nor violent; and, like that of Macas, it enjoys ſome interval of ſummer; when the heats, tempeſts, and all the inconveniencies of winter abate. The ſoil is very fruitful in all the grains and products agreeable to its temperature. The country is full of wild trees, particularly the cacao, the fruit of which, beſides the exuberance of it on all the trees, is equal to that cultivated in plantations, but is of little uſe here for want of conſumption: and the carriage of it to any diſtant parts, or to Europe, would be attended with ſuch charges, as to prejudice its ſale. Thus the fruits rot on the trees, or are eat by monkeys or other creatures.

AT the time of its firſt diſcovery and the ſucceeding conqueſt, this country alſo was in great repute for its riches; and not undeſervedly, vaſt quantities of gold being brought from it. But theſe gains were ſoon brought to a period by the revolt of the Indians, tho' in the opinion of many, who look upon thoſe people to be a part of the human ſpecies no leſs than themſelves, the inſurrection was owing to the exceſſive rigour of the Spaniards, in making them work in the mines under inſupportable fatigues. At preſent all the gold collected here is by Indians waſhing the ſands of the rivers during the time of the inundations; and thus find gold duſt or ſmall grains of gold, with which they pay the tributes and purchaſe neceſſaries; and they make ſo little account of this metal, that tho' by a proper induſtry they might get a conſiderable quantity, 'tis only the pooreſt Indians that live near the ſettlements who practice it: as for the independant Indians they give themſelves no manner of concern about it.

THE juriſdiction of this government produces in particular vaſt quantities of tobacco; the cultivation of it indeed is the chief occupation of all the inhabitants. After preparing it the

the plant ſteeping it in hot mead or decoctions of fragrant herbs, in order to improve its flavour, and the better preſerve its ſtrength, it is dried and tied up in the form of a ſauciſſon, each of a hundred leaves. Thus it is exported into Peru, all over the province of Quito, and the kingdom of Chili, where no other is uſed for ſmoaking in cornets of paper, according to the cuſtom of all theſe countries. This great vogue it owes to the manner of preparing the leaves, which gives it a particular reliſh and a ſtrength to its ſmoke, that is very agreeable to thoſe who are fond of that amuſement. The country alſo produces a great deal of cotton; likewiſe large breeds of mules; and theſe three articles conſtitute the advantageous traffick which this government carries on with the juriſdiction of its province and the other parts of Peru.

In the countries both of the government of Jaen de Bracamoros, Quixos and Macas, are ſeen great numbers of thoſe wild animals, a deſcription of which has been given in treating of other countries of a like climate. But theſe, beſides tigers, are infeſted with baſtard lions, bears, dantas or gran beſtias, (an animal of the bigneſs of a bullock, and very ſwift, its colour generally white, and its ſkin very much valued for making buff-leather; in the middle of its head is a horn bending inward) thoſe three kinds of wild beaſts are unknown in the other countries; and that they are known here is owing to the proximity to the Cordilleras, where they breed, as in a cold climate adapted to their nature. Whence they ſometimes come down into the neighbouring countries; but without this circumſtance of lying ſo near the mountains, they would never be ſeen. Among the reptiles in the country is the maca, a ſnake which the Indians diſtinguiſh by the name of curimullinvo, having a ſhining ſpotted ſkin like that of the tiger; curi, in the Indian language, ſignifying gold; it is wholly covered with ſcales, and makes a frightful appearance; its head being out of all proportion to the body, and has two rows of teeth, and fangs like thoſe of a large dog. The wild Indians, as an oſtentatious mark of their intrepidity, and to give them a more terrible appearance, paint on their targets figures of this ſnake, the bite of which is incurable, and wherever it has ſeized, it never lets go its hold; which the Indians would alſo intimate by their device.

CHAP.

CHAP. V.

Account of the government of Maynas, *and of the river* Maranon, *or that of the* Amazons; *its discovery, course, and that of the rivers running into it.*

HAVING treated of the governments of Popayan and Jaen de Bracamoros, which are the northern limits of the province of Quito; as also of Atacames, which is its western boundary; I now proceed to the government of Maynas, the eastern limit of its jurisdiction. This is particularly entitled to a separate and succinct description, as the great river Maranon flows thro' it.

THE government of Maynas lies contiguous to those of Quixos and Jaen de Bracamoros towards the east. In its territories are the sources of those rivers, which, after rapidly traversing a vast extent, form by their conflux the famous river of the Amazons, known also by the name of Maranon. The shores of this and many rivers which pay it the tribute of their waters, environ and pervade the government of Maynas. Its limits both towards the north and south are little known, being extended far among the countries of infidel Indians; so that all the account which can be expected is from the missionaries employed in the conversion and spiritual government of the wild nations which inhabit it. Eastward it joins the possessions of the Portuguese, from which it is separated by the famous line of demarcation, the boundary between the Spanish and Portuguese possessions.

WERE I to confine myself in general to the extent of the government of Maynas, my description would be very imperfect, and want the noblest object of the reader's curiosity, a description of the river of the Amazons; a subject no less entertaining than unknown; and the more difficult of obtaining a thorough knowledge of, from its lying so very remote. This description I shall divide into the three following heads, which shall contain its source and the principal rivers whereof it is composed; its course through the vast tracts of land it waters; its first discoveries, and the subsequent voyages made on it; in order to give an adequate idea of this prince of rivers; and at the same time a more circumstantial account of the government of Maynas.

I. *Of*

I. *Of the ſource of the river* Maranon, *and of the many others which compoſe it.*

As among the great number of roots by which nouriſhment is conveyed to a ſtately tree, it is difficult from the great length of ſome, and the magnitude of others, to determine preciſely that from which the product is originated: ſo the ſame perplexity occurs in diſcovering the ſpring of the river Maranon; all the provinces of Peru as it were emulating each other in ſending it ſupplies for its increaſe, together with many torrents which precipitate themſelves from the Cordilleras, and, increaſed by the ſnow and ice, join to form a kind of ſea of that which at firſt hardly deſerves the name of a river.

The ſources by which this river is increaſed are ſo numerous, that very properly every one which iſſues out of the eaſtern Cordillera of the Andes, from the government of Popayan, where the river Caqueta or Yupura has its ſource, to the province of Guanuco, within thirty leagues of Lima, may be reckoned among the number. For all the ſtreams that run eaſtward from this chain of mountains, widening as they advance from the ſource by the conflux of others, form thoſe mighty rivers which afterwards unite in the Maranon; and tho' ſome traverſe a larger diſtance from their ſource, yet others, which riſe nearer by receiving in their ſhort courſe a greater number of brooks, and conſequently diſcharge a quantity of water, may have an equal claim to be called the principal ſource. But without confidently determining this intricate point, I ſhall firſt conſider the ſources of thoſe which run into it from the more remote diſtances, and next thoſe which precipitate themſelves down ſeveral caſcades formed by the craggs of the Andes; and after being augmented by others it receives, join the Maranon in a more copious ſtream; leaving it to the reader's judgment to determine which is the original ſource.

The moſt received opinion, concerning the remoteſt ſource of the river Maranon, is that which places it in the juriſdiction of Tarma, iſſuing from the lake of Lauricocha, near the city of Guanuco, in 11 deg. S. lat. whence it directs its courſe S. almoſt to 12 deg. thro' the country belonging to this juriſdiction; and forming inſenſibly a circuit, flows eaſtward thro' the country of Juaxa; where, after being precipitated from the eaſt ſide of the Cordillera of the Andes, proceeds northward; and leaving the juriſdictions of Mayabamba and Chacha-poyas, it continues its courſe to the city of Jaen, the lat. of which in the foregoing chapter has been placed in 5 deg. 21 min.

min. There by a ſecond circuit it runs towards the eaſt in a continual direction; till at length it falls into the ocean, where its mouth is of ſuch an enormous breadth, that it reaches from the equinoctial to beyond the firſt deg. of North lat. Its diſtance from Lauricocha lake to Jaen, its windings included, is above 200 leagues; and this city being 30 deg. to the weſt of its mouth, is 600 leagues from it, which with the ſeveral circuits and windings, may without exceſs be computed at 900 ſuch leagues: ſo that the whole courſe of this river from Lauricocha to its influx into the ocean, is at leaſt 1100 leagues.

Yet the branch which iſſues from Lauricocha, is not the only one flowing from theſe parts into the Maranon; nor is it the moſt ſouthern river which diſcharges its waters into that of the Amazones; for ſouth of that lake, not far from Aſangara is the ſource of the river which paſſes thro' Guamanga. Alſo in the juriſdictions of Vilcas and Andaguaylas are two other rivers, which after running for ſome time ſeparately, unite their ſtreams, and diſcharge themſelves into the river iſſuing from the lake of Lauricocha. Another river riſes in the province of Chimbi-Vilcas. And laſtly, one ſtill farther to the ſouth, is the river Apurimac, which, directing its courſe to the northward, paſſes thro' the country of Cuſco not far from Lima-Tambo; and after being joined by others, falls into the Maranon about 120 leagues eaſt of the junction of the latter with the river Santiago. But here it is of ſuch a width and depth, as to leave a doubt whether it inſinuates itſelf into the Maranon, or the Maranon pays tribute to the Ucayale, as it is called in that part; ſince at the conflux its impetuoſity forces the former to alter the ſtraight direction of its courſe, and form a curve. Some will have the Ucayale to be the true Maranon, and found their opinion on the remoteneſs of its ſource, and the quantity of its waters, which equals at leaſt, if it does not exceed that of Lauricocha.

In the ſpace intercepted between the junction of the Maranon and the river Santiago, are the Pongo de Manzeriche, and the mouth of the river Ucayale; and about mid-way betwixt them the river Guallaga, which has alſo its ſource in the Cordilleras, eaſt of the province of Guamanga, and falls into the Maranon. One of the rivers contributing to its increaſe has its riſe in the mountains of Moyo-bamba, and on its banks in the middle of its courſe towards the Guallaga, ſtands a ſmall village called Llamas; which according to the moſt credible accounts, was the place where Pedro de Orſica embarked

barked with his people on his expedition for the discovery of the Maranon, and the conquest of the adjacent countries.

EASTWARD of Ucayale, the Maranon receives the river Yabari, and afterwards four others, namely, the Yutay, the Yurua, the Tefe, and the Coari; all running from the south, where they have their source nearly in the same Cordilleras, as that of the Ucayale; but the countries through which the latter passes being inhabited by wild Indians, and consequently but little known to the Spaniards, its course till its junction with the Maranon cannot be ascertained: And it is only from vague accounts of some Indians, that in certain months of the year it is navigable. There is indeed a tradition of voyages made up it, and by which it was perceived to run very near the provinces of Peru.

BEYOND the Rio Coari eastward, the Cuchibara also called the Purus, joins the Maranon; and after that likewise the Madera, one of the largest rivers that unite their waters with it. In the year 1741, the Portuguese sailed up it, till they found themselves not far from Santa Cruz de la Sierra, betwixt 17 and 18 deg. of south lat. From this river downwards, the Maranon is known among the Portuguese by the name of the river of the Amazons: and upwards they give it the name of the river of Solimoes. Within a small distance follows the river of Topayos, likewise very considerable; and which has its source among the mines of Brazil. After these it is farther joined by the rivers Xingu, dos Bocas, Tocantines, and Muju, all issuing from the mines and mountains of Brazil; and on the eastern shore of the latter stands the city of Gran Para.

HAVING thus given an account of the most distant branches of the stately river of Maranon, and of the principal rivers which join it from the south, I shall now proceed to those, whose sources are nearer, issuing from the Cordilleras, and which immediately run in an eastern direction; and also those which join it from the north.

IN the mountains and Cordilleras of Loja and Zamora rise several little rivers, the conflux of which forms that of Santiago; and from these of Cuenca, others which unite in the Paute: but this, on its union with the former, loses its name, being absorbed by the Santiago, (so called from a city of that name) near which it joins the two others from Lauricocha and Apurimac. The river Morona issues from the lofty deserts of Sangay; and passing very near the city of Macas, runs in a S. E. course, till it loses itself in the principal channel of the Maranon;

non; which happens at the diſtance of about 20 leagues eaſt of the city of Borja, the capital of the government of Maynas

In the mountains of the juriſdiction of Riobamba, thoſe of Latacunga and the town of San Miguel de Ibarra, are the ſources of the rivers Paſtaza and Tigre; and from Cotopaxi and its Cordillera, iſſue the firſt branches of the rivers Coca and Napo. Theſe, tho' their ſources are at no remarkable diſtance run to a great extent before they join: and retaining the name of Napo, fall into the Maranon, after a courſe of above 200 leagues in a direct line from E. to W. with ſome, tho' inſenſible, inclinations to the S. This is the river which father Chriſtopher de Acuna, who will be mentioned hereafter, takes for the true Maranon, to which, as exceeding all the reſt in largeneſs, the others may be ſaid to add their waters.

From the mountains of the juriſdiction of San Miguel de Ibarra, and thoſe of Paſto, iſſues the river Putu-mayo, called alſo Ica, which, after running S. E. and E. about 300 leagues, joins the Maranon much more eaſtward than the river Napo: laſtly, in the juriſdiction of Popayan, the river Caqueta has its origin, which becomes divided into two branches; the weſtern, called Yupura, diſembogues itſelf into the Maranon like another Nile, through 7 or 8 mouths, and theſe at ſuch a diſtance, that the intermediate ſpace betwixt the firſt and the laſt, is not leſs than 100 leagues; and the other, which runs to the eaſtward, is not leſs famous, under the name of Negro. Mr. de la Condamine, in the narative of his voyage, confirms the opinion of its being one of the communications betwixt the Oronoque and Maranon; and corroborates his aſſertion, by the authority of a map compoſed by father John Ferreira, rector of the college of Jeſuits in the city of Gran Para; in which he obſerves, that in the year 1744, a flying camp of Portugueſe, poſted on the banks of the Negro, having embarked on that river, went up it, till they found themſelves near the Spaniſh miſſions on the river Oronoque, and meeting with the ſuperior of them, returned with him to the flying camp on the river Negro without going a ſtep by land; on which the author makes this remark, that the river Caqueta, (already mentioned, and ſo called from a ſmall place by which it paſſes, near its ſource) iſſuing from Mocoa, a country adjoining eaſtward to Almaguar in the juiſdiction of Popayan, after running eaſtward with a ſmall declenſion towards the ſouth, divides itſelf into two branches; one of which declining a little more ſouthward, forms the river Yupura, and afterwards ſeparating into ſeveral arms, runs as we have

have noted above, into the Maranon, through 7 or 8 mouths; and the other, after a course eastward, subdivides itself into two branches, one of which running north-east, joins the Oronoque; and the other in a south-east direction, is the river Negro. This subdivision in the branches of large rivers, and their opposite courses, tho' something extraordinary, is not destitute of probability; for a river flowing through a country every way level, may very naturally divide into two or more branches, in those parts where it meets with any inclination, tho' almost insensible, in the ground. If this declivity be not very great, and the river large and deep, it will easily become navigable every where, with a free passage from one arm into the other. And in this manner the marshes are formed in a level country, as we have particularly remarked in the coast of Tumbez: For the sea-water on the flood, running into these various mouths, which sometimes are 20 leagues distant or more, a vessel enters one arm by the favour of the tide; but coming to a place where the soil rises, the stream runs against her, being the water which the same flood had impelled thro' another channel. Thus the ebb causes the waters to separate at that point; and each portion of water takes the same course at going out as its entrance; yet the place where the separation is made, is not left dry. But even tho' the place where the waters of the river Caqueta are separated, should not be level, or nearly horizontal, but lie on a considerable declivity; yet if this fall be equal on both sides, one part of the waters may take their course to the Oronoque, and the other to the Negro, without any other consequence than that the great rapidity would render them impracticable to navigation; but this has nothing to do with the division of the waters, it being no more than forming an island either large or small.

From the province of Quito there are three ways to the river Maranon; but all extremely troublesome and fatiguing, from the nature of the climate, and being full of rocks, that a great part of the distance must be travelled on foot; for being so little frequented, no care has been taken to mend them, whence they are even more dangerous than the others in South America, of which we have given a description. The first of these roads, which is the nearest to the town of Quito, runs thro' Baza, and Archidona; where you embark on the river Napo.

The second is by Hambato, and Papate, at the foot of the mountain of Tunguragua; and from thence the road lies through the country of Canelos watered by the river

Bobonaza, which joining the Paſtaza, both diſcharge themſelves into the Maranon. The third lies thro' Cuenca, Loja, Valladolid and Jaen; from whence at the village of Chuchunga, which is as it were its port, this river becomes navigable; and here all embark who are either going to Maynas, or a longer voyage on this river. Of all the three this alone is practicable to beaſts; but the tedioufneſs of the diſtance from Quito renders it the leaſt frequented: For the miſſionaries who take theſe journeys oftener than any other ſet of men, in order to avoid its circuit, and the danger of the paſs of Manzeriche, prefer the difficulties and dangers to the others.

In the long courſe of this river from the village of Chuchunga, are ſome parts where the banks, contracting themſelves, form ſtreights, which from the rapidity of the waters are dangerous to paſs. In others by a ſudden turn of its direction, the waters are violently carried againſt the rocks; and in their repercuſſion, form dangerous whirlpools, the apparent ſmoothneſs of which is no leſs dangerous than the rapidity in the ſtreights. Among theſe one of the moſt dangerous is that betwixt Santiago de las Montanas and Borja, called Pongo de Manzeriche; the firſt word of which ſignifies a door or entrance, and by the Indians is applied to all narrow places; the ſecond is the name of the adjacent country.

The Spaniards who have paſſed this ſtreight make the breadth of it to be no more than twenty-five yards, and its length three leagues; and that without any other help than merely the current of the water, they were carried through it in a quarter of an hour. If this be true they muſt move at the rate of twelve leagues an hour; a moſt aſtoniſhing velocity! But Mr. de la Condamine, who examined it with particular attention, and to whoſe judgment the greateſt deference is due, is of opinion, that the breadth of the Pongo, even in its narroweſt part, is twenty five toiſes; and the length of the Pongo about two leagues, reckoning from the place where the ſhores begin to approach, as far as the city of Borga. And this diſtance he was carried in fifty ſeven minutes. He obſerves alſo, that the wind was contrary; and conſequently his balza did not go ſo faſt as the current would otherwiſe have carried her; ſo that, making allowance for this obſtruction, the current of the water may be ſtated at two leagues and an half, or at three leagues an hour.

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THE breadth and depth of this river is anſwerable to its vaſt length; and in the pongos or ſtraights, and other parts where its breadth is contracted, its depth is augmented proportionally. And hence many are deceived by the appearance of other rivers which join it, their breadth cauſing them to be taken for the real Maranon; but the mind is ſoon convinced of its error, by obſerving the little increaſe which the Maranon receives from the influx of them. This large river, by continuing its courſe without any viſible change in its breadth or rapidity, demonſtrates that the others, though before the object of aſtoniſhment, are not comparable with it. In other parts it diſplays its whole grandeur; dividing itſelf into ſeveral large branches, including a multitude of iſlands: Particularly in the intermediate ſpace between the mouth of the Napo and that of the Coari, which lies ſomething to the weſtward of the river Negro; where dividing itſelf into many branches, it forms an infinite number of iſlands. Betwixt the miſſion of Peba, which is at preſent the laſt of the Spaniſh, and that of San Pablo the firſt of the Portugueſe, Mr. de la Condamine, and Don Pedro Maldonado, having meaſured the breadth of ſome of theſe branches, found them nearly equal to nine hundred toiſes, that is, almoſt a ſea league. At the influx of the river of Chuchunga, the place where the Maranon becomes navigable, and where Mr. de la Condamine firſt embarked on it, he found its breadth to be one hundred and thirty five toiſes: And though this was near its beginning, the lead did not reach the bottom at twenty eight toiſes, notwithſtanding this founding was made at a great diſtance from the middle of the river.

THE iſlands formed by the Maranon eaſt of the Napo, terminate at the river Coari, where it again reunites its waters, and flows in one ſtream: But here its breadth is from one thouſand to twelve hundred toiſes, or near half a league: And here the ſame ingenious gentleman, after taking all poſſible precautions againſt the current, as he had before at the mouth of the river Chuchunga, ſounded; but found no bottom with one hundred and three fathom of line. The river Negro, at the diſtance of two leagues from its mouth, meaſured twelve hundred toiſes in breadth, which being nearly equal to that of the principal river, and ſome of thoſe we have named, Ucayale, the Madera and others, were found to be nearly of the ſame width.

About one hundred leagues below the mouth of the river Negro, the shores of the Maranon begin to approach each other near the efflux of the river Trumbetas, which part is called the Estrecho de Pauxis, where, as also at the posts of Paru, Curupa and Macapa, along its banks, and on these east of the rivers Negro aad Popayas, the Portuguese have forts. At the Estrecho de Pauxis, where the breadth of the river is near nine hundred toises, the effect of the tides may be perceived; tho' the distance from the sea-coasts be not less than two hundred leagues. This effect consists in the waters, which without any change in the direction of their course, decrease in their velocity, and gradually swell over their banks. The flux and reflux are constant every twelve hours, with the natural differences of time. But Mr. de la Condamine, with his usual accuracy, as may be seen in the narrative of his own voyage, observed that the flux and reflux perceived in the ocean, on any certain day and hour, is different from that which is felt at the same day and hour, in the intermediate space between the mouth of the river and Pauxis, being rather the effect of the tides of the preceding days; proportional to the distance of the place from the river's mouth; for as the water of one tide cannot flow two hundred leagues within the twelve hours, it follows, that having produced its effect to a determined distance, during the space of one day, and renewing it in the following, by the impulse of the succeeding tides, it moves through that long space with the usual alternation in the hours of flood and ebb; and in several parts these hours coincide with those of the flux and reflux of the ocean.

After flowing through such a vast extent of country, receiving the tribute of other rivers precipitated from the Cordilleras, or gliding in a more gentle course from remote provinces; after forming many circuits, cataracts and streights; dividing itself into various branches, forming a multitude of islands, of different magnitudes, the Maranon at length, from the mouth of the river Xingu, directs its course N. E. and enlarging its channel in a prodigious manner, as it were to facilitate its discharge into the ocean, forms in this astonishing space several very large and fertile islands; of which the chief is that of Joanes or Marayo, formed by a branch of the great river which separates from it twenty five leagues below the mouth of the Xingu; and directing its course to the southward, in a direction opposite to that of the principal stream, opens a communication betwixt the Mara-

Maranon, and the river of Dos Bocas, which has before received the waters of the Guanapu and Pacayas, and flows into it through a mouth of above two leagues in breadth. These are afterwards joined by the river Tocantines; the outlet of which is still broader than the former, and at a still greater distance: the river of Muju, on the eastern side of which stands the city of Gran Para, discharges its waters into the same stream; and it afterwards receives the river Capi, which washes the city of the same name.

THE river of Dos Bocas, after joining that of Tagipuru, runs eastward, forming an arch as far as the river of Tocantines, from which it continues N. E. like the Maranon, leaving in the middle the island of Joanes, which is nearly of a triangular figure, except the south side about one hundred and fifty leagues, in length, and forms the arch of a circle. This island divides the Maranon into the two mouths by which that river disembogues itself into the sea. The principal of these two mouths from Cape Maguari in this island, and the north cape, is about forty five leagues broad, and that of the channel of Tagipuru, as likewise of the rivers which have joined it, from the same Cape Maguari to Tigioca point, is twelve leagues.

THIS river, which exceeds any mentioned either in sacred or profane history, has three different names; and equally known by them all, each imploying its stupendous majesty, and importing its superiority to any other in Europe, Africa or Asia. And this seems to have been intended by the singularity of its having three different names; each of them enigmatically comprehending the names of the most famous in the other three parts of the world; the Danube in Europe, the Ganges in Asia, and the Nile in Africa.

THE three names which express the grandeur of this river, are the Maranon, the Amazons and Orellana. But it is not known with any certainty that either of these names was the original before its discovery by the Spaniards, or that given it by the Indians; tho' very probably it was not without a name, and possibly many; for as various nations inhabited its banks, it was natural for every one to give it a particular name, or at least to make use of that which had been previously given it. But either the first Spaniards who sailed on it neglected this enquiry, or the former names became confounded with others given it since that Epocha, so that now no vestiges of them remains.

THE general opinion prefers, in point of antiquity, that of Maranon; though ſome authors will have it poſterior to the two others; but we conceive they are miſtaken, both in their aſſertion, and in the cauſe of that name. They ſuppoſe that it was firſt given to this river by the Spaniards, who ſailed down it under the conduct of Pedro de Orſua in 1560 or 1559; whereas it had been known by that name many years before: For Pedro Martyr in his decadas, ſpeaking of the diſcovery of the coaſt of Braſil, in the year 1500 by Vincente Yanez Pinzon, relates, among other things, that they came to a river called Maranon. This book was printed in the year 1516, long before Gonzalo Pizarro undertook the diſcovery of the river, and conqueſts of the adjacent nations who inhabited its banks; or Franciſco de Orellana had ſailed on it. This demonſtrates the antiquity of the name of Maranon; but leaves us under the ſame difficulties with regard to its date and etymology. Some following Auguſtine de Zarate, attribute the origin of this name to a Spaniſh commander called Maranon, from whom, as being the firſt that diſplayed the Spaniſh enſign on this river, it was thence called after his own name. But this opinion is rather ſpecious than ſolid; being founded only on the ſimilarity of the names, a very exceptionable inference; eſpecially as no mention is made of any ſuch officer in any hiſtory publiſhed of theſe diſcoveries and conqueſts; whence it ſeems natural to conclude, that Zarate, on hearing that the river was called Maranon, inferred that the name was taken from ſome perſon of eminence who had made an expedition on it. For had he known any thing further, he doubtleſs would have enriched his hiſtory with ſome of the adventures of the diſcovery of it; or if he had not thought them ſufficiently intereſting, it is ſomething ſtrange that all the Spaniſh hiſtorians ſhould be in the ſame way of thinking, and concur to ſuppreſs the memory of a Spaniard whoſe name was thought worthy to be given to the moſt diſtinguiſhed river in the world. But what carries with it a much greater air of probability, is, that Vicente Yanez Pinzon, upon his arrival in the river, heard it called by the Indians who inhabited its iſlands and banks, Maranon, or ſome name of a ſimilar ſound; and thence Vicente Yanez concluded that its name was Maranon. Hence it is undeniable, that the preference in antiquity belong to the name of Maranon; and that this name was not given it by Orſua or his men, in alluſion to ſome feuds and confuſions among them, called in Spaniſh Maranas, or from being bewildered among the great numbers of iſlands, forming enmaranado, or an intricate laby-

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rinth of channels, according to the opinion of ſome hiſtorians.

THE ſecond name is that of the river of the Amazons, which was given it by Franciſco Orellana from the troops of women who made part of the body of Indians who oppoſed his paſſage: and who were not inferior either in courage, or the dexterous uſe of the bow, to the men; ſo that inſtead of landing where he intended, he was obliged to keep at a diſtance from the ſhore, and often in the middle of the channel, to be out of their reach. However, on his return to Spain, and laying before the miniſtry an account of his proceedings, and of the female warriors that oppoſed him, he was by patent created governor of theſe parts, in recompence, as it was expreſſed, for his having ſubdued the Amazons: And ever ſince the river has been called by that name.

SOME have indeed doubted, whether the Maranon and the Amazons were the ſame river; and many ſeem to be ſtrongly perſuaded, that they were really different. But this opinion proceeds only from the river's not having been completely reconnoitred till the cloſe of the laſt century.

THE particular of the Amazons is confirmed by all writers, who have given a ſuccinct account of this river, and Orellana's expedition: And though this proof is abundantly ſufficient, if not of its reallity, at leaſt of its probability, it is additionally confirmed by the tradition ſtill ſubſiſting among the natives, which we may believe on the authority of one of the moſt eminent geniuſes the province of Quito ever produced; I mean Don Pedro Maldonado, a native of the town of Riobamba, but lived at Quito, and whoſe performances are well known in the republic of letters. In 1743, this gentleman and M. de la Condamine agreed to return to Europe in company, by the way of the river Maranon; and among their other enquiries towards a complete knowledge of it, and the countries through which it flows, they did not forget the famous Amazons; and were informed by ſome old Indians, that it was an undoubted truth, that there had formerly been ſeveral communities of women, who formed a kind of republic, without admitting any men into the government: And that one of theſe female ſtates ſtill ſubſiſted; but had withdrawn from the banks of the river to a conſiderable diſtance up the country; adding, that they had often ſeen ſome of theſe female warriors in their country. M. de

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la Condamine, in the narrative of his voyage down this river, printed at Paris in the year 1745, and who had all the rational curiosity of his fellow-traveller Don Pedro Maldonado, relates some of the facts told him by the Indians, concerning the Amazons whom they had seen. But I shall only here insert what historians have said on this head, leaving every one to give what degree of credit he pleases to the adventure of Orellana, and the actual existence of the Amazons.

SOME who are firmly persuaded of the truth of the adventure of the Amazons with Orellana, and believe that their valour might be equal to that of the men in defence of their country and families, will not hear of a female republic separated from the intercourse of men. They say, and not without sufficient reason, that the women who so gallantly opposed Orellana were of the Yurimagua nation, at that time the most powerful tribe inhabiting the banks of the Maranon, and particularly celebrated for their courage. It is therefore, say they, very natural to think, that the women should, in some degree, inherit the general valour of their husbands, and join them in opposing an invader, from whom they imagined they had every thing to fear which might inflame their ardour; as likewise from an emulation of military glory, of which there are undeniable instances in the other parts of the Indies.

THE third and last name is that of the Orellana, deservedly given to it in honour of Francisco de Orellana, the first who sailed on it, surveyed a great part of it, and had several encounters with the Indians, who lived in its island or along its banks. Some have been at a great deal of pains to assign certain distances, through its long course, and to appropriate to each of these one of the three names. Thus they call Orellana all that space from the part where this officer sailed down in his armed ship till it joins the Maranon. The name of Amazons begins at the influx of another river, at the mouth of which Orellana met with a stout resistance from the women or Amazons; and this name reaches to the sea: And lastly, the name of Maranon comprehends the river from its source a considerable way beyond the Pongo downwards, all along the part of the descent of this river through Peru, alledging that this was the part through which Pedro de Orsua entered the river; supporting their opinion by a derivation, to which we cannot subscribe, namely, that he gave it this name on account of the disturbances which happened among his men. The truth is, that the

the Maranon, the Amazons, and the Orellana, are one individual river; and that what is meant by each of these names, is the vast common channel into which those many rivers fall, which contribute to its greatness. And that to the original name of Maranon the two others have been added for the causes already mentioned. The Portuguese have been the most strenuous supporters of this opinion, calling it by no other name than that of the Amazons, and transferring that of Maranon to one of the captainships of Brazil, lying betwixt Grand Para and Siara; and whose capital is the city of San Luis del Maranon.

II. *Account of the first discoveries and of the most famous expeditions on the Maranon, in order to obtain a more adequate idea of this famous river.*

After this account of the course and names of this river, I shall proceed to the discovery of it, and the most remarkable voyages made thereon. Vicente Yanez Pinzon, one of those who had accompanied the Admiral Don Christopher Columbus in his first voyage, was the person who discovered the mouth through which this river, as I have before taken notice, discharges itself into the ocean. This adventurer at his own expence, in 1499, fitted out four ships, discoveries being the reigning taste of that time. With this view he steered for the Canary Islands, and after passing by those of Cape de Verd, continued his course directly west, till on the 26th of January in the year 1500, he had sight of land; and called it Cabo de Consolacion, having just weathered a most violent storm. This promontory is now called Cabo de San Augustin. Here he landed, and after taking a view of the country, coasted along it northwards; sometimes he lost sight of it, when on a sudden he found himself in a fresh-water sea, out of which he supplied himself with what he wanted: And being determined to trace it to its source, he sailed upwards, and came to the mouth of the river Maranon, where the islands made a most charming appearance. Here he staid some time, carrying on a friendly traffic with the Indians, who were courteous and humane to these strangers. He continued advancing up the river, new countries still appearing as he sailed farther.

To this maritime discovery succeeded that by land in the year 1540, under the conduct of Gonzalo Pizarro, who was commissioned for this enterprize by his brother the Marquis Don Francisco Pizarro, on the report which Gonzalo

Gonzalo Diaz de Pineda had made of the country of La Canela, in the year 1536; at the ſame time making him governor of Quito. Gonzalo Pizarro arrived at the country of Los Canelos; and following the courſe of a river, either the Napo or Coca, it is not certain which, tho' more probably the firſt, met with inſurmountable difficulties and hardſhips; and ſeeing himſelf deſtitute of proviſions of every kind, and that his people, by feeding on the buds and rinds of trees, ſnakes and other creatures, waſted away one after another, he determined to build a veſſel in order to ſeek proviſions at the place where this river joined another; the Indians having informed him that there he would meet with a great plenty. The command of this veſſel he gave to Franciſco de Orellana, his lieutenant-general and confidant, recommending to him all the diligence and punctuality which their extremity required. After ſailing eighty leagues, Orellana arrived at the junction of the two rivers, but met with nothing of what he had been ſent for; being diſappointed in the proviſions he ſought, the trees not bearing any fruit, or the Indians having already gathered it. His return to Pizarro ſeemed very difficult, if not impracticable, on account of the rapidity of the current; beſides he could not think of returning, without bringing with him that relief ſo earneſtly expected; ſo that after long debating the matter with himſelf, he determined, without the privity of his companions, to ſail with the current to the ſea. But this could not long remain a ſecret, the hoiſting the ſails ſufficiently demonſtrating his intentions; and ſome vehemently oppoſing ſuch a deſertion, as they called it, were near coming to blows; but at length, Orellana, by plauſible reaſonings and magnificent promiſes, pacified them: And the oppoſition ceaſing, he continued his voyage, after ſetting aſhore Hernando Sanchez de Vargas to periſh with hunger, as being the ringleader of the malecontents; and perſiſting in his invectives againſt Orellana's project.

Pizarro, ſurprized at having no account of Orellana, marched by land to the place where he had ordered him, and near it met with Hernando Sanchez de Vargas, who acquainted him with the whole affair of the veſſel; at which Pizarro ſeeing himſelf without reſource, a conſiderable part of his men dead, the other ſo exhauſted with fatigue and hunger, that they dropt down as they marched; and thoſe in the beſt ſtate reduced to mere ſkeletons; he determined to return to Quito, which, after fatigues and hardſhips, even greater than the former, he at laſt reached with a handful of men in the year 1542, having only reconnoitred ſome rivers and the adjacent

adjacent country; a service very disproportionate to the loss of so many men, and other miseries suffered in this enterprize.

THIS was the first expedition of any consequence undertaken, to make discovery of the river Maranon: and if the success of Pizarro was not equal to his force and zeal, he was at least the instrument of its being entirely accomplished by another; and to his resolution in pressing forward through difficulties and dangers, and by his expedient of building the armed vessel, must, in some measure, be attributed the happy event of Orellana's voyage, who, with a constancy which shewed him worthy of his general's favour, reconnoitred the famous river of the Amazons through its whole extent, the adjacent country, its innumerable islands, and the multitude and difference of nations inhabiting its banks. But this remarkable expedition deserves a more particular detail.

ORELLANA began to sail down the river in the year 1541; and in his progress through the several nations along its banks, entered into a friendly conference with many, having prevailed upon them to acknowledge the sovereignity of the kings of Spain formally, and with the consent of the Caciques took possession of it. Others not so docile, endeavoured to oppose, with a large fleet of canoes, his farther navigation: and with these he had several sharp encounters. In one Indian nation bravery was so general, that the women fought with no less intrepidity than the men; and by their dexterity shewed, that they were trained up to the exercise of arms. This occasioned Orellana to call them Amazons; which name also passed to the river. The scene of this action, according to Orellana's own account, and the description of the place, is thought to have been at some distance below the junction of the Negro and Maranon. Thus he continued his voyage till the 26th of August in the same year; when having passed a prodigious number of islands, he saw himself in the ocean. He now proceeded to the isle of Cubagua, or, according to others, to that of La Trinidad, with a design of going to Spain, in order to solicit for a patent as governor of these countries. The distance he sailed on this river, according to his own computation, was eighteen hundred leagues.

THIS discovery was followed by another, but not so complete; it was undertaken in the year 1559 or 1560, under Pedro de Orsua, by commission from the Marquis de Canete, Viceroy at Peru, who at the same time conferred on him the title of governor of all his conquests. But the first news of Orsua, was, that he and the greatest part of his men were killed

killed in an ambuſcade by the Indians; a cataſtrophe entirely owing to his own ill conduct, which deſtroyed the great armament made for this enterprize, and created an averſion to deſigns liable to ſuch dangers.

In the year 1602 the reverend Raphael Ferrer, a jeſuit, having undertaken the miſſion of Coſanes, fell down the Maranon, and attentively ſurveyed the country, as far as the conflux of the two rivers where Orellana had left Hernando Sanchez de Vargas; and at his return to Quito, gave a very circumſtantial account of what he had ſeen, and the different nations he had diſcovered.

Another, but fortuitous, view of the river was taken in the year 1616. Twenty Spaniſh ſoldiers quartered in the city of Santiago de las Montanas, in the province of Yaguarſongo, purſued a company of Indians, who, after murthering ſome of their countrymen in the city, fled up the country, and embarked on the Maranon in their canoes. The ſoldiers in falling down the river, came to the nation of the Maynas, who received them in a friendly manner; and after ſome diſcourſe ſhewed a diſpoſition of ſubmitting to the king of Spain, and deſired miſſionaries might be ſent them. The ſoldiers on their return to Santiago, having made a report of the good inclination of the Maynas, and their deſire of being inſtructed in the Chriſtian religion, an account was ſent to the prince of Eſquilache, viceroy of Peru: and in 1618 Don Diego Baca de Vega was appointed governor of Maynas and Maranon; and may be ſaid to have been in reality the firſt, as neither Pizarro, Orellana nor Orſua, though inveſted with the title, were ever in poſſeſſion of it, having made no abſolute conqueſts; a neceſſary circumſtance towards realizing the title.

This expedition was performed in the year 1635 and in 1636, was ſucceeded by that of two franciſcans, with others of the ſame order, who ſet out from Quito with a determined zeal for propagating Chriſtianity among the nations on the Maranon. But many of them, unable to ſuport themſelves under the fatigues and hardſhips natural in ſuch a country, and diſcouraged with the little fruit their good deſires produced; after wandering among mountains, woods and deſerts, they returned to Quito, leaving only two, Dominico de Brieda and Andrew de Toledo, both lay-brothers. Theſe, either from a religious zeal, or naturally more brave and hardy, or of greater curioſity, ventured to penetrate further into thoſe dreary waſtés. They were indeed attended by ſix ſoldiers, remaining of a whole company, who had been ſent under Captain

Juan

Juan de Palacio, for the ſafeguard of the miſſionaries; but ſo many of them had returned with the religious to Quito, that theſe ſix and the captain were all that remained: and that officer a few days after loſt his life in an action againſt the Indians.

The ſix ſoldiers and two lay-brothers, however, continued with undaunted reſolution to travel thro' countries inhabited by ſavages, unknown, and full of precipices on all ſides; at length they committed themſelves to the ſtream in a kind of launch; and after many fatigues, hardſhips, and here and there a rencounter, reached the city of Para, at that time dependent on, or united with, the captainſhip of the Maranon, the governor of which reſided at San Louis, whither they went, and gave him an account of what they had obſerved in this navigation.

At that time the crown of Portugal was annexed to Spain; and the governor of the captainſhip of Maranon, for the ſovereign of both kingdoms was Jacome Reymundo de Norona, who zealous for the improvement of this diſcovery, as of the higheſt importance to his prince, fitted out a fleet of canoes under the command of Captain Texera, to go up the river, and ſurvey the country with greater form and accuracy. This flotilla departed from the neighbourhood of Para on the 28th of October 1637, with two religious on board; and after an inceſſant fatigue in making way againſt the ſtream, they arrived at Payamino on the 24th of June 1638. This place belongs to the juriſdiction of the government of Quixos; whence Texera, with the ſoldiers and the two religious, went to Quito, where he gave an account of the expedition to the audiencia, which tranſmitted the particulars to the Count de Chincon, Viceroy of Peru; and he agreeable, to the zeal he had always manifeſted for enlarging his majeſty's dominions, held a council about making more particular diſcoveries along the ſhores of that river.

Among other things, the Count de Chinchon gave orders, that the Portugueſe flotilla ſhould return to Para; and with it ſend ſome intelligent perſons, whoſe zeal might be depended on, with orders to take an accurate ſurvey of the river and its banks; and after diſcharging this commiſſion, to proceed to Spain, and make a report of their expedition to the council of the Indies, in order to be laid before his majeſty, that meaſures might in conſequence be taken for ſecuring the conqueſt of theſe nations. The perſons choſen were, the reverend fathers Chriſtopher de Acuna and Andrez de Artieda, jeſuits, and perſons every way equal to the ſervice. They left

Qutio

Quito on the 16th of February 1639; and having embarked with the armadilla, after a voyage of ten months, they arrived at Gran Para on the 12th of December, whence, according to their instructions, they passed over to Spain, and completely acquitted themselves of the trust reposed in them.

At the end of the last century, another expedition was undertaken for making discoveries on the Maranon; but at that time it was already so well known, that most of the adjacent lands had been improved by the missions which the jesuits had settled there: and the government of Maynas now includes many nations who, on the fervent preaching of the jesuits, having embraced Christianity, vowed obedience to the kings of Spain, and a happy alteration was seen in their morals and customs. The banks of this river, where before only wild Indians were seen living in the manner of beasts, were now turned into plantations and regular towns, the inhabitants of which shewed that they were not destitute of reason and humanity. These improvements were in a great measure owing to Father Samuel Fritz, who in 1686, preached the gospel among those people, and in a short time was the instrument of the conversion of many nations: But the continual fatigues and hardships both by land and water affected his health to such a degree, that he was obliged to set out for Para in January 1689, and arrived there on the 11th of September of the same year. Here he remained in a disagreeable inactivity till his health was restored, and some affairs settled which required instructions from the court of Lisbon.

On the 8th of July 1691, Father Fritz left Para in order to return to his mission, which then reached from the mouth of the river Napo to some distance beyond the Negro, and included the Omaguas, Yurimaguas, Aysuares, and many other adjacent nations, the most numerous of the whole river. On the 13th of October in the same year, he returned to the town of Nuestra Senora de las Nieves, the capital of the Yurimagua nation; and having visited the rest under his charge, to the number of forty-one, all large and populous, he went on other publick affairs, to the town of Laguna, the capital of all the missions on the Maranon, where the superior resided; and afterwards repaired to the city of Lima, in order to communicate to the Count de Moncloa, at that time viceroy, a full account of all those countries. This last journey he undertook by the way of the rivers Guallaga, Patanapura, Moyobamba, Chachapoyas, Caxamarca, Truxillo, and Lima.

The

THE affairs which brought this indefatigable missionary to Lima, where he was received with great honour, being finished, Father Fritz, in August, 1693, set out on his return to his missions, by the way of the city of Jean de Bracamoros, with a view of reconnoitring the course and situation of the rivers, which, from those southern parts, fall into the Maranon. By the help of these additional lights he drew a map of that river, which was engraved at Quito in the year 1707: and though it had not all the accuracy which could be desired, the father being without instruments for observing the latitudes and longitudes of the chief places, taking the course of the rivers, and determining the distances; yet it was received with very great applause, as being the only one in which were laid down the source and direction of all the rivers which join the Maranon, and the whole course of the latter till its junction with the ocean.

III. *Account of the conquest, missions, and nations established on the* Maranon.

THE discovery of this famous river, and the survey of the adjacent countries and nations, was followed by the conquest of the nations who inhabited its banks and islands. The miscarriage of the expedition under Gonzalo Pizarro has already been mentioned; Orellana was not more fortunate; when, pursuant to the grant of the government, he returned to settle in it; and Orsua's fate was still more deplorable, perishing himself, with the greatest part of his followers. But we are now to speak of the more successful enterprize of Don Diego Baca de Vega, whom we have already mentioned but in a cursory manner.

THE government of Maynas and the Maranon having been conferred on de Vega; confident of the good dispositions of the Maynas Indians, as it had been carefully cultivated, since its first commencement with the Santiago soldiers, he entered the country with a little colony, and founded the city of San Francisco de Borga in 1634, as the capital of the whole government; a title which it justly deserved, for being the first erected in that vast country; and also on account of the friendship which the Indians had shewn for the Spaniards ever since their first arrival. The new governor being a person of judgment and penetration, was not long in observing that these nations were rather to be governed by moderation and gentleness, with a proper firmness to create respect, than by rigour or austerity, and accordingly informed the Audiencia of Quito and the Jesuits of their disposition. Missiona-

ries were accordingly sent them in the persons of Gaspar de Cuxia, and Lucas de Cuebas, who came to Maynas in the year 1637; and their preaching had such remarkable success, that being not of themselves sufficient for instructing the multitudes of new converts, they sent to Quito for assistance: and thus the number of missions continually encreased, and whole nations resorted from their forests in search of the light of the gospel. By this means the king's dominions were extended, every proselyte with joy acknowledging himself in his new state a subject of the king of Spain, as he owed to his bounty the inestimable felicity of his conversion.

THUS the missions and the number of towns increased together, and the propagation of the Christian religion in those remote countries, and the aggrandisement of the Spanish monarchy, went hand in hand. But the most distinguished æra of these progressions was the year 1686, by the zeal and activity of Father Fritz, whom we have had occasion before to mention with honour; he went directly among the nation of the Omaguas, who, having by the Cocamas Indians been informed of the mildness and wisdom with which the missionaries taught them to live under just and wholesome laws, and a police hitherto unknown among them; together with the many happy effects it had produced in those nations which had conformed to their instructions; animated with these pleasing relations, sent, in the year 1681, a deputation to the town of Laguna, belonging to Cocamus, where Father Lorenzo Lucero, superior of the missions, resided, entreating him to send among them persons for their instruction: but the father at that time was not in a capacity of complying with their request, all the missionaries being employed elsewhere. He therefore dismissed them with commending their good intentions, promising them, that he would send to Quito for a proper person to instruct them in those salutary doctrines embraced by the other nations.

THE Omaguas, full of anxiety, did not give Father Lorenzo Lucero time to neglect his promise; for on hearing that new missionaries, and among them Father Samuel Fritz, were just arrived at Laguna from Quito, the same deputation returned to request the immediate performance of the promise; and having the greatest reason to expect it would be complied with, great part of the people came in canoes to the town of Laguna, as a testimony of respect to Father Fritz, in order to conduct him to their country, where they treated him with such veneration, that in his progress through the towns they would not suffer him to walk, but carried him on their shoulders;

ders; an honour which the Caciques reserved to themselves alone. The effects of his preaching were answerable to these marks of ardor and esteem, so that in a short time the whole nation was brought to a serious profession of Christianity, deploring their former ignorance and brutality, and forming themselves into a political community, under laws calculated for the happiness of society. And their example so influenced several other adjacent nations, that the Yurimaguas, Asuares, Banomas, and others, unanimously and voluntarily came and addressed themselves to Father Fritz, desiring him to instruct them how to live in the same order and regularity as the Omaguas. Thus whole nations, on embracing Christianity, submitted to the sovereignty of the Spanish monarchs: and all the countries, from the Napo to a considerable distance below the Negro, were reduced without the least force throughout the whole extent of the government of Maynas: and such, at the end of the last century, was the number of the nations thus converted, that Father Fritz, though without indulging himself in any respite, was not able to visit every single town and village within the compass of a year, exclusively of the nations under the care of other missionaries, as those of the Maynas, Xebaros, Cocamas, Panos, Chamicuros, Aguanos, Muniches, Otanabes, Roamaynas, Gaes, and many more. The other missions were in the same flourishing condition.

The city of San Francisco de Borja, which we have already mentioned as the capital of Maynas, stands in 4 deg. 28 min. S. lat. and 1 deg. 54 min. E. of the meridian of Quito: but of its largeness and appearance we can only add, that it resembles the cities of the government of Jean; and inhabitants, though consisting of Mestizos and Indians, and the place is the residence of the governor of Maynas and Maranon; yet they are not equal in number to those of Jean de Bracamaros. The principal town of the missions, and in which the superior is obliged to reside, is Santiago de la Laguna, lying on the eastern bank of the river Guallaga. The places which at present compose those missions in the government of Maynas, and diocese of Quito, are the following:

On the River Napo.

I. San Bartholome de Necoya.
II. San Pedra de Aguarico.
III. San Estaniflao de Aguarico.
IV. San Luis Gonzaga.

V. Santa Cruz.
VI. El Nombre de Jesus.
VII. San Pablo de Guajoya.
VIII. El Nombre de Maria.
IX. San Xavier de Icaguates.
X. San Juan Bautista de los Encabellados.
XI. La Reyna de los Angeles.
XII. San Xavier de Urarines.

On the River Maranon, *or* Amazons.

I. La Ciudad de San Francisco de Borja.
II.
III. San Ignacio de Maynas.
IV. San Andres del Alto.
V. Santo Thomas Apostol de Andoas.
VI. Simigaes.
VII. San Joseph de Pinches.
VIII. La Concepcion de Cagua-panes.
IX. La Presentacion de Chayabitas.
X. La Incarnacion de Paranapuras.
XI. La Concepcion de Xebaros.
XII. San Antonio de la Laguna.
XIII. San Xavier de Chamicuro.
XIV. San Antonio Abad de Aguanos.
XV. Nuestra Senora de las Neves de Yurimaguas.
XVI. San Antonio de Padua.
XVII. San Joaquin de la Grande Omagua.
XVIII. San Pablo Apostol de Napeanos.
XIX. San Phelipe de Amaonas.
XX. San Simon de Nahuapo.
XXI. San Francisco Regis de Yameos.
XXII. San Ignacio de Beves 'y Caumares.
XXIII. Nuestra Senora de las Nieves.
XXIV. San Francisco Regis del Baradero.

Besides these towns, which have existed for some time, there are several others yet in their infancy; and the Indians by whom they are inhabited, of different nations from those above-mentioned: Likewise many others, both large and populous; some on the banks of the rivers which fall into the Maranon, and others up the country. Many of the inhabitants of both nations hold a friendly intercourse with the Spanish missionaries, and with the inhabitants of the Christian villages, with whom they traffick, as well as with the Spaniards and Mestizos settled at Borja and Laguna. All these nations of Indians have

have ſome reſemblance in their cuſtoms; but in their languages very different, every one ſeeming to have a particular dialect, tho' there are ſome of a nearer affinity than others to the general language of Peru. The moſt difficult to be pronounced is that of the Yameos Indians: while, on the other hand, none is ſo eaſy and agreeable to the ear as that of the Omaguas: and the genius and tempers of theſe two nations were found to be as different as their language. Thus the Omaguas, even before their ſubmiſſion, gave many ſurpriſing proofs of the clearneſs of their intellects; but were ſurpaſſed by the Yurimaguas, both in wit and penetration. The former lived in villages under ſome kind of government, peacefully obeying their curacas or chiefs. They were leſs barbarous; their manners leſs turbulent and corrupt than thoſe of moſt other Indians. The Yurimaguas formed a kind of republic, and had ſome laws which were ſtrictly obſerved, and the breach of them puniſhed in an exemplary manner. But in police the preference doubtleſs belongs to the Omaguas: for beſides living in ſociety, there was an appearance of decency among them, their nudities being covered, which by others were totally neglected. This diſpoſition in thoſe two nations for making approaches, however ſmall, to civil cuſtoms and a rational life, not a little contributed to the ſpeedy progreſs of their converſion. They were more eaſily convinced, from the light of nature, of the truth and propriety of the doctrines preached by the miſſionaries; and were convinced that happineſs, both public and private, was intimately connected with an uniform obſervance of ſuch precepts, inſtead of the innumerable evils reſulting from the manner of living hitherto preached by them.

Among the variety of ſingular cuſtoms prevailing in theſe nations, one cannot help being ſurprized at the odd taſte of Omaguas, a people otherwiſe ſo ſenſible, who, to render their children what they call beautiful, flat the fore and hind parts of the head, which gives them a monſtrous appearance; for the forehead grows upwards in proportion as it is flatted, ſo that the diſtance from the riſing of the noſe, to the beginning of the hair, exceeds that from the lower part of the noſe to the bottom of the chin: And the ſame is obſervable in the back part of the head. The ſides alſo are very narrow, from a natural conſequence of the preſſure; as thus the parts preſſed, inſtead of ſpreading, conformable to the common courſe of nature, grow upwards. This practice is of great antiquity among them, and kept up ſo ſtrictly, that they make a jeſt of other nations, calling them calabaſh heads.

In order to give children this beautiful flatness, the upper part of the head is put, soon after their birth, betwixt two pieces of board, and repeated from time to time, till they have brought the head to the fashionable form.

Another nation of these Indians affecting a striking appearance, make several holes in both their upper and under lips, both sides of the cartilage of their nose, their chins and jaws: And in these they stick fine feathers, or little arrows eight or nine inches long. The reader's own imagination will sufficiently paint the strange appearance they must make with these decorations. Others place a great beauty in long ears, and accordingly extend them by art to such a degree, that in some the inferior lobe touches the shoulder: and they value themselves on the nick-name of Long-ears, which has been given them in ridicule. The method they make use of to extend their ears is this; they bore a hole in the lobe, and fasten it to a small weight, which they from time to time increase, till the ear is stretched to nearly the length above-mentioned; and as the lobe increases in length, so likewise does it in magnitude. Others paint some parts of their bodies; some the whole. All have something peculiar in their modes and customs, but generally of such a nature, that Europeans wonder how they could ever enter the thoughts of rational creatures.

After describing this great river, and giving an account of the villages and nations near its banks, I shall proceed to some other particularities relating to it, as the extraordinary species of fish found in its waters, and likewise the birds and other animals seen in the adjacent countries through which it flows. Among the various kinds of fish are two of an amphibious nature, the caymans or alligators, and the tortoise, which swarm on the shores and islands. Its tortoises for taste are preferred to those of the sea. Another remarkable fish here is the pexe buey or sea cow, so called from its resembling the land quadruped of that name. This is one of the largest species known in the river, being generally three or four yards in length, and of a proportional thickness; the flesh is very palatable, and, according to some, has pretty much the taste of beef. It feeds on the herbage growing along the shore, but the structure of its body does not admit of its coming out of the water. The female has dugs for suckling its young; and whatever some may have said of any farther resemblance to the terrestrial species of that name, it has neither horns nor legs. It has indeed two fins, which serve equally for swimming, and supporting itself on the banks whilst feeding. The general method

thod of the Indians for fishing, is with inebriating herbs, like that I have mentioned on the river Guayaquil. On some occasions they make use of arrows dipped in poison of such an activity, that the slightest wound immediately *kills the fish*. This is also their method of hunting, and in both they are so very expert and active, that they are very seldom known to miss their aim. This powerful venom is principally the juice of a bejuco near six fingers broad, and flat on both sides, of a brownish colour, and growing in very damp marshy places. In order to prepare the poison, they cut it into pieces, which they bruise and boil in water. On taking it off the fire, they add to it a particular ingredient which causes a coagulation. With this they rub the point of their arrows; and when dry, for want of fresh unction, they moisten it with their spittle: The quality of it is so frigorific, that it immediately repels all the blood to the heart, where the vessels burst, being unable to contain such a torrent as suddenly rushes into them. But *what is most surprising here is*, that the creature thus killed, and its coagulated blood, are eaten without any inconveniency. The most powerful antidote to this venom is immediately to eat sugar; but this specific, though often salutary, is not infallible, as several melancholy instances have demonstrated.

The borders and parts adjacent to this famous river, as well as those contiguous to the others which discharge their waters into it, abound with large and lofty trees, the wood of which is of different colours; some white, others of a dark brown; some red, or veined with variety of colours. Some of another species distil balsams of an exquisite fragrancy, or rare and medicinal gums; others are noted for the delicious and salubrious fruits. Among these the wild cacao, by the mere goodness of the soil, without any culture, grows in the greatest plenty, and yields fruit of a goodness equal to that in the jurisdiction of Jaen and Quixos. Here are also gathered great quantities of sarsaparilla, vanillas, and a bark called declavo or cloves; for though it resembles cinnamon in appearance, except its colour, which is something darker, its taste and smell are very different, being nearly the same with that of the East India clove.

As to quadrupeds, birds, reptiles and insects, they are nearly the same, and in as great numbers as those already mentioned in the description of other hot countries. But here is one reptile of a very extraordinary nature, and known only here and in the provinces of New Spain; I shall therefore, as a conclusion of my account of the Maranon, add a description of it.

In the countries watered by that vaſt river, is bred a ſerpent of a frightful magnitude, and moſt deleterious nature. Some, in order to give an idea of its largeneſs, affirm that it will ſwallow any beaſt whole; and that this has been the miſerable end of many a man. But what ſeems ſtill a greater wonder, is the attractive quality attributed to its breath, which irreſiſtibly draws any creature to it, which happens to be within the ſphere of its attraction: But this, I muſt own, ſeems to ſurpaſs all belief. The Indians call it jacumama, i. e. mother of water; for as it delights in lakes and marſhy places, it may in ſome ſenſe be conſidered as amphibious. I have taken a great deal of pains to enquire into this particular; and all I can ſay is, that the reptile's magnitude is really ſurprizing. Some perſons whoſe veracity is not to be queſtioned, and who have ſeen it in the provinces of New Spain, agreed in their account of the enormous corpulency of this ſerpent; but with regard to its attractive quality could ſay nothing deciſive.

Suspending therefore for the preſent all poſitive judgment, without giving entire credit to all the qualities vulgarly attributed to this animal, eſpecially the more ſuſpected, as not improbably flowing from aſtoniſhment, which frequently adopts abſurdities, it being impoſſible in ſo great a perturbation to conſult reaſon, let me be indulged with ſome variation of the accidents to inveſtigate the cauſe, in order to come at the knowledge of its properties, which it is difficult to aſcertain, unleſs ſupported by undoubted experiments. Not that I would offer my opinion as a deciſive rule; I deſire that the judgment of others may declare for that which appears moſt conformable to truth. I would alſo further acquaint the reader, that I only ſpeak from the teſtimony of thoſe who have ſeen this famous ſerpent, having never myſelf had an opportunity of examining it with my own eyes.

First, it is ſaid, that this ſerpent, in the length and thickneſs of its body, very much reſembles the trunk of an old tree, whoſe roots have for ſome time ceaſed to convey the uſual nouriſhment, and that on every part of it grows a kind of moſs like that ſeen on the bark of wild trees. This is accounted for by the duſt and mud adhering to it; and alternately moiſtened and dried by the water and ſun. This forms a ſlight cruſt over the thick ſcales; and this cruſt is increaſed by the ſluggiſhneſs and ſlow motion of the ſerpent; which, unleſs when forced by hunger to go in queſt of food, continues motionleſs in one place for ſeveral days together; and even then its motion is almoſt unperceptible, leaving a track like that of a log of timber drawn along the ground.

Its

Its breath is aſſerted to be of ſuch a nature as to cauſe a kind of drunkenneſs or ſtupidity in man or beaſt, which has the misfortune of being within the bounds of its activity; and thus cauſes the animal involuntarily to move till it unhappily come within the reach of the ſerpent, which immediately ſwallows it. This is the vulgar report; and it is added, that the only method of averting the danger, is on firſt feeling the breath to cut it, that is, to ſtop it by the interpoſition of another body, which haſtily intervening, cuts the current of the blaſt and diſſipates it. Thus the perſon who was moving on to certain deſtruction, is enabled to take another path, and avoid the fatal cataſtrophe. Theſe particulars, if thoroughly conſidered, ſeem mere fables: As indeed the learned M. de la Condamine intimates; and the very circumſtances with which they are decorated, increaſe their improbability.

But, in my opinion, with a little alteration in the circumſtances, what ſeems to ſhock credibility, will appear natural and founded on truth.

That its breath is of ſuch a quality as to produce a kind of inebriation in theſe whom it reaches, is far from being impoſſible; the urine of the fox is well known to have the ſame effect; and the breath of the whale is frequently attended with ſuch an inſupportable fœtor as to bring on a diſorder in the brain. I therefore ſee no manner of difficulty in admitting that the breath of this ſerpent may be of that intoxicating quality attributed to it; and may be conſidered as an expedient for catching its prey, as otherwiſe the creature, from the ſlow movement of its body, would be utterly incapable of providing itſelf with food; whereas by this deleterious ſmell, the animal may be thrown into ſuch horror and perplexity, as to be unable to move, but remain fixed like a ſtatue, or faint away, whilſt the ſnake gradually approaches and ſeizes it. As to what is related of cutting the breath, and that the danger is limited to the direction in which the ſerpent breathes; theſe are tales, which to believe would imply an utter ignorance of the origin and progreſs of odours. In ſhort, the vulgar errors propagated by theſe rude nations, have gained credit among the Spaniards, merely becauſe none has had the curioſity or reſolution to put them to the teſt of experience.

CHAP.

CHAP. VI.

Of the genius, customs, and manners of the Indians, *who are natives of the province of* Quito.

THE subject of this chapter, and its circumstances, are of such a nature, that, if what ancient histories deliver concerning them should recur to the memory, they will appear totally different. Indeed the disproportion between what I read, and what I am going to relate, is so remarkable, that, on a retrospect towards past times, I am utterly at a loss to account for the universal change of things; especially when surrounded by such visible monuments of the industry, polity, and laws of the Indians of Peru, that it would be madness to question the truth of the accounts that have been given of them; for the ruins of these ancient works are still amazing. On the other hand, I can hardly credit mine own eyes, when I behold that nation involved as it were in cimmerian darkness, rude, indocile, and living in a barbarism little better than those who have their dwelling among the wastes, precipices, and forests. But what is still more difficult to conceive is, how these people, whose former wisdom is conspicuous in the equity of their laws, and the establishment of a government so singular as that under which they live, should at present shew no traces of that genius and capacity which formed so excellent an œconomy, and so beautiful a system of social duties: Though undoubtedly they are the same people, and still retain some of their ancient customs and manners. Leaving therefore this intricate subject to be investigated by farther enquiries, I shall proceed to give an account of the present Indians, their genius, customs, and qualities, according to the best information I could obtain from a commerce with those people of all ranks, during ten years. Some particulars in this narrative will demonstrate, that they still retain a few sparks of the industry and capacity of the ancient Indians of Peru; whilst others will shew that they are utterly destitute of the knowledge of certain sciences which were common among their ancestors; and that they are equally degenerated from their wisdom in making laws, and their regular observance of them.

IT is no easy task to exhibit a true picture of the customs and inclinations of the Indians, and precisely display their genius and real turn of mind; for if considered as part of the human species, the narrow limits of their understanding seem

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to clash with the dignity of the soul: and such is their stupidity, that in certain particulars, one can scarce forbear entertaining an idea that they are really beasts, and even destitute of that instinct we observe in the brute creation. While in other respects, a more comprehensive judgment, better digested schemes, and conducted with greater subtilty, are not to be found than among these people. This disparity may mislead the most discerning person; for should he form his judgment from their first actions, he must necessarily conclude them to be a people of the greatest penetration and vivacity. But when he reflects on their rudeness, the absurdity of their opinions, and their beastly manner of living, his ideas must take a different turn, and represent them in a degree little above brutes.

Such is the disposition of the Indians, that if their indifference to temporal things did not extend itself also to the eternal, they might be said to equal the happiness of the golden age, of which the ancient poets have given such inchanting descriptions. They possess a tranquillity immutable, either by fortunate or unfortunate events. In their mean apparel they are as contented as the monarch or prince cloathed with the most splendid inventions of luxury: and so far are they from entertaining a desire for better or more comfortable cloathing, that they give themselves no manner of concern about lengthening their own, though half their bodies continue naked. They shew the like disregard for riches; and even that authority or grandeur within their reach is so little the object of their ambition, that, to all appearance, it is the same thing to an Indian whether he be created an alcalde, or forced to perform the office of a common executioner.

And thus reciprocal esteem among them is neither heightened nor lessened by such circumstances. The same moderation appears in their food, never desiring more than what suffices; and they enjoy their coarse simple diet with the same complacency as others do their well furnished tables. I do not indeed question but if they had the choice of either, they would prefer the latter; but at the same time they shew so little concern for the enjoyments of life, as nearly approaches to a total contempt of them: in short, the most simple, mean, and easiest preparation seems best adapted to their humour.

Nothing can move them or alter their minds; even interest here loses all its power; it being common for them to decline doing some little act of service, though offered a very considerable reward. Fear cannot stimulate, respect induce, or punishment compel them. They are indeed of a very singular

ſingular turn of mind; proof againſt every attempt to rouze them from their natural indolence, in which they ſeem to look down with contempt on the wiſeſt of mortals: ſo firmly bigotted to their own groſs ignorance, that the wiſeſt meaſures to improve their underſtanding, have been rendered abortive; and ſo fond of their ſimplicity and indolence, that all the efforts and attention of the moſt vigilant have miſcarried. But in order to give a clearer idea of their tempers, we ſhall relate ſome particular inſtances of their genius and cuſtoms; as otherwiſe it will be impoſſible to draw their true character.

THE Indians are in general remarkably ſlow, but very perſevering: and this has given riſe to a proverb, when any thing of little value in itſelf requires a great deal of time and patience, "that it is only fit to be done by an Indian." In weaving carpets, curtains, quilts and other ſtuffs, being unacquainted with any better method, at paſſing the woof they have the patience every time to count the threads one by one; ſo that two or three years is requiſite to finiſh a ſingle piece. This ſlowneſs undoubtedly is not entirely to be attributed to the genius of the nation; it flows in ſome meaſure from the want of a method better adapted to diſpatch. And perhaps with proper inſtructions they would make conſiderable progreſſes, as they readily comprehend whatever is ſhewn them relating to mechanicks: of this the antiquities ſtill remaining in the province of Quito, and over all Peru, are undeniable teſtimonies. But of theſe more will be ſaid in the ſequel. This indifference and dilatorineſs of the Indians, is blended with ſloth, its natural companion; and their ſloth is of ſuch a nature, that neither their own intereſt, nor their duty to their maſters, can prevail on them to undertake any work. Whatever therefore is of abſolute neceſſity to be done, the care of it is left to the Indian women. Theſe ſpin, and make the half ſhirts and drawers which conſtitute the whole apparel of their huſbands. They cook the matalotage, or food univerſally uſed among them; they grind the barley for machca, roaſt the maize for the camcha, and brew the chicha; in the mean time, unleſs the maſter has been fortunate enough to get the better of the huſband's ſloth, and taken him to work, he ſits ſquatting on his hams (being the uſual poſture of all the Indians) and looks on his wife while ſhe is doing the neceſſary work of the family; but, unleſs to drink, he never moves from the fire-ſide, till obliged to come to table, or wait on his acquaintance. The only domeſtic ſervice they do is to plough

plough their chacarita, or little ſpot of land, in order to its being ſown; but the latter, together with the reſt of the culture, makes another part, which is alſo done by the wife and children. When they are once ſettled in the above poſture, no reward can make them ſtir; ſo that if a traveller has loſt his way, and happens to come to any of theſe cottages, they hide themſelves, and charge their wives to ſay that they are not at home; when the whole labour conſiſts in accompanying the traveller a quarter of a league, or perhaps leſs, to put him in his way: and for this ſmall ſervice, he would get a rial or half a rial at leaſt. Should the paſſenger alight and enter the cottage, the Indian would ſtill be ſafe; for having no light but what comes through a hole in the door, he could not be diſcovered: and even if he ſhould ſee the Indian, neither entreaties nor offers would prevail on the ſlothful wretch to ſtir a ſtep with him. And it is the ſame if they are to be employed in any other buſineſs.

That the Indians may perform the works appointed by their maſters, and for which they are properly paid, it will be of little ſignification to ſhew them their taſk; the maſter muſt have his eye continually upon them; for whenever he turns his back, the Indian immediately leaves off working. The only thing in which they ſhew a lively ſenſation and alacrity, is for parties of pleaſure, rejoicings, entertainments, and eſpecially dancings. But in all theſe the liquor muſt circulate briſkly, which ſeems to be their ſupreme enjoyment. With this they begin the day, and continue drinking till they are entirely deprived both of ſenſe and motion.

Such is their propenſity to intemperance, that they are not reſtrained by any dignity of character; the cacique and the alcalde never fail to be of the company, at all entertainments; and drink like the reſt, till the chicha has quite overcome them. It is worthy notice that the Indian women, whether maids or married, and alſo Indian young men before they are of an age to contract matrimony, entirely abſtain from this beaſtly vice; it being a maxim among them, that drunkenneſs is only the privilege of maſters of families, as being perſons who, when they are unable to take care of themſelves, have others to take care of them.

Their manner of celebrating any ſolemnity is too ſingular to be omitted: the perſon who gives the entertainment invites all his acquaintance, and provides chicha ſufficient for the number of his gueſts, at the rate of a jugg for each; and this jugg holds about two gallons. In the court of the houſe, if it be a large town, or before the cottage, if in a village,

village, a table is placed and covered with a Tucuyo carpet, only used on such festivities. The eatables consist wholly of camcha, and some wild herbs boiled. When the guests meet, one or two leaves of these herbs, with ten or twelve grains of camcha, finish the repast. Immediately the women present themselves with calabashes or round totumos called pilches, full of chicha for their husbands; and repeat it till their spirits are raised: then one of them plays on a pipe and tabor, whilst others dance, as they call it, though it is no more than moving confusedly from one side to the other without measure or order. Some of the best voices among the Indian women sing songs in their own language. Thus their mirth continues while kept up by the liquor, which, as I have said before, is the soul of all their meetings. Another odd circumstance is, that those who do not dance, squat themselves down in their usual posture, till it comes to their turn. The table serves only for state, there being nothing on it to eat, nor do the guests sit down at it. When tired with intemperance they all lie down together, without minding whether near the wife of another or their own sister, daughter, or a more distant relation; so shocking are the excesses to which they give themselves upon these solemnities, which are sometimes continued three or four days, till the priests find themselves obliged to go in person, throw away all the chicha, and disperse the Indians, lest they should buy more.

The day after the festival is called concho, which signifies the day for drinking off the remains of the preceding: with these they begin, and if not sufficient to complete their revel, every one of the guests runs home to his house and fetches a jugg, or they club for more. This occasions a new concho for the next day: and thus, if left to themselves, from day to day, till either no more chicha was to be had, or they without money or credit.

Their burials are likewise solemnized with excessive drinking. The house of mourning is filled with juggs of chicha; and not for the solice of the mourners and their visitors alone; the latter go out into the streets, and invite all of their nation who happen to pass by, whether married or single of both sexes, to come in and drink to the honour of the deceased; and to this invitation they will take no denial. This ceremony lasts four or five days, and sometimes more, strong liquor being their supreme wish, and the great object of all their labours.

If the Indians are thus excessively addicted to intemperance, gaming is a fault with which they cannot be charged; though these two vices are generally seen together. They seem to have no manner of inclination for play; nor have they above one kind, and that of great antiquity among them: this they call pasa, i. e. a hundred, as he wins who first gets that number. They play at it with two instruments; one a spread eagle of wood with ten holes on each side, being tens; and are marked with peggs to denote every man's gettings: the other is a bone in the manner of a die, cut with seven faces; one of which has a particular mark, and is called guayro. The other five tell according to the number of them; and the last is a blank. The way of playing is only to toss up the bone; and the marks on the upper surface are so many got. But the guayro goes for ten: and the like number is lost if the blank side appears. Though this game is peculiar to the Indians, it is very little used except at their revels.

The common food of the Indians, as we have before observed, is maize made into camcha or mote, and macha: the manner of preparing the latter is to roast the grain, and then reduce it to a flour: and this, without any other apparatus or ingredient, they eat by spoonfuls; two or three of which, and a draught of chicha, or when that is wanting of water, completes their repast. When they set out on a journey, their whole viaticum is a little bag which they call gucri-ta, full of this meal, and a spoon. And this suffices for a journey of fifty or a hundred leagues. When hungry or fatigued, they stop at some place where chicha is to be had, or at some water; where after taking a spoonful of their meal into their mouth, they keep it some time in order the more easily to swallow it; and with two or three such spoonfuls well diluted with chicha, or, if that is not to be had, with water, they set forward as chearfully as if risen from a feast.

Their habitations, as may be imagined, are very small; consisting only of a little cottage, in the middle of which is their fire-place. Here both they and the animals they breed live promiscuously. They have a particular fondness for dogs; and never are without three or four little currs in their hutt: a hog or two, a little poultry and cuyes; with some earthen ware, as pots, and juggs, and the cotton which their wives spin, constitute the whole inventory of an Indian's effects. Their beds consist of two or three sheep-skins, without pillows or any thing else: and on these they sleep in their usual

usual squatting posture: and as they never undress, appear always in the same garb.

THOUGH the Indian women breed fowl and other domestic animals in their cottages, they never eat them: and even conceive such a fondness for them, that they will not even sell them, much less kill them with their own hands: so that if a stranger, who is obliged to pass the night in one of their cottages, offers ever so much money for a fowl, they refuse to part with it, and he finds himself under a necessity of killing the fowl himself. At this his landlady shreaks, dissolves in tears, and wrings her hands, as if it had been an only son; till seeing the mischief past remedy, she wipes her eyes, and quietly takes what the traveller offers her.

MANY of them in their journeys take their whole family with them; the women carrying on their shoulders such children as are unable to walk. The cottages in the mean time are shut up; and there being no furniture to lose, a string or a thong of leather serves for a lock: their animals, if the journey is to last for several days, they carry to the cottage of some neighbour or acquaintance: if otherwise, their currs are left guardians of the whole; and these discharge their trust with such care, that they will fly at any one, except their masters, who offers to come near the cottage: and here it is worth observing, that dogs bred by Spaniards and Mestizos, have such a hatred to the Indians, that if one of them approaches a house, where he is not very well known, they fall upon him, and if not called off, tear him to pieces; for they know them at a distance by their scent: and on the other hand, the dogs of the Indian breed are animated with the same rage against the Spaniards and Mestizos; and, like the former, smell them at a like distance.

THE Indians, except those brought up in cities or towns, speak no other language than their own, called Quichua, which was established by the Yncas, with an order for its being propagated all over their vast empire, that all their subjects might be able to understand each other; and therefore was distinguished by the name of the Yncas language. Some understand the Spanish and speak it; yet very few have the good nature to answer in it, tho' they know at the same time, that the person with whom they are conversing cannot understand them in Quichua. Nor is it of any consequence to desire and press them to explain themselves in Spanish; for this they absolutely refuse: whereas it is quite otherwise with the Indians born and bred in the towns, for if spoken to in their own language, they are sure to answer us in the Spanish.

SUPER-

SUPERSTITION is general among them; and they all more or less pretend to fortune-telling. This weakness is also of a long standing among them: and which neither the remonstrances of the priests, nor their own experience, can radically cure. Thus they employ artifices, supposed charms, and strange compositions, in order to attain some visionary happiness for the success of a favourite scheme, or other weighty concern. In these prestiges their minds are so infatuated, that, to bring them to a sight of the folly and wickedness of such practices, and solidly to embrace the Christian religion, is a work of the greatest difficulty. And even when they have embraced it, are so superficial and fickle, that if they attend divine service on sundays and holydays, it is merely from fear of punishment: for otherwise there would be scarce one Indian, especially of the meaner sort, among the whole congregation. Pertinent to this I shall relate, among many other instances the following story told me by a priest. An Indian had for some time absented himself from the service of the church; and the priest being informed that it was owing to his drinking early in the morning, on the following Sunday, when he had been particularly ordered to make his appearance, charged him with his fault, and directed that he should receive some lashes, the usual punishment for such delinquents, be their age or sex what it will; and is perhaps best adapted to their stupidity. After undergoing the punishment he turned about to the priest, and thanked him for having chastised him according to his deserts; to which the priest replied with some words of exhortation to him, and the audience in general, that they would never omit any duty of Christianity. But he had no sooner done than the poor Indian stepped up to him, and desired that he would order him a like number of lashes for the next Sunday, having made an appointment for a drinking-match, so that he should not be present. This may serve as a specimen of the little impression made on them, notwithstanding all the assiduity of the missionaries: and that though continually instructed from the first dawnings of reason, till the day of their death, they are found to continue in a strange ignorance of the most essential points of religion. Their indifference here is so very deplorable, that they may be said to give themselves no more concern about their souls than about their bodies: and though I with pleasure allow, that there are many, who in the culture of their minds, sanctity of manners, and delicacy of conscience, equal the most wise and circumspect; yet the bulk of them, either by that gross ignorance which clouds, as it were, their intellects,

and renders them insensible of their eternal concerns, or their natural depravity, are hardened against religious exhortations. For though they readily grant every thing that is said to them, and never offer to make the least objection; yet they secretly harbour suspicions of some evil design, and leave room for mental reservations, which spoil all. I am little inclined to lay any false charge to this or any nation, and especially with regard to such an important subject: and in confirmation of what I have said, shall relate some further particulars.

EVERY Sunday in the year the doctrinal priests instruct their parish in the articles of Christianity, with indefatigable zeal; also when any Indian is sick, they never fail to visit and exhort him to prepare for a comfortable passage into eternity, adding whatever they judge may conduce to the opening the eyes of his understanding. He pathetically expatiates on the justice and mercy of God, the nature of death, the certainty of an approaching judgment, and his present danger. After speaking thus a considerable time, without a word from the patient, or the least sign of emotion in his countenance, the good man proceeds to remind him of his sins; and exhorts him to a sincere repentance, and to implore the mercy of his Creator, as otherwise his soul will be punished to all eternity. The Indian at length answers, with a serene faintness, "So it will be father:" meaning, that things will happen as he has predicted; but does not understand in what these threatened sufferings consist. I have often heard priests of those towns, and men of parts and learning, talk with great concern on this subject. Hence it is, that there are very few Indians to whom the holy Eucharist is administered: nor would those of the house where a sick person lies ever give notice of it to the priest, were they not afraid of the punishment which the law in these cases inflicts: and even as it is, they often neglect this duty, and the patient dies without receiving the sacrament.

IN their marriages they run counter to the sentiments of all nations, esteeming what others detest; for they never of their own choice marry a woman who has not been previously known by others; looking on it a sure sign that she had nothing pleasing in her.

AFTER a young man has asked the object of his affections of her father, and obtained his consent, they immediately begin to live together as man and wife, and assist the father-in-law in cultivating his chacara. At the end of three or four months, and often of a year, he leaves his bride, without any ceremony, and perhaps for the wild reason above mentioned: and even expostulates

with

with his father-in-law, that he ſhould endeavour to deceive him, by impoſing upon him his daughter, whom no body elſe had thought worthy of making his bedfellow. But if nothing of this happens, after paſſing three or four months in this commerce, which they call Amanarſe, *i.e.* to habituate one's ſelf, they then marry: and this cuſtom is ſtill very common, having hitherto proved too ſtrong for the joint endeavours of the whole body of the clergy to extirpate it. Accordingly the firſt queſtion at the ceremony of marriage is, whether they are *amannados*, in order to abſolve them of that ſin before they receive the nuptial benediction. They look upon no marriage to be legal which is not ſolemn, and according to them the whole conſiſts in the nuptial benediction, which muſt be given them at the time they join their hands, as otherwiſe on any caprice they ſeparate: And it is to no purpoſe to go about to perſuade them that they were married; nor will any puniſhment have the leaſt effect. For as it does not imply any infamy, the intention is loſt. It is the ſame thing with them to be expoſed to the public deriſion and inſults, as to be ordered to ſhew their ſkill in dancing on a feſtival; the thing which of all others they moſt delight in. They are indeed ſenſible of corporal puniſhments during the time they are inflicting, but immediately afterwards are as placid and eaſy as if they had not been touched. This occaſions many things to be connived at in them, and other means of prevention uſed.

It is not uncommon among them to change their wives, without any other preliminary or agreement than having been familiar with the wife of another. The former wife, together with the injured huſband, concert a revenge; and if reproached for ſuch a proceeding, they chearfully anſwer, that they had ſerved them only as they deſerved: and it avails little to ſeparate them, as they ſoon find means to return to the ſame manner of living. Inceſts are very common among them, both as the conſequence of their monſtrous drunkenneſs, as we have already mentioned, and from their making no diſtinction between honour and infamy, whereby their brutal appetites are under no reſtraint.

If the foregoing tempers or cuſtoms appear ſtrange, their behaviour at confeſſion is not leſs ſo: for beſides having but a ſlender acquaintance with the Spaniſh language, they have no form to direct them in it. On their coming to the confeſſor, which is always at his ſummons, he is obliged to inſtruct them in what they are going about, and with them repeat the confiteor from one end to the other. For if he ſtops, the Indian alſo remains ſilent. Having gone through this, it is not

enough for the priest to ask him, whether he has committed this or that fault; but if it be one of the common sort, he must affirm that he has committed it, otherwise the Indian would deny every thing. The priest further is obliged to tell him, that he well knows he has committed the sin, and he has proofs of it. Then the Indian being thus pressed, answers, with great astonishment, that it is so. And imagining the priest really endued with some supernatural knowledge, adds circumstances which had not been asked him. It is not only difficult to bring them to declare their faults, but even to keep them from denying them, though publickly committed, and equally so to prevail on them to determine the number; this being only to be obtained by finesses; and then little stress is to be laid on what they say. The natural dread, which more or less rises in all men at the approach of death, is what the Indians are less susceptible of than any other people. Their contempt of those evils which make the strongest impressions on the minds of men is such, that they view the approach of death without perturbation: and the pain of the distemper affects them more than the danger of it. This I have often heard from several of the priests: and their words are confirmed by daily instances. For when the priests perform the last offices to dying persons, their answers are delivered with that composure and serenity, as leave no doubt but the inward state of their mind corresponds with these external appearances, being the principle and cause of them. The like is even seen in those whom their crimes have brought to die by the hands of justice; and among many other examples, I happened myself to be an eye-witness of one. Whilst I was at Quito, two malefactors were to be executed; one a Mestizo or Mulatto, and the other an Indian: both having been brought into the prison-chapel, I went to see them the night before the execution. The former was attended by several priests, who in Spanish exhorted him to die like a Christian, and shew a becoming fervor in his love to God, faith, and contrition, and a detestation for the crimes he had committed. On which his aspect, and whole deportment, shewed a sense of his condition. The Indian had also ecclesiastics about him, performing in his own language the like kind offices. But to all appearance he was less concerned even than those about him, and seemed rather to be tilling a chacara, or tending a herd, than on the eve of eternity. His appetite was so far from leaving him, as was the case of his companion, that he was more eager, and after dispatching his own, would have cleared his fellow-sufferer's plate, so that they were obliged to use

some

ſome force to prevent his eating to exceſs on ſuch an exigency. He talked to the ſpectators with that eaſe and tranquillity, as if only going to take a ſhort journey. He anſwered to the exhortations without the leaſt confuſion: when he was ordered to kneel, he did ſo. The prayers and acts of devotion he alſo repeated word for word; but all the time rolling his eyes about, like a ſportive child, whoſe weak age is diverted by trifling objects. Thus he behaved till brought to the gibbet, where his companion had been carried before him: nor did he ſhew the leaſt alteration even in the awful moment. And this, to a civilized European ſo ſtrange, is no more than what is common among the Indians of theſe parts.

THIS indifference, with regard to death or intrepidity, if we may term it ſo, ſhews itſelf upon many other occaſions, particularly in the alacrity and reſolution with which they place themſelves before a bull, with no other view than for the bull to run full at him, and toſs him ſo high in the air, that any other than an Indian would be killed by the fall. He however riſes without receiving any hurt, and is highly delighted with the victory as he calls it over the bull, though the victory ſeems to lie on the bull's ſide. When they fight in a body againſt others, they fall on without any regard to ſuperiority of numbers, or who drops, or is wounded of their party. An action which in a civilized nation is counted the height of courage, is here merely the effect of barbariſm and want of thought. They are very dextrous in haltering a bull at full ſpeed: and as they fear no danger, attack him with what we ſhould call a great deal of temerity. With the ſame dexterity they hunt bears: and a ſingle Indian with only a horſe and his nooſe, never fails of getting the better of all the cunning and rage of this furious animal. This nooſe is made of cow-hide, ſo thin as not to be ſeized by the beaſt's paws, and yet ſo ſtrong as not to be broken by the ſtruggles of the creature. On perceiving the bear, they immediately make towards him, whilſt he ſets up in order to ſeize the horſe. But the Indian being come within a proper diſtance, throws the nooſe about the creature's neck: then with ſurpriſing celerity having taken two or three turns with the other end about the ſaddle, claps ſpurs to his horſe: in the mean time the bear, unable to keep pace with the horſe, and ſtruggling to clear himſelf of the nooſe, is choaked. This is conſidered as an atchievement of admirable dexterity and bravery; and may be frequently ſeen in the province of Alauſi near the eaſtern Cordillera, where theſe animals abound.

A GREAT part of the rusticity in the minds of the Indians must be imputed to the want of culture; for they, who in some parts have enjoyed that advantage, are found to be no less rational than other men: and if they do not attain to all the politeness of civilized nations, they at least think properly. The Indians of the mission of Paraguay, are, among others, remarkable instances of this, whereby the zeal, address, and exemplary piety of the jesuits, a regular well governed republic of rational men, has been established: and the people, from an ambulatory and savage manner of living have been reduced to order, reason and religion. One of the most effectual means for this was the setting up schools for instructing the young Indians in Spanish, in which they also instruct their converts; and those who are observed to be of a suitable genius are taught Latin. In all the villages of the missions are schools for learning, not only to read and write, but also mechanic trades; and the artificers here are not inferior to those of Europe. These Indians in their customs and intellects are a different sort of people from those before mentioned. They have a knowledge of things: a clear discernment of the turpitude of vice, and the amiableness of virtue; and act up to these sentiments: not that they have any natural advantages over the other; for I have observed throughout this whole kingdom, that the Indians of its several provinces through which I travelled are alike. And those of Quito are not more deficient in their understandings, than those of Valles or Lima: nor are these more acute or sagacious than the natives of Chili and Arauco.

WITHOUT going out of the province of Quito, we have a general instance in confirmation of what I have advanced. For all the Indians brought up to handicraft trades in cities and large towns, who speak the Spanish language, are far more acute and sensible, than those who have spent their lives in little villages; and their behaviour more conformable to the dictates of a rational creature. They are men of abilities and skill, and have divested themselves of many of their errors. Whence they are called Ladinos, i. e. knowing men: and if they retain any of the culpable practices of the former, it is from the infection of intercourse, or from a mistaken notion that they should keep them up as transmitted to them from their ancestors. Among these are chiefly distinguished the barber surgeons, who bleed with such dexterity, that, in the opinion of Monf. de Jusieu, and Monf. Seniergues, surgeons to the French academists, they equal the most famous in Europe: and their intercourse with persons of a liberal education enlightens

enlightens their understanding, so that they distinguish themselves to great advantage among their countrymen. It seems to me unquestionable, that if in villages care was taken to instruct the Indians in Spanish, conformable to the laws of the Indies; besides other acquirements, this people would have the benefit of conversing more frequently with the Spaniards, which would greatly improve their reason, and give them a knowledge of many things for which they have no word in their language. Accordingly it is observed that the Cholos (a name given to the Indian boys) becoming acquainted with the Spanish language, improve so much in knowledge, that they look on their countrymen as savages, and take upon themselves the appellation of Ladinos.

I AM very far from imagining that the Spanish language itself has the virtue of improving the intellects of the Indians; but only, that rational conversation with the Spaniards would lead them to a knowledge of many things: and consequently they might be brought to a greater purity of faith and practice. Whereas the conversation among themselves must be very low and confined: and what they have with the Spanish traders, who understand their language, turns wholly on traffick. But if they understood the Spanish, they would daily receive new lights by conversing with travellers, whom they attend, as well as from the inhabitants of the cities, their masters the priests, the corregidors and others; and thus become more industrious and tractable, and acquainted with the nature of things, of which before they had not so much as any idea.

ARE not the differences and advantages evident among ourselves, betwixt a young man whose stock of learning is his natural language, and him who is acquainted with others? what a superiority of knowledge, discernment and facility in the latter? Hence we may form some idea of the abject state of the human mind among rude country people, who cannot exchange a word with a stranger, and never stir out of their village: whereas when any one happens to go to a neighbouring town, he returns home with enlarged knowledge, and entertains all the village with his narratives; but if he had not understood the language spoken in it, he would have been little the better, understanding nothing of all the strange things he saw and heard. This is the very case of the Indians; and I am of opinion, that to teach them the Spanish tongue would be the best means of improving their reason, and consequently of making them better members of society: and that my superiors thought so appears from the ordinances relating to America.

THE Indians in general are robuſt and of a good conſtitution. And though the venereal diſtemper is ſo common in this country, it is ſeldom known among them; the principal cauſe of which unqueſtionably lies in the quality of the juices of their body, not being ſuſceptible of the venom of this diſtemper. Many however attribute it to a quality in the chica, their common drink. The diſeaſe which makes the greateſt havock among them is the ſmall pox, which is ſo fatal that few eſcape it. Accordingly it is looked upon in this country as a peſtilence. This diſtemper is not continual as in other nations, ſeven or eight years or more paſſing without its being heard of; but when it prevails towns and villages are ſoon thinned of their inhabitants. This deſolation is owing partly to the malignity of the diſeaſe, and partly to the want of phyſicians and nurſes. Accordingly, on being ſeized with this diſtemper, they immediately ſend for the prieſt to confeſs; and die for want of remedy and relief. The like happens in all other diſtempers; and were they frequent would be equally fatal; theſe poor creatures dying for want of proper treatment and aſſiſtance; as is evident from the Creoles, who are alſo attacked by the diſtempers of the country. Some of the latter indeed die as well as of the former, but many more recover, having attendance and a proper diet: Whereas the Indians are in want of every thing. What their houſes and apparel are, has already been ſeen. Their bed is the ſame in health and ſickneſs; and all the change in their food is in the manner of taking it, not in the ſpecies itſelf: for however ill they may be, all they have is a ſmall draught of machca diſſolved in chica; ſo that if any one does get the better of a diſtemper, it is more owing to the happineſs of his conſtitution than any relief he receives.

THEY are alſo ſubject to the Bicho, or Mal del Valle, but this is ſoon cured. Sometimes, though ſeldom, they are alſo ſeized with tabardillos or ſpotted fevers, for which they have an expeditious but ſingular cure. They lay the patient near the fire on the two ſheep ſkins which compoſe his bed; and cloſe by him place a jugg of chicha. The heat of the fever, and that of the fire encreaſing the other, cauſe in him ſuch a thirſt, that he is inceſſantly drinking; whereby the eruptions are augmented, and the next morning he is either in a fair way of recovery, or ſo bad as to be carried oft in a day or two.

THEY who either eſcape, or recover from theſe diſtempers, reach to an advanced age; and both ſexes afford many inſtances of remarkable longevity. I myſelf have known ſeveral, who, at the age of an hundred, were ſtill very robuſt and active;

active; which unquestionably must, in some measure be attributed to the constant sameness and simplicity of their food. But I must observe, that besides the different kinds already mentioned, they also eat a great deal of salt with agi, gathering the pods of it; and having put some salt in the mouth, they bite the agi, and afterwards eat some machca or camcha: And thus they continue taking one after another, till they are satisfied. They are so fond of salt in this manner of eating it, that they prefer a pod or two of agi with some salt to any other food.

After this account of the genius, customs, and qualities of the Indians, it will not be improper to speak a word or two of their diversions and occupations, premising that this account does not extend to such Indians as live in cities and towns, or that occupy any public office or trade, they being looked upon as useful to the public, and live independently. Others in the kingdom of Quito are employed in the manufactories, the plantations, or in breeding of cattle. In order to this, the villages are annually to furnish those places with a number of Indians, to whom their master pays wages as settled by the equity of the king: and at the end of the year they return to their villages and are replaced by others. This repartition is called mita. And though these alterations should by order take place in the manufactories, yet it is not so: for being occupations of which none are capable, but such as have been properly trained up, the Indian families, which are admitted, settle there, and the sons are instructed in weaving, from one generation to another. The earnings of these are larger than those of the other Indians, as their trade requires greater skill and capacity. Besides the yearly wages paid them by those whom they serve, they have also a quantity of land and cattle given them to improve. They live in cottages built near the mansion house, so that every one of these forms a kind of village: some of which consist of above an hundred and fifty families.

CHAP. VII.

An historical account of the most remarkable mountains and paramos, or deserts in the Cordilleras *of the* Andes; *the rivers which have their sources in these mountains, and the methods of passing them.*

I Now come to the most remarkable paramos, or deserts of the kingdom of Quito, and the rivers flowing through that country, which, among many other natural curiosities, is peculiarly

peculiarly remarkable for the disposition of the ground, and its prodigious masses of snow, that exceed all comparison.

It has been before observed, that all the dependencies of the jurisdictions of this province, are situated betwixt the two Cordilleras of the Andes; and that the air is more or less cold according to the height of the mountains, and the ground more or less arid. These arid tracts, are called paramos, or deserts; for though all the Cordilleras are dry or arid, some of them are much more so than others; for the continual snows and frost, render them absolutely uninhabitable even by the beasts; nor is there a single plant to be found upon them.

Some of these mountains seem, as it were, founded on others, rise to a most astonishing height, and are covered with snow even to their summits. The latter we shall more particularly treat of, as they are the most remarkable and curious objects.

The Paramo of Asuay, formed by the junction of the two Cordilleras, is not of this class; for tho' remarkable for its excessive coldness and aridity, its height does not exceed that of the Cordilleras in general, and is much lower than that of Pichincha and Corazon. Its height is the degree in this climate, where a continual congelation or freezing commences; and as the mountains exceed this height, so are they perpetually covered with ice and snow; that from a determined point, above Carabucu for instance, or the surface of the sea, the congelation is found at the same height in all the mountains. From barometrical experiments made at Pucaguayco, on the mountain Cotopaxi, the height of the Mercury was sixteen inches $5\frac{1}{3}$ lines; whence we determined the height of that place to be 1023 toises above the plain of Caraburu, and that of the latter above the superficies of the sea about 1268. Thus the height of Pucaguayco above the surface of the sea is, is 2291 toises. The signal which we placed on this mountain was thirty or forty toises above the ice, or point of continual congelation; and the perpendicular height from the commencement of this point to the summit of the mountain, we found, from some geometrical observations made for that purpose, to be about 880 toises. Thus the summit of Cotopaxi is elevated 3126 toises above the surface of the sea, or something above three geographical miles; and 639 toises higher than the top of Pichincha. These are mountains I intend to speak of; and the height of them all, considering the greatness of it, may be said to be nearly equal.

In

In these Cordilleras, the most southern mountain is that of Mecas, more properly called Sanguay, though in this country better known by the former, lying in the jurisdiction of the same name. It is of a prodigious height, and the far greatest part of the whole surface covered with snow. From its summit issues a continual fire, attended with explosions, which are plainly heard at Pintac, a village belonging to the jurisdiction of Quito, and near forty leagues distant from the mountain; and, when the wind is fair, the noise is heard even at Quito itself. The country adjacent to this volcano is totally barren, being covered with cinders ejected by it. In this Pacamo, the river Sanguay has its source. This river cannot be said to be small, but after its junction with another called the Upano, forms the Payra, a large river which discharges itself into the Maranon.

In the same eastern Cordillera, about six leagues west of the town of Riobamba, is a very high mountain, with two crests, and both of them covered with snow; that on the north is called Collanes, and that on the south Altar; but the space covered with snow, is much less than that of Sanguay and others of this class, its height being proportionally less.

North of the same town, and about seven leagues distant, is the mountain of Tunguragua, of a conical figure, and equally steep on all sides. The ground at its basis is something lower than that of the Cordillera, especially on the north side, where it seems to rise from the same plain on which the villages are situated. On this side, in a small plain betwixt its skirts and the Cordillera, has been built the village of Bannos, so called from its hot medicinal baths, to which there is a great resort from all parts of this jurisdiction. South of Cuenca, and not far from another village called Bannos, also belonging to this jurisdiction, are other hot waters on the summit of an eminence, gushing out through several apertures of four or five inches diameter, and of a heat which hardens eggs sooner than water boiling over the fire. These several streams unite and form a rivulet, the stones and banks of which are tinged with yellow, and the water is of a brackish taste. The upper part of this small eminence is full of crevices, through which issues continual smoke, a sufficient indication of its containing great quantities of sulphureous and nitrous substances.

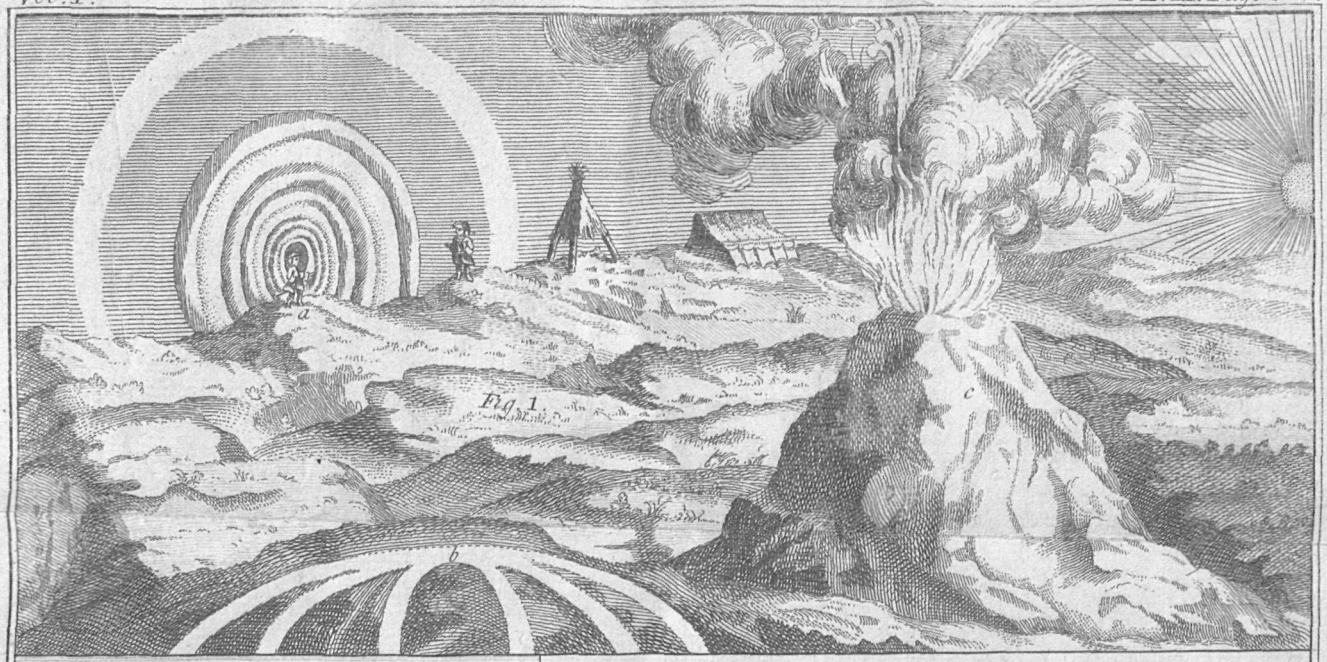
North of Riobamba, inclining some degrees to the west, is the mountain of Chunborazo, by the side of which

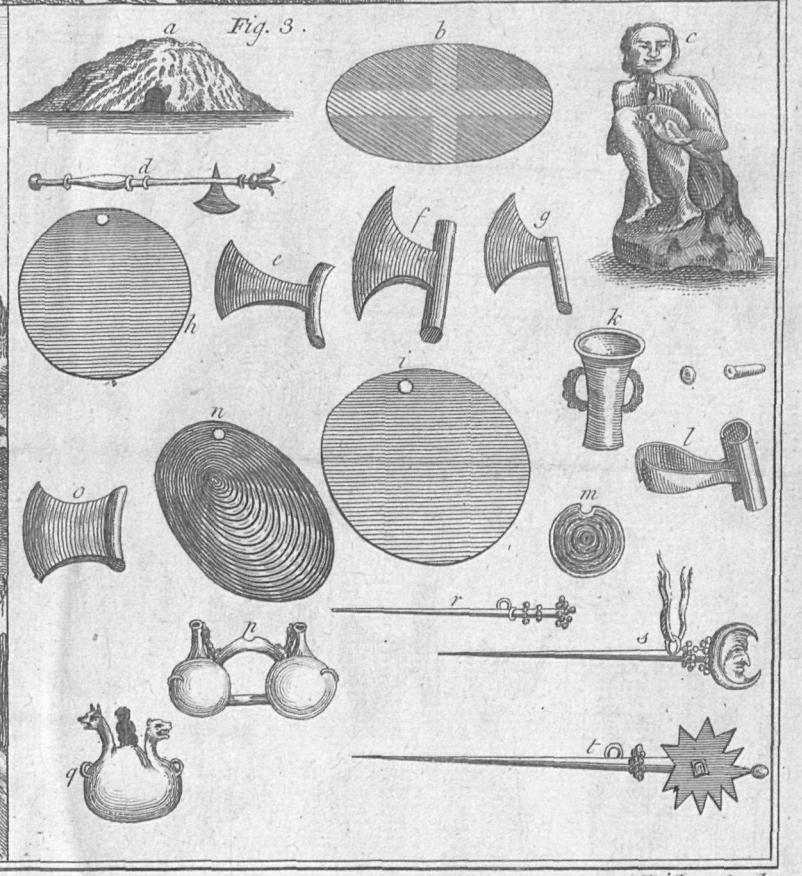
which lies the road from Quito to Guayaquil. At first great numbers of the Spaniards perished in passing the vast and dangerous deserts on its declivity; but being at present better acquainted with them, and inured to the climate, such misfortunes are seldom heard of; especially as very few take this road, unless there is the greatest appearance of two or three days of calm and serene weather.

NORTH of this mountain stands that of Carguay-raso, which has been already taken notice of.

NORTH of Latacunga, and about five leagues distant from it, is Cotopaxi, which, towards the north-west and south, extends itself beyond all the others; and which, as I have before observed, became a volcano at the time of the Spaniards first arrival in this country. In 1743, a new eruption happened, having been some days preceded by a continual rumbling in its bowels. An aperture was made in its summit, and three about the same height near the middle of its declivity, at that time buried under prodigious masses of snow. The ignited substances ejected on that occasion, mixed with a prodigious quantity of ice and snow, melting amidst the flames, were carried down with such astonishing rapidity, that in an instant the plain from Callo to Latacunga was overflowed; and besides its ravages in bearing down houses of the Indians and other poor inhabitants, great numbers of people lost their lives. The river of Latacunga, was the channel of this terrible flood, till being too small for receiving such a prodigious current, it overflowed the adjacent country like a vast lake near the town, and carried away all the buildings within its reach. The inhabitants retired to a spot of higher ground behind their town, of which those parts which stood within the limits of the current were totally destroyed. The dread of still greater devastations did not subside in three days, during which the volcano ejected cinders, while torrents of melted ice and snow poured down its sides. The fire lasted several days, and was accompanied with terrible roarings of the wind rushing through the volcano, and greatly exceeded the great rumblings before heard in its bowels. At last all was quiet, neither fire nor smoke were seen, nor was there any noise to be heard till the following year 1744, when, in the month of May, the flames increased, and forced their passage through several other parts on the sides of the mountain; so that in clear nights, the flames being reflected by the transparent ice, formed a very grand and beautiful illumination. On the 30th of November it ejected

such





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ſuch prodigious quantities of fire and ignited ſubſtances, that an inundation equal to the former ſoon enſued; ſo that the inhabitants of Latacunga gave themſelves over for loſt. And we ought to acknowledge the divine protection that it did not rage when we viſited it, having occaſion twice to continue ſome time on its declivity, as we have already ſhewn in the third chapter of the fifth book.

Five leagues to the weſt of this mountain ſtands that of Illiniſa, whoſe ſummit is alſo bifid, and conſtantly covered with ſnow. From it ſeveral rivulets derive their ſource; of which thoſe flowing from the northern declivity, continue that direction; as thoſe from the ſouthern ſide alſo run ſouthward. The latter pay their tribute to the northern ocean, through the large river of the Amazons; while the former diſcharge themſelves into the South-Sea, by the river of Emeralds.

North of Cotopaxi is another ſnowy mountain called Chinculagua, ſomething leſs than the former, tho' even that is not to be compared to the others.

The mountain of Cayamburo, which is one of the firſt magnitude, lies north, ſome degrees eaſterly, from Quito, at the diſtance of about eleven leagues from that city. There is neither appearance nor tradition of its having ever been a volcano. Several rivers iſſue from it, of which thoſe from the weſt and north, run either into the river of Emeralds or that of Mira, but all fall into the South-ſea; while theſe from the eaſt diſcharge themſelves into the river of the Amazons.

Beſides the torrents which precipitate themſelves from the ſnowy mountains, others have their ſource in the lower parts of the Cordilleras, and at their conflux form very large and noble rivers, which either pay the tribute to the north or ſouth ſeas, as we ſhall hereafter obſerve.

All the ſprings iſſuing from the mountains in the neighbourhood of Cuenca, on the weſt and ſouth ſide as far as Talqui, with thoſe of the eaſtern Cordillera, and northward as far as the Parama de Burgay, unite at about half a league eaſtward of a chapel called Jadan, under the care of the curate of Paute, where forming a river, and paſſing near that village, from which it has its name, diſcharges itſelf into the river of the Amazons. It is ſo deep at Paute, that, tho' wide, it is not any where fordable.

From the mountains of Aſuay, that of Bueran and the adjacent hills on the ſouth, is formed a very conſiderable river,

ver, over which are several bridges. It is called Cannar, from that being the only town in its course, which it continues by Yocon to the bay of Guyaquil.

THE northern parts of the Paramo of Asuay also give rise to many streams, which, uniting with others coming from Mount Senegualap, and the western side of the eastern Cordillera, form the river Alausi, which discharges itself into the same bay.

ON the highest part of the Paramo de Tioloma, and near the signal one erected on this mountain for forming our series of triangles, are four leagues, the three nearest it being less than the other, which is about half a league in length, and called Coley; and the others, which are not greatly inferior, Pichabinnac, Pubillu, and Mactallan. From these is formed the river Cebadas, which runs near the village of that name, and is joined by another arising from the springs on the Paramo of Lalangusо, and the streams from the Colta lake. After which, inclining a little from the north towards the east, passes by Pungala; and about a league from the village of Puni, is joined by the river Bamba, which has its source in Parambo of Sisapongo. Near the town of Cobigies is another, which flows from the mountain of Chimborazo, and which, after directing its course northward, till it is in an east and west direction with the mountain of Tunguragua, it winds to the east, and adds its water to those of the river of the Amazons. At the town of Penipe, it is so deep and rapid as only to be crossed over a bridge made of bejucos. Also before it reaches the town of los Bannos, it is increased by the rivers Latacunga and Bato, together with all the streams from both the Cordilleras, those from the southern summit of Elenisa, and the southern side of Ruminavi and Cotopaxi.

THE streams flowing from the north summit of Elenisa, I have already mentioned to run northward; and with these all from the same Cordillera unite, together with those issuing from the north and west sides of the mountain Ruminavi, those of Pasuchua, and from this junction rises the river Amaguanna. The two last mountains stand north and south from each other, in an intermediate space of the Cordilleras. From the north side of Cotopaxi the Paramo of Chinchulagua, which is also covered with snow, and the Cordillera de Guamani, other streams have their rise, and from their conflux is formed the river Ichubamba, which running north-

northward joins the Amaguanna, a litttle to the north of Cono-Coto. Afterwards it receives the rivulets issuing from the eastern Cordillera, and changes its name to that of Guayllabamba. The waters, which have their source in the western part of Cayamburo, and the southern part of Moxanda, form another river called Pisque, which first runs towards the west, and joining the Guayllabamba, takes the name of Alchipichi, which, a little to the north of St. Antonio, in the jurisdiction of Quito, is so broad and rapid, that there is no passing it but in a tarabita, which we shall presently describe. From hence it continues its course northwards, and at last falls into the river of Emeralds.

THE mountain of Majanda stands in the interval between the Cordilleras; and though it has only one side as it were, it is divided into two summits, one eastward and the other westward; and from both these runs a small Cordillera, which, afterwards joining, inclose this valley.

FROM the side of this mountain issue two large torrents, which meet in the lake of St. Pablo; from whence flows a river, which being joined by others from the springs of the western Cordillera, form one stream, and after being increased by another brook from the heights of Oezillo, give rise to the river which washes the town of St. Miguel de Ibarra; after which it takes the name of Mira, and discharges itself into the South-sea, a little to the north of the river of Emeralds.

WHEN the rivers are too deep to be forded, bridges are made at the most frequented places. Of these there are two kinds besides those of stone, which are very few; the former of wood, which are the most common; and the latter of bejucos. With regard to the first, they chuse a place where the river is very narrow, and has on each side high rocks. They consist of only four long beams laid close together over the precipice, and form a path about a yard and a half in breadth, being just sufficient for a man to pass over on horseback; and custom has rendered these bridges so natural to them, that they pass them without any apprehension. The second, or those formed of bejucos, are only used where the breadth of the river will not admit of any beams to be laid across. In the construction of these, several bejucos are twisted together, so as to form a kind of large cable of the length required. Six of these are carried from one side of the river to the other, two of which are

consi-

considerably higher than the other four. On the latter are laid sticks in a transverse direction, and, over these, branches of trees, as a flooring; the former are fastened to the four which form the bridge, and by that means serve as rails for the security of the passenger, who would otherwise be in no small danger from the continual oscillation. The bejuco bridges in this country are only for men, the mules swim over the rivers; in order to which, when their loading is taken off, they are drove into the water near half a league above the bridge, that they may reach the opposite shore near it, the rapidity of the stream carrying them so great a distance. In the mean time the Indians carry over the loading on their shoulders. On some rivers of Peru there are bejuco bridges so large, that droves of loaded mules pass over them; particularly the river Apurimac, which is the thoroughfare of all the commerce carried on between Lima, Cusco, La Plata, and other parts to the southward.

Some rivers, instead of a bejuco bridge, are passed by means of a tarabita; as is the case with regard to that of Alchipichi. This machine serves not only to carry over persons and loads, but also the beasts themselves, the rapidity of the stream, and the monstrous stones continually rolling along it, rendering it impracticable for them to swim over.

The tarabita is only a single rope made of bejuco, or thongs of an ox's hide, and consisting of several strands, and about six or eight inches in thickness. This rope is extended from one side of the river to the other, and fastened on each bank to strong posts. On one side is a kind of wheel, or winch, to streighten or slacken the tarabita to the degree required. From the tarabita hangs a kind of leathern hammock capable of holding a man; and is suspended by a clue at each end. A rope is also fastened to each clue, and extended to each side of the river, for drawing the hammock to the side intended; and a push at its first setting off sends it quickly to the other side.

For carrying over the mules two tarabitas are necessary, one for each side of the river, and the ropes are much thicker and slacker. On this rope is only one clue, which is of wood, and by which the beast is suspended, being secured with girts round the belly, neck and legs. When this is performed, the creature is shoved off, and immediately landed on the opposite side. Such as are accustomed to be carried

ried over in this manner, never make the least motion, and even come of themselves to have the girts fastened round them; but it is with great difficulty they are first brought to suffer the girts to be put round their bodies, and when they find themselves suspended, kick and fling during their short passage in a most terrible manner. The bridge of Alchipichi may well excite terror in a young traveller, being between thirty and forty fathoms from shore to shore; and its perpendicular height above the surface of the water, twenty-five fathoms. The reader will find a draught of these bridges, and the manner of conveying over the mules, on Plate III. Fig. 2.

THE roads of this country are suitable to the bridges; for tho' there are large plains between Quito and the river Bamba, and the greatest part of the road between the river Bamba and Alausi, and even to the north of that city, lies along the mountains, yet these are interrupted by fruitful breaches, the acclivities and declivities of which are not only of a great length and very troublesome, but also dangerous. In some places there is a necessity for travelling along tracts on the declivities of mountains, which are sometimes so narrow as hardly to allow room for the feet of the beast; part of its body, and that of the rider being perpendicular over a torrent fifty or sixty fathoms, beneath the road. So that certainly nothing but absolute necessity, there being no other road, and long custom, can get the better of that horror which must affect the person at the sight of such imminent danger; and there are too many instances of travellers losing their lives, or at least their effects, their whole dependance being on the sure foot of the mule. This danger is indeed in some measure compensated by the security of the roads; so that we see here what none of the civilized nations can boast of, namely, single persons travelling, unarmed, with a great charge of gold and silver, but equally safe as if strongly guarded. If the traveller happens to be fatigued in a desert, he lays him down, and sleeps without the least apprehension of danger. Or if he takes up his lodgings in a tambo, or inn, he sleeps with the same security, though the doors are always open: nor is he ever molested on the road. This is a convenience so favourable to commerce and intercourse, that it were greatly to be wished the same security could be established in the other parts of the world.

CHAP. VIII.

Continuation of the account of the Paramos, *or* deſerts; *with an account of the beaſts, birds, and other particulars of this province.*

TO conclude my obſervations on the Paramos, which it was neceſſary to interrupt, in order to give a ſhort account of the rivers, bridges and roads, I ſhall obſerve, that theſe parts not being of a height ſufficient to expoſe them to an eternal froſt, they are covered with a kind of ruſh reſembling the geniſta Hiſpanica, but much more ſoft and flexible. It is about half or three quarters of a yard in height, and, when of its full magnitude, its colour is like that of dried geniſta Hiſpanica. But where the ſnow remains ſome time on the ground without melting, none of theſe plants growing in habitable climates are found. There are, indeed, others, though few, and even theſe never exceed a certain height. Above this tract, nothing is ſeen but ſtones and ſand all the way up to the beginning of the ice.

IN theſe parts, where the above ruſh is the principal product, the ſoil is as little adapted to cultivation, but produces a tree which the inhabitants call quinual, the nature of which very well ſuits the roughneſs of the climate. It is of middling height, tufted, and the timber ſtrong; its leaf of a long, oval form, thick, and of a deep green colour. Tho' it bears the ſame name as the grain called quinua, of which we have ſpoken elſewhere, and which grows in great plenty, the latter is not however the production of this tree; nor has the plant on which it grows, any thing in common with it.

THE climate proper for quinual is alſo adapted to the produce of a little plant, which the Indians call palo de luz. It is commonly about the height of two feet, conſiſting of ſeveral ſtalks which grow out of the ground and proceed from the ſame root. Theſe ſtems are ſtrait, and ſmooth up to the top, from which grow little branches with very ſmall leaves. All of theſe nearly riſe to the ſame height, except the outer ones, which are of a leſs ſize: It is cut cloſe to the ground, where it is about three lines in diameter; and being kindled whilſt green, gives a light equal to that of a torch, and, with care taken to ſnuff it, laſts till the whole plant is burnt.

IN the ſame places grow alſo the achupalla, conſiſting of ſeveral

ſeveral ſtalks ſomething reſembling thoſe of the ſabila; and as the new ſhoot up, the moſt outward grow old and dry, and form a kind of trunk, with a great number of horizontal leaves hollow in the middle; and this, when not very large, is eatable like that of the palmitos.

Towards the extremity of the part where the ruſh grows, and the cold begins to increaſe, is found the vegetable called puchugchu, with round leaves growing together ſo as to repreſent a very ſmooth bulb, having nothing in them but the roots: and as theſe increaſe, the outward caſe of leaves dilates into the form of a round loaf, uſually a foot or two in height, and the ſame in diameter: on this account they are alſo called loaves or onions. When in their vigour, they are of ſo hardy a nature, that a ſtamp with a man's foot, or the tread of a mule, makes no impreſſion on them; but when once fully ripe, they are eaſily broken. In the middle ſtate, betwixt the full ſtrength of their reſiſtance, and the decay of their roots by age, they have an elaſtic quality, yielding with a tremulous motion to the preſſure of the foot, and on its being taken off recover their form.

In the places where the puchugchu thrives beſt, alſo grows the canchalagua, the virtues of which are well known in Europe. The form of this is like a very thin ruſh or ſtraw, bears no leaves, but has a few ſmall ſeeds at its extremity. It is medicinal, and particularly uſeful as a febrifuge; its taſte is bitter, which it eaſily communicates either by infuſion or decoction. In this country it is chiefly uſed as a ſweetner of the blood, though thought to be of a hot quality. It grows in great quantities, and is found both among the puchugchus, and in other parts on the heath where the cold is leſs intenſe.

Another plant, not leſs valuable for its virtues, and growing chiefly in thoſe dreadful deſerts where, either from the ſeverity of the cold or perpetual ſnows, or from the badneſs of the ſoil, nothing elſe is produced, is found the ſo celebrated calaguala: Its height is about ſix or eight inches, and naturally ſpreads itſelf in thin ſtems along the ſand, or climbs up the rocks. Theſe branches in their form reſemble the fibril of the roots of the other plants, being not above two or three lines in their greateſt thickneſs, round and full of little knots, where they bend round like the tendrils of a vine. They have a thin pellicle of a looſe texture, which of itſelf detaches when the plant dries. The moſt ſingular virtue of this plant is for all kind of apoſthumes, internal or external, which it diſcuſſes and heals in a very little time. The manner of adminiſtring it is by decoction, of which a very little

ſerves; or after bruiſing it, to infuſe it in wine, and take it faſting for three or four days and no longer, its good effects in that time being uſually conſpicuous; and being extremely hot, it might prove pernicious if taken in greater quantity than abſolutely neceſſary; for which reaſon only three or four pieces, each about an inch and a half in length, are uſed for the infuſion, and with ſuch ſort of wine as will beſt correct its bitterneſs. Tho' this excellent herb grows in moſt of thoſe frozen deſerts, yet the beſt is that in the ſouthern provinces of Peru. The leaves are very ſmall, and the few it bears grow contiguous to the ſtem.

THE paramos or barren heaths likewiſe yield the contrayerva, which makes a part of the materia medica in Europe, and is conſidered as an excellent alexipharmic. This is alſo a creeping plant, with a leaf of about three or four inches in length, and little more than one in breadth, thick, and the back part of it exceeding ſoft to the touch, and of a deep green. The other ſide is alſo ſmooth, but of a light green. On its ſtem grows a large bloſſom, conſiſting of many flowers inclining to a violet colour: but neither theſe, nor the other flowers which grow in great abundance in theſe countries, according to its ſeveral climates, are much eſteemed; ſo that when wanted, the readieſt way is to ſend and have them cut from the plant.

THOUGH the ſeverity of the air on the deſerts is ſuch, that all animals cannot live there, yet they afford many beaſts of venery, which feed on the ſtraw or ruſh peculiar to thoſe parts; and ſome of theſe creatures are met with on the higheſt mountains, where the cold is intolerable to the human ſpecies. Among the ruſhes are bred great numbers of rabbits, and ſome foxes, both which, in their appearance and qualities, reſemble thoſe of Carthagena and other parts of the Indies.

THE only birds known in thoſe rigorous places are partridges, condors, and zumbadoes or hummers. The partridges are ſomething different from thoſe of Europe, and nearly reſemble the quail; but they are very ſcarce.

THE condor is the largeſt bird in theſe parts of the world; its colour and appearance reſemble thoſe of the galinazos, and ſometimes it ſoars from the higheſt mountains ſo as to be almoſt out of ſight: and by its being ſeldom ſeen in low places, a ſubtile air ſeems beſt to agree with it; tho' ſome, which have been tamed when young, live in the villages and plantations. Like the galinazos, they are extremely carnivorous, and are known frequently to ſeize and fly away with

lambs

lambs that feed on the heaths: of this I myself happened to see an instance, in my way down from the signal of Lalanguso toward the plantation of Pul, lying near the bottom of those mountains; for observing on a hill adjoining to that where I was, a flock of sheep in great confusion, I saw one of these condors flying upwards from it with a lamb betwixt its claws; and, when at some height, dropp'd it, then following it, took it up, and let it fall a second time, when it winged its way out of sight for fear of the Indians, who, at the cries of the boys and barkings of the dogs, were running towards the place.

In some deserts this bird is more common, and as it preys on the flocks, the Indians are not wanting in their endeavours to catch them. One of the ways is to kill a cow, or some other beast, when of no further use, and rub the flesh with the juice of some potent herbs, which they afterwards carry away: for otherwise the bird, sensible of them by natural instinct, would not touch the flesh; and further, to take off the smell, they bury the flesh till it becomes putrid, and then expose it; and the condors, allured by the smell of the carcase, hasten and feed on it greedily, till the herbs operate, and render them quite senseless and incapable of motion: then the Indians seize the opportunity and destroy them. They likewise catch them with springs laid near some flesh: but such is the force of this bird, that with a stroke of its wing it sometimes knocks down the man who approaches it. Their wing also serves them as a shield, by which they ward off blows without receiving any hurt.

The zumbador, or hummer, is a night bird, peculiar to the mountainous deserts; and they are seldom seen, though frequently heard, both by their singing and a strange humming made in the air by the rapidity of their flight, and which may be heard at the distance of fifty toises; and when near is louder than that of a rocket. Their singing may indeed may be called a kind of cry, resembling that of night-birds. In moon-light nights, when they more frequently make their appearance, we have often watched to see their size and the celerity of their motion; and though they passed very near us, we never were able to form any idea of their magnitude; all that we could see was a white line which they formed in their flight thro' the air; and this was plainly perceivable, when at no great distance.

This being a very particular bird, in order to gratify our curiosity, we promised the Indians a reward if they would procure us one; but all they could do was to get a

young one, ſcarce fledged, tho' it was then of the ſize of a partridge and all over ſpeckled with dark and light brown; the bill was proportionate and ſtrait, the aperture of the noſtrils much larger than uſual, the tail ſmall, and the wings of a proper ſize for the body. According to our Indians, it is with the noſtrils that it makes ſuch a loud humming. This may, in ſome meaſure contribute to it; but the effect ſeems much too great for ſuch an inſtrument; eſpecially as at the time of the humming it alſo uſes its voice.

Among the valleys and plains formed by theſe mountains, are many marſhy places, occaſioned by the great variety of ſmall ſtreams of water; and in theſe breed great numbers of a bird called canelon, a name perfectly expreſſive of its manner of ſinging. It very much reſembles the bandurria, tho' the ſpecies be different: it exceeds the bigneſs of a large gooſe, has a long thick neck, and a head ſomething reſembling that bird. The bill is ſtrait and thick, and its legs and feet thick and ſtrong. The outward feathers of the wing are of a dark brown, thoſe of the inſide of a pure white; but the other parts of the body ſpotted. At the meeting of the wings they have two ſpurs projecting to the length of an inch and a half as their defence. The male and female are inſeparable, whether flying, or on the ground, where they moſtly keep themſelves, never taking flight except acroſs a valley, or when purſued. The fleſh eats very well after being kept three or four days to leſſen its natural toughneſs. These birds are alſo found in places leſs cold than the mountainous deſerts; but here, indeed, they are ſomething different, having on the forehead a kind of cartilaginous horn; but both theſe and the other ſpecies have a creſt on their head.

The gardens of all kinds in the villages are much frequented by a bird very remarkable both for its ſmallneſs and the vivid colours of its feathers. It is generally called picaflores, or flower-peckers, from its hovering over them and ſucking their juices, without lacerating or ſo much as diſordering them. Its proper name is quinde, tho' it is alſo known by theſe of rabilargo and liſongero, and in England by that of humming bird. Its whole body, with its plumage, does not exced the bigneſs of a middle-ſized nutmeg, the tail is uſually near three times the length of the whole body, yet has but few feathers; its neck is ſhort; the head proportioned, with a very briſk eye; the bill long and ſlender, white at the beginning and black at the end: the wings are alſo long and narrow. Moſt of the body is green, ſpotted with yellow and blue. Some are higher coloured

coloured than others; and all are variegated with ſtreaks as it were with gold. Of this bird alſo there are various ſpecies, diſtinguiſhed by their ſize and colours. This is thought to be the ſmalleſt of all known birds; *the female lays but two eggs at a time*, and thoſe no bigger than peas. They build in trees, and the coarſeſt materials of their neſts are the fineſt ſtraws they can pick up.

In the parts of this country which are neither taken up by mountains or foreſts, only tame animals are met with; whence it is probable, that formerly its native ſpecies were but very few; moſt of theſe having been introduced by the Spaniards, except the llama, to which the Indians added the name of runa, to denote an Indian ſheep, that beaſt being now underſtood by the runa-llama; tho' properly llama is a general name importing beaſt, in oppoſition to the human ſpecies. This animal in ſeveral particulars reſembles the camel, as in the ſhape of its neck, head, and ſome other parts; but has no bunch, and is much ſmaller; cloven-footed, and different in colour: for though moſt of them are brown, ſome are white, others black, and others of different colours: Its pace reſembles that of a camel, and its height equal to that of an aſs betwixt a year and two old. The Indians uſe them as beaſts of carriage; and they anſwer very well for any load under a hundred weight. They chiefly abound in the juriſdiction of Riobamba. There being ſcarce an Indian who has not one for carrying on his little *traffic from one village to another. Anciently the Indians* uſed to eat the fleſh of them, and ſtill continue to make that uſe of thoſe which are paſt labour. They ſay there is no difference *betwixt it and mutton*, except that the former is ſomething ſweeter: it is a very docile creature, and eaſily kept. Its whole defence is to eject from its noſtrils ſome viſcoſities, which are ſaid to give the itch to any on which they fall; ſo that the Indians, who firmly believe this, are very cautious of provoking the llama.

In the ſouthern provinces of Peru, namely, in Cuſco, La Paz, La-Plata, and the adjacent parts, are two other animals, not very different *from the llama: theſe* are the vicuna and the guanaco: the only difference between them being, that the vicuna is ſomething ſmaller, its wool ſhorter and finer, and brown all over the body, except the belly which is whitiſh. The guanaco on the contrary is much larger, its wool long and harſh: but the ſhape of both is pretty near alike. Theſe laſt are of great ſervice in the mines, carrying metals in ſuch rugged roads as would be impracticable to any other beaſt.

In the houses is bred a creature called chucha; but in the other southern provinces it is known by the Indian name of muca-muca; it resembles a rat, but considerably bigger, with a long snout not unlike that of a hog; the feet and tail are exactly the same as those of a rat: but the hair is longer and black. In the lower part of its belly, from the beginning of the stomach to the natural orifice of the sex, runs a sort of bag formed of two membranous skins, which being originated from the lower ribs, and joining in the middle, follow the conformation of the belly which they inclose: in the middle of it is an aperture extending about two-thirds of its length, and which the creature opens and shuts at pleasure by means of muscles, doubtless formed by nature for this purpose. After bringing forth her young, she deposits them in this bag, and carries them as a second pregnancy till they are fit for weaning; she then relaxes the muscles, and the young come out as a second brood. Monsieur de Jussieu and Mr. Seniergues, when at Quito, made an experiment, at which Don George Juan and I were both present. The dam had been dead three days, and began to smell very disagreeably; the orifice of the bag remained still shut, but the young ones we found full of life within, each with a teat in its mouth; from which, at the time we took them off, some small drops of milk came out. The male I never saw; but was told that it was of the same bigness and shape as the female, except the bag; the testicles of this creature are of an enormous disproportion, being of the size of a hen's egg. It is a very fierce enemy of all tame birds, and does a great deal of damage in the maize fields. The Indians eat the flesh, and say it is not at all disagreeable: but few Europeans will have any great veneration for their taste or cookery.

CHAP. IX.

Phænomena observed in the mountainous Deserts and other parts of this Province; hunting Matches, and the Dexterity of the American Horses.

To the before-mentioned particulars of the mountainous deserts, I shall subjoin the phænomena seen there, as subjects equally meriting the curiosity of a rational reader. At first we were greatly surprized with two on account of their novelty; but frequent observations rendered them familiar. One we saw in Pambamarca, on our first ascent thither; it was a triple circular iris formed in this manner. At break of

of day the whole mountain was encompassed with very thick clouds, which the rising of the sun dispersed so far as to leave only some vapours of a tenuity not cognizable by the sight: on the opposite side to that where the sun rose, and about ten toises distant from the place where we were standing, we saw, as in a looking-glass, the image of each of us, the head being, as it were the centre of three concentrick iris's: the last or most external colours of one touched the first of the following. And at some distance from them all, was a fourth arch entirely white. These were perpendicular to the horizon; and as the person moved, the phænomenon moved also in the same disposition and order. But what was most remarkable, tho' we were six or seven together, every one saw the phænomenon with regard to himself, and not that relating to others. The diameter of the arches gradually altered with the ascent of the sun above the horizon; and the phænomenon itself, after continuing a long time, insensibly vanished. In the beginning the diameter of the inward iris taken from its last colour, was about 5 degr. and a half; and that of the white arch which circumscribed the others not less than 67 degr. At the beginning of the phænomenon, the arches seemed of an oval or elliptical figure, like the disk of the sun; and afterwards became perfectly circular. Each of the least was of of a red colour, bordered with an orange, and the last followed by a bright yellow, which degenerated into a straw colour, and this turned to a green. But in all, the external colour remained red.

We also on the mountains had frequently the pleasure of seeing arches formed by the light of the moon, particularly one on the fourth of April 1738, about eight at night on the plain of Turubamba. But the most singular was one seen by Don George Juan, on the mountain of Quinoaloma, on the 22d of May 1739, at eight at night. These arches were entirely white, without the mixture of any other colour; and formed along the slope or side of a mountain. That which Don George Juan saw, consisted of three arches, touching in the same point: the diameter of the inner arch was sixty degrees; and the breadth of the white mark or delineation took up a space of 5 degr. the two others were in every respect of the same dimensions.

The atmosphere and the exhalations from the soil seem more adapted than in any other place for kindling the vapours; meteors being here more frequent and often very large; last longer and are nearer the earth, than the like phænomena

seen

ſeen in other parts. One of theſe inflammations of a very extraordinary largeneſs, was ſeen at Quito whilſt we were there. I cannot exactly determine the date of its appearance, the paper on which I had wrote an account of it being loſt, when I was taken by the Engliſh: but the particulars which I ſtill remember are as follow.

About nine at night a globe of fire appeared to riſe from the ſide of mount Pichincha; and ſo large that it ſpread a light all over the part of the city facing that mountain. The houſe where I lodged looking that way, I was ſurprized with an extraordinary light darting through the crevices of the window ſhutters. On this appearance and the buſtle of the people in the ſtreets, I haſtened to the window, and came time enough to ſee it in the middle of its career, which continued from weſt to ſouth, till I loſt ſight of it, being intercepted by the mountain of Panecillo, which lies in that quarter. It was round, and its apparent diameter about a foot. I ſaid that it ſeemed to riſe from the ſides of Pichincha; for to judge from its courſe, it was behind that mountain where this congeries of inflammable matter was kindled. In the firſt half of its viſible courſe, it emitted a prodigious effulgency; then gradually began to grow dim, ſo that at its occulation behind the Panecillo its light was very faint.

I shall conclude this chapter with an account of the manner of hunting, which is the only diverſion in the country; and in which they paſſionately delight; indeed the moſt remarkable circumſtance in it is the ardour and intrepidity of the hunters: and which a ſtranger at firſt will naturally conſider as meer raſhneſs, till he ſees perſons of the greateſt prudence, after having made one ſingle trial, join in theſe parties, truſting entirely on their horſes; ſo that it is rather to be termed a dextrous and manly exerciſe, and proves the ſuperiority both of the riders and horſes to the moſt celebrated in Europe; and that the boaſted fleetneſs of the latter, is dullneſs when compared to the celerity with which thoſe of America run over mountains and precipices.

The hunting is performed by a great number of people, who are divided into two claſſes; one on horſeback and the other on foot, who are generally Indians. The buſineſs of the latter is to rouze the beaſt; and that of the others to hunt it. They all at break of day repair to the place appointed, which is generally on the ſummit of the Paramos. Every one brings his greyhound: and the horſemen place themſelves on the higheſt peaks, whilſt thoſe on foot range about

about the breaches, making a hideous noise in order to start the deer. Thus the company extend themselves three or four leagues or more according to their numbers. On the starting of any game, the horse which first perceives it sets off, and the rider being unable to guide or stop him, pursues the chace sometimes down such a steep slope, that a man on foot, with the greatest care could hardly keep his legs: from thence up a dangerous ascent, or along the side of a mountain, that a person not used to this exercise, would think it much safer to throw himself out of the saddle, than commit his life to the precipitate ardor of the horse. Thus they continue till they come up with the game, or till after following it four or five leagues the horses tire. Those in the other stations on perceiving one horse on its speed, immediately start; and thus the whole company are soon in motion, some hastening to meet the beast, and others following the chace; so that in such multitudes it is very seldom his good fortune to escape. The horses here don't wait for the riders to animate them; they set forward immediately on seeing another on full speed on a different mountain, or at the shouts of the huntsmen or cries of the dogs, tho' at ever so great distance, or even by observing in a dog the least motion that he scents the game. One single circumstance of these is sufficient for these horses: and then it will be prudence in the rider to give him his way, and at the same time let him feel the spur to carry him over the precipices. But at the same time let him be very attentive to keep the saddle; for on such declivities the least neglect throws the rider over the horses head: the consequence of which, either by the fall, or being trampled upon by the horse, is death, violent bruises or dislocations. These horses are called Parameros, being backed, and exercised in running over such dangerous places. Their usual pace is trotting. There is, indeed another species called Aguilillas, equally remarkable for their swiftness and security. Tho' the Aguilillas only pace, they equal the longest trot of the others: and some of them are so fleet, that no other horse can match them even at full gallop. I once was master of one of this kind; and which, tho' none of the racers, often carried me in twenty-nine minutes from Callao to Lima, which is two measured leagues and a half, tho' notwithstanding great part of the road was very bad and stony; and in twenty-eight or twenty-nine minutes brought me back again, without ever taking off the bridle. This is what I can assert from my own experience. These horses are very seldom known to

gallop

gallop or trot; and it is a very difficult matter even to bring them to it by teaching, tho' the trotting horses soon come in to pacing; the pace of the Aguilillas is by lifting up the fore and hind leg of the same side at once; but instead of putting the hinder foot in the place where the fore foot was, as is the usual way of other pacing horses, they advance it farther, equal to that on the contrary side, or something beyond it; that thus in each motion they advance twice the space of the common horses. Besides, they are very quick in their motions, and remarkably easy to the rider.

OTHER horses, not of this breed, are taught the same manner of pacing, and perform it with the same ease and expedition, as those in whom it is a natural quality; neither species are handsome, but very gentle and docile; full of spirit and intrepidity.

CHAP. X.

A short Account of the many silver and gold Mines in the Province of QUITO; *and the method of extracting the Metal.*

THE chief riches of the kingdom of Peru, and the greatest part of the Spanish possessions on the continent being the mines, which spread their ramifications through the whole extent of these countries, that province is justly accounted the most valuable where the mines are most numerous, or at least where the greatest quantity of metal is procured. The fertility of the soil, the exuberant harvests with which the labourer's toil is rewarded, would lose much of their advantage, had not the precious contents in the bowels of the earth exercised the ingenuity of the miner. The fertile pastures which so richly cover the country are disregarded, if the stones upon trial are not found to answer the avidity of the artists: and the plentiful productions of the earth, which are in reality the most excellent gifts of nature for the support and comfort of human life, are undervalued and slighted, unless the mountains contain rich veins of a fine silver. Thus, contrary to the nature of things, the name of rich is bestowed on that province where most mines are worked, tho' so entirely destitute of the other more necessary products, that the great number of people employed in the mines, are under a necessity of being supplied from other parts: and those provinces whose pastures are covered with flocks and herds, whose fields yield

yield plentiful harvests, and their trees bend beneath rich fruits, under the fertilizing influence of a benign climate, but destitute of mines, or forgotten thro' neglect, are looked upon as poor: and indeed except in the plentiful surface of the earth make no wealthy appearance. This is the case here: and the reason of it is evident; those countries are as staples for silver and gold, which are taken from the bowels of the earth only to be sent into distant nations with all possible diligence, their native country being that where they make the least stay: and the same practice is observed to be carried on no less eagerly throughout every town and village in the Indies: for as they cannot well do without European goods, the gold and silver of America, must be paid in exchange for them.

In a province where no mines are worked, the fertility of its soil, and goodness of its products are neglected; for the scarcity of money reduces them to such a low price, that the husbandman, for want of an incentive to any assiduous industry, instead of sowing and planting all he could, consults only what he may vend according to the common consumption, besides what is necessary for the support of his family. And as the whole return of what he receives for his fruits and grain, even when he is so fortunate as to export any, goes away again in exchange for European goods, the scarcity of money still continues, and he is so poor, as sometimes possibly to want even necessaries. It is otherwise in provinces abounding with mines; for these being the objects of the attention and labours of its inhabitants, there is a continual circulation of money. What is carried out is replaced by that drawn from the mines. Nor are they even in want of European goods, or the produce of the more fertile countries, plenty of traders from all parts resorting to places near the mines as the original seats of gold and silver. But that province where the richness of the mines and of the soil concenter, is doubtless preferable to those where nature has given only one of these advantages. Quito may justly be classed among the former, being that province which of all Peru is the most fertile in grain and fruits; the most populous, and especially in Spaniards; abounds most in cattle; has the most manufactures, and excels in them; and in mines if not the richest, yet equal to any of the others, on which nature has poured out these her choicest favours. But it seems as if nature unwilling to distinguish this by an absolute happiness, has denied it a suitable concourse of people, that it might not at once have a full enjoyment of all the benefits lavished on it, there being

being no reason which can disculpate the Inhabitants of Quito in the neglect of the mines. For though the number of them discovered be very great, and afford a very probable conjecture that the Cordilleras must contain many more; yet very few are worked, particularly within these jurisdictions. Thus the riches of the country lie buried, and without them the fertility of the soil cannot supply their want; so as to spread through the province an opulency like that observable in the other provinces of Peru, where by the circulation of silver, there is an universal appearance of affluence, gaiety and splendor.

Of the great number of mines within the province of Quito, some were formerly worked, which at present are abandoned. The country then was sensible of its advantage; and the remembrance of the general opulency of those times resulting from the riches taken out of the mines, still subsists. Not only the capital, but the towns and villages were then very populous: and many of its inhabitants were famous all over Peru for their prodigious wealth. The rich mines within the jurisdiction of Macas were irrecoverably lost by a revolt of the Indians; and in process of time the very remembrance of their situation was obliterated. The mines of Zaruma have been abandon'd, the art of working the ore being lost, for want of a sufficient number of people to apply themselves to it: and the same decline is now seen all over the province. The fertility as natural to the climate still continues in all its plenty; but scarce the shadow of its former lustre and magnificence remains; and that enormous wealth, in which it gloried, is now no more. For if its products and manufactures bring in considerable quantities of silver from Lima and Valles, all is expended on European goods; so that, as I have elsewhere observed, little of that gold and silver, so common in the more southern provinces, is to be seen here.

The only part of the province of Quito, which under this unhappy change preserves its ancient opulence, is the department within the government of Popayan, which throughout abounds in gold-mines, and great numbers of them are still worked. To gratify the curious I shall give an account of the principal, and the manner of working the gold ore; as it is different from that used in the mines of Caxa. After which I shall mention the other mines known within that province.

Every part of the jurisdiction of Popayan abounds in mines of gold; and tho' in some departments more are worked

worked than in others, yet they all yield gold: and new mines are daily discovered and worked; which under all the inclemencies of the air in some parts fills its towns with inhabitants. Among the departments belonging to the province of Quito, the richest in gold are those of Cali, Buga, Almaguar and Barbacoas, some of its mines being always more or less worked; and with this singular advantage in its gold, of never being mixed with any heterogenous body; consequently no mercury is requisite in extracting it.

THE gold mines in these parts are not Caxa mines, as those of silver, and many of gold are; that is, they are not contained and confined as it werebetwixt two natural walls; but the gold is found dispersed and mixed with the earth and gravel; as sands are found mingled with earths of different species. Thus the whole difficulty consists in separating the grains of gold from the earth; and this is very easily done, tho' otherwise it would be impracticable, by running conduits of water. This method is also equally necessary in the Caxa mines, where the silver and gold are intimately united with other bodies, as after having gone thro' the operation of the quicksilver which their quality renders indispensible, it is washed in order to separate the remaining filth. After the last operation the amalgama is pure, consisting entirely of quick-silver, and gold or silver, according to the species which has been worked.

THE manner throughout the whole jurisdiction of Popayan for extracting the gold is, to dig the ore out of the earth and lay it in a large cocha or reservoir made for that purpose; and when this is filled, water is conveyed into it thro' a conduit: they then vigorously stir the whole, which soon turns to a mud, and the lightest parts are conveyed away thro' another conduit, which serves as a drain; and this work is continued till only the most ponderous parts, as little stones, sand and the gold remain at the bottom. The next part of the process is to go into the cocha with wooden buckets made for this purpose, in which they take up the sediment; then moving them circularly and uniformly, at the same time changing the waters, the less ponderous parts are separated; and at last the gold remains at the bottom of the bucket, clear from all mixture. It is generally found in grains as small as those of sand; and for that reason called oro en polvo; tho' sometimes pepitas or seeds are found among it of different sizes, but generally they run small. The water issuing from this cocha, is stopp'd in another contrived a little beneath it; and there undergo a like operation; in order to secure

cure any ſmall particles of gold, which from their extreme ſmallneſs might be carried off by the current of the water being mixed with the earth and other ſubſtances: and laſtly, this water is paſſed into a third cocha. But the ſavings here are generally inconſiderable.

THIS is the method practiſed in all the mines belonging to the juriſdiction of Popayan. The labourers are negro ſlaves, purchaſed by every owner of mines for this ſervice: and whilſt ſome are employed in waſhing others bring earth, that the waſhers are kept in continual employment, The fineneſs of this gold is generally of twenty two carats; ſometimes more, even to twenty three: ſometimes indeed it is under, tho' very ſeldom below twenty one.

IN the diſtrict of Choco are many mines of Lavadero or waſh-gold, like thoſe we have juſt deſcribed. There are alſo ſome where mercury muſt be uſed, the gold being enveloped in other metallick bodies, ſtones and bitumens. Several of the mines have been abandoned on account of the Platina; a ſubſtance of ſuch reſiſtance, that when ſtruck on an anvil of ſteel, it is not eaſily ſeparated; nor is it calcinable; ſo that the metal inclofed within this obdurate metal, could not be extracted without infinite labour and charge. In ſome of theſe mines the gold is found mixed with the metal called tumbaga, or copper, and equal to that of the eaſt; but its moſt remarkable quality is, that it produces no verdigreaſe, nor is corroded by any acids, as common copper is well known to be.

THE gold taken out of all theſe lavaderos or mines, in the province of Quito, is partly circulated in it: but after no long ſtay, like the other gold of theſe countries, goes away to Lima; but theſe circulations, however temporary, preſerve it from that decay which other parts have felt. A large quantity of this gold is carried to Santa Fé or Carthagena, ſo that Quito ſees very little of it.

IN the diſtrict of the town of Zaruma within the juriſdiction of Loxa, are ſeveral gold mines worked; and tho' of no great fineneſs, being only betwixt ſixteen and eighteen carats, they are ſo rich, that when refined to twenty carats, they prove more advantageous to the miners than thoſe where the gold is naturally of that fineneſs, but leſs abundant. Anciently it was uſual to work veins, but the inhabitants are now ſo indolent, that moſt of them are neglected. Theſe ores are worked with quickſilver; and all the mines here are Caxa mines. Of the ſame kind alſo are other gold mines within the juriſdiction of the government of Jaen Bracamoros, which about eighty or an hundred years ago yielded great quantities

quantities of metal. But the Indians of those parts, encouraged by the success of their brethren of Macas having revolted, the situation of them was entirely forgotten; and no care has since been taken to search after them. The gold extracted from these mines, tho' not so fine as that of Popayan, far exceeded the Zaruma gold. The Indians still extract some small quantities, when absolute necessity drives them to this resource for paying the tribute. In order to this they go to some brook or river and there wait till it overflows its bank, then wash the sands till they have procured a sufficient quantity to answer their present necessity, then they immediately leave off, not thinking it worth while to fatigue themselves any longer about it. Several mines discovered all over this province have undergone the same fate. One of these was in the jurisdiction of the town of Latacunga, near the village of Angamarca; the owner of which was an inhabitant of the village called Sanabria. The quantity of metal he procured from it was so great, that in order to lose no time, he caused it to be worked day and night, and had for that purpose a great number of negro slaves, who laboured in the night; and the Indians continued the work in the day time. But in the height of his prosperity, the mine in a violent storm gave way and sunk so low, that tho' frequent searches have been made after it, the vein could not be found. At last in the year 1743, a person discovered it by an accident of the same nature that had destroyed it; a violent tempest happened, during which, a torrent of water gushed out thro' the former entrance of the mine. The person interpreting this accident as a providential indication, immediately undertook the working of it; and it has fully answered his expectations.

Within the jurisdiction of this province are many other mines, which appear to have been worked at different times, and to have yielded a great quantity of metal. The nature of the country seems best adapted to gold-mines; tho' there are several silver veins, which appear to be very rich: and accordingly an account of them is entered in the several revenue offices, and in the records of the audience of Quito. Some have been lately worked, tho' with little encouragement: of this number may be said to be that of Guacaya, in the jurisdiction of Zicchos, on the frontiers of Latacunga; and another likewise of silver, about two leagues from the former. Both were worked some time; but never beyond the surface of the earth, the undertakers not having a sufficient stock of their own to work them in form; and the assistance they sollicited was denied. The most celebrated silver-mine in all

this diſtrict is that called Sarapullo, about eighteen leagues from the ſame town of Zicchos. This alſo was opened, but diſcontinued thro' the inability of the undertaker, and the want of proper aſſiſtance.

In the other juriſdiction, as well as in that of Latacunga, are all the indications of rich mines, tho' the number of them diſcovered is much leſs. The mountain of Pichincha is, by the inhabitants of Quito, thought to contain immenſe treaſures; and the grains of gold found in the ſands of the waters which iſſue from it, greatly countenance the opinion; tho' there is not the leaſt veſtige all over the mountain, that formerly any mine was diſcovered or worked there. But the latter is no great objection: as the diſruptions cauſed by ſtorms, or proceſs of time, are ſometimes ſuch as might entirely choak them up, and cover them ſo as to leave no traces of their exiſtence. And a ſuitable diligence and care have not been uſed for the diſcovery of any. Beſides this mountain, its whole cordillera, together with the eaſtern chain of Guamani, and many other parts, equally abound with the like appearances of rich mines.

In the diſtricts of Otabalo, and the town of San Miguel de Ibarra, in the territories of the village of Cayambe, along the ſides and eminences of the vaſt mountain Cayamburo, are ſtill remaining ſome monuments in confirmation of the tradition, that before the conqueſt, mines were worked there, which yielded a vaſt quantity of metal. Among ſeveral mountains near the village of Mira, famed for their antient riches, is one called Pachon, from which an inhabitant of that village is certainly known to have collected a few years ago, a vaſt fortune. None of theſe are worked; a particular nothing ſtrange to him who ſees how the mines lately diſcovered are neglected, tho' their quality is ſufficiently known.

The whole country of Pallactanga in the juriſdiction of the town of Rio Bamba, is full of mines of gold and ſilver; and the whole juriſdiction abounds with them to ſuch a degree, that one perſon with whom I was acquainted in that town, and who by his civilities to us and the French academicians, ſeemed to have a ſoul ſuitable to his opulence, had entered on his own account at the mine-office of Quito, eighteen veins of gold and ſilver; and all of a good quality. The ore of one of theſe veins, by the miners called negrillos, being eſſay'd at Lima in 1728, it appeared from a certificate of Don Juan Antonio de la Mota Torres, that it produced eighty marks of ſilver per cheſt, a very aſtoniſhing circumſtance; the uſual

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produce in rich mines being only eight or ten marks per chest, each chest containing fifty quintals of ore. This is the case of Potosi and Lipes, which after the expence of carrying the ore to other places in order to its being refined, and other charges, not only answers them all at ten marks per chest, but the surplus is then very considerable. There are likewise other mines where after being refined, a chest yields only five or six marks of silver, and in some only three; which yet will bear the expence of refining, being in a cheap country where great numbers of people are willing to work for low wages. Besides the riches contained in the mountains belonging to the jurisdiction of Cuenca, tho' this rests only on an old Indian tradition, several mines have lately been discovered and worked, but not with the care requisite to reap all the advantages they offer. One of these was in the district of Alausi, at about six leagues from a plantation called Susna; the owner of which, during the intervals of rural labour, used to employ his Indians and negroes in taking out the ore, which he found to be very rich: but for want of a sufficient fund to prosecute this work, and at the same time not to neglect his plantation, he never was able to get from the mine that immense quantity of silver which its richness seemed to promise, if worked in form. All that country is indeed so full of mines, that with an industrious turn in the minds of the inhabitants, they would be found in number and richness to equal those which have proved the sources of such infinite wealth to the southern provinces of Peru: but it is far otherwise. This supineness is thought to be owing to the great plenty; and consequently a low rate of all kinds of provisions: for the inhabitants having all they desire for little or nothing, cannot be prevailed on to slave in digging the earth for gold: whence the inhabitants of the cities and towns are hindered from acquiring large fortunes, and consequently increasing them, by undertaking to work more mines. Add to this the prejudice, or rather apprehension of the difficulties; which are thought so great, that when a person expresses his intention of working in some mine, others look upon him as a man running headlong to his destruction, and who risks certain ruin for remote and very uncertain hopes. They endeavour therefore to divert him from his purpose, and if they cannot succeed in this, they fly from him, as if they were afraid lest he should communicate the infection to them. It is not therefore strange that these mines, so rich in all appearance, should be neglected, and no person found desirous of reaping the great advantages which would doubtless result from working them. This

occupation, for want of being ſufficiently acquainted with it, is univerſally dreaded: whereas in the ſouthern provinces of Quito it is quite otherwiſe, the celebrated miners being men of great power, vaſt fortunes, and of the moſt eminent families in the country. Beſides which are great numbers of other miners of more limited circumſtances all eagerly embracing any opportunity of employing their ſubſtance in undertaking mines.

THE governments of Quijos and Macas, are no leſs abundant in mines than the juriſdictions of Quito; thoſe in Jaen are of infinite richneſs; and thoſe of Maynas and Atacames, not inferior to them. With regard to the firſt it is very well known, that the Indians on the banks of the Marañon, by waſhing the ſands of ſome of the rivers running into it, procure what gold they want, tho' their deſires in this point are as moderate as the avidity of other nations is inſatiable. This gold is an evident ſign that the adjacent country abounds in mines. As to the ſecond, experience has ſhewn that the borders of the rivers of Santiago and Mira are full of veins of gold, the mulattos and meſtizos ſupplying themſelves with that metal by waſhing the ſands. But neither of them have applied themſelves to diſcover the original veins. Beſides gold and ſilver-mines, the province of Quito has alſo thoſe of other metals, and quarries of fine ſtone; but theſe are utterly diſregarded by the inhabitants. Yet this province could not attain the complete poſſeſſion of its riches, if to the mines of gold and ſilver, nature had not added thoſe materials which are neceſſary in extracting the treaſures they contain, and in the other ſervices of life: nor could this country be properly ſaid to be rich in mines, if it afforded only thoſe of gold and ſilver; but nature, that there might be no deficiency in her gift, hath alſo furniſhed it with mines of azoque or quickſilver, which are found in the ſouthern extremity of the province, near a village of the ſame name belonging to the juriſdiction of Cuenca. Formerly the quickſilver for the gold and ſilver mines was furniſhed from hence; but this has been ſuppreſſed, ſo that at preſent only thoſe of Guanca Velica, are allowed to be worked; by which means a ſtop has been put to thoſe frauds diſcovered in the payments of the fifths, the miners, inſtead of applying to the mine-offices within their department, or the principal ſtaple, ſupplying themſelves with contraband mercury. And the end has been fully anſwered with regard to the revenue, frauds being now much more difficult, and conſequently leſs frequent,

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ſince the quickſilver can be had only from one mine, than when ſeveral were open. But at the ſame time it is certain that this prohibition was the principal cauſe of the decay of the ſilver mines in the provice of Quito: and had the caſe been duly examined, many other remedies might have been found to prevent theſe clandeſtine practices, beſides an abſolute obſtruction to ſo great a part of the riches of that country.

It is the opinion of ſome naturaliſts, and the marks of it are indeed very evident, that the ground on which the city of Cuenca ſtands, is entirely an iron-mine, its veins ſhewing themſelves in the chaſms of ſome breaches; and the pieces taken out of the ſloughs, prove it beyond diſpute, not only by their colour and weight, but being reduced to ſmall pieces are attracted by the magnet; and many intelligent perſons in theſe ſpecies of mines affirm, that it not only is an iron-mine, but alſo of extreme richneſs: tho' this has not been aſcertain'd by experiment.

It is alſo equally unqueſtionable, that were it poſſible to turn the induſtry of the inhabitants into this channel, mines of copper, tin and lead might alſo be diſcovered, tho' no ſuch thing is at preſent known. But it it is natural to ſuppoſe, that, where there are ſo many mines of the moſt precious metals, thoſe of copper and lead are not wanting. In the next chapter I ſhall give ſome account of other mines; together with the quarries of curious ſtone, and ſeveral antient monuments of antiquity, that nothing may be wanting towards the complete knowledge of this province, from which Spain derives ſuch great advantages.

CHAP. XI.

Monuments of the antient INDIANS *in the juriſdiction of* QUITO; *with an account of the ſeveral gems and quarries found near that city.*

THE antient inhabitants of Peru, were far from carrying the ſciences to that perfection they are capable of, before the conqueſt of the country by the Spaniards; yet they were not deſtitute of all knowledge of them; but it was ſo faint and languid, that it was far from being ſufficient for cultivating their minds: they had alſo ſome glimmerings of the mechanick arts; but their ſimplicity or want of taſte, was ſo remarkable, that unleſs forced by abſolute neceſſity, they never departed from the models before them.

The progreſs and improvements they made were owing to induſtry, the common directreſs of mankind. And a cloſe application ſupplied the want of ſcience. Hence after a long ſeries of time, and exceſſive labour, they raiſed works, not ſo totally void of art and beauty, but that ſome particulars raiſe the admiration of an attentive ſpectator. Such for inſtance, were ſome of thoſe ſtructures of which we have ſtill ſuperb ruins, in which, conſidering the magnitude of the works, and the few tools they were maſters of, their contrivance and ingenuity are really admirable. And the work itſelf, tho' deſtitute of European ſymmetry, elegance and diſpoſition, is ſurprizing, even in the very performance of it.

THESE Indians raiſed works both for the convenience and veneration of poſterity. With theſe the plains, eminences or leſſer mountains are covered; like the Egyptians, they had an extreme paſſion for rendering their burial places remarkable. If the latter erected aſtoniſhing pyramids, in the centre of which, their embalmed bodies were to be depoſited; the Indians having laid a body without burial in the place it was to reſt, environ'd it with ſtones and bricks as a tomb, and the dependents, relations and intimate acquaintance of the deceaſed, threw ſo much earth on it as to form a tumulus or eminence which they called guaca. The figure of theſe is not preciſely pyramidical; the Indians ſeeming rather to have affected the imitation of nature in mountains or eminences. Their uſual height is about eight or ten toiſes, and their length betwixt twenty and twenty five, and the breadth ſomething leſs; tho' there are others much larger. I have already obſerved, that theſe monuments are very common all over this country, but they are moſt numerous within the juriſdiction of the town of Cayambe, its plains being as it were covered with them. The reaſon of this is, that formerly here was one of their principal temples, which they imagined muſt communicate a ſacred quality to all the circumjacent country, and thence was choſen for the burial place of the kings and caciques of Quito; and in imitation of them the caciques of all theſe villages were alſo interred there.

THE remarkable difference in the magnitude of theſe monuments ſeem to indicate that the guacas were always ſuitable to the character, dignity, or riches of the perſon interred; as indeed the great number of vaſſals under ſome of the moſt potent Caciques, concurring to raiſe a guaca over his body, it muſt certainly be conſiderably larger than that of a private Indian, whoſe guaca was raiſed only by his family and a few acquaintance:

acquaintance: with them alſo were buried their furniture, and many of their inſtruments both of gold, copper, ſtone and earth: and theſe now are the objects of the curioſity or avarice of the Spaniards inhabiting the country; that many of them make it a great part of their buſineſs to break up theſe guacas, in expectation of finding ſomething valuable: and miſled by finding ſome pieces of gold here and there, they ſo devote themſelves to this ſearch, as to ſpend in it both their ſubſtance and time: tho' it muſt be owned, that many, after a long perſeverance under diſappointments, have at length met with rich returns for all their labour and expence. Two inſtances of this kind happen'd while we were in the country; the firſt guaca had been open'd near the village of Cayambe, in the plain of Peſillo, a little before our arrival at Quito; and out of it were taken a conſiderable quantity of gold utenſils; ſome of which we ſaw in the revenue-office, having been brought there as equivalents for the fifths. The ſecond was more recently diſcover'd in the juriſdiction of Paſtos, by a Dominican friar, who from a turn of genius for antiquities, had laid out very large ſums in this amuſement; and at laſt met with a guaca in which he is ſaid to have found great riches. This is certain, that he ſent ſome valuable pieces to the provincial of his order, and other perſons at Quito. The contents of moſt of them conſiſt only of the ſkeleton of the perſon interred; the earthen veſſels in which he uſed to drink chica, now called guaqueros; ſome copper axes, looking-glaſſes of the Ynca-ſtone, and things of that kind being of little or no value, except for their great antiquity, and their being the works of a rude illiterate people.

The manner of opening the guacas is to cut the lower part at right angles, the vertical and horizontal line meeting in the centre, where the corps and its furniture are found.

THE ſtone mirrours taken out of the guacas are of two ſorts; one of the Ynca-ſtone, and the other of the gallinazo-ſtone: the former is not tranſparent, of a lead-colour, but ſoft; they are generally of a circular form, and one of the ſurfaces flat, with all the ſmoothneſs of a chriſtal looking-glaſs; the other oval and ſomething ſpherical, and the poliſh not ſo fine. They are of various ſizes, but generally of three or four inches diameter, tho' I ſaw one of a foot and a half, and its principal ſurface concave, and greatly enlarged objects; nor could its poliſh be exceeded by the beſt workmen among us. The great fault of this ſtone is its having ſeveral veins and flaws, which beſides the diſadvantage to the ſurface of the mirrour, render it liable to be broke by any little accident. Many are inclined to

think that it is not natural but factitious. There are, it must indeed be owned, some appearances of this, but not sufficient for conviction. Among the breaches in this country some quarries of them are found; and quantities continue to be taken out, tho' no longer worked for the use the Indians made of them. This does not however, absolutely contradict the fusion of them, in order to heighten their quality, or cast them into a regular form.

THE gallinazo-stone is extremely hard, but as brittle as flint: it is so called from its black colour, in allusion to the colour of the bird of that name; and is in some measure diaphanous. This the Indians worked equally on both sides; and reduced it into a circular figure. On the upper part they drilled a hole for a string to hang it by; the surfaces were as smooth as those of the former, and very exactly reflect objects. The mirrours made of this stone were of different kinds, some plane, some concave, and others convex. I have seen them of all kinds; and from the delicacy of the workmanship one would have thought these people had been furnished with all kinds of instruments, and compleatly skilled in opticks. Some quarries of this stone are likewise met with; but they are entirely neglected, tho' its transparency, colour and hardness, besides its having no flaws or veins, render it very beautiful.

THE copper axes of the Indians differ very little in their shape from ours: and it appears that these were the instruments with which they performed most of their works; for if not the only, they are the most common edge-tools found among them; and the whole apparent difference betwixt those they use, consists only in size and shape: for tho' they all resemble an axe, the edge in some is more circular than in others. Some have a concave edge, others a point on the opposite side; and a fluted handle. These instruments were not all of copper, some having been found of gallinazo, and of another stone something resembling the flint, but less hard and pure. Of this stone and that of the gallinazo are several points supposed to have been heads of spears, as these were their two chief instruments, or weapons: for had they used any other, some would doubtless have been found among the infinite number of guacas, which have been opened.

THE guaqueros or drinking-vessels, are of a very fine black earth; but the place where they were made is utterly unknown. They are round, and with a handle in the middle, the mouth on one side, and on the other the head of an Indian, whose features are so naturally expressed that very few of our workmen could equal it. Others tho' of the same form

form are of a red earth. Besides which there are found larger and smaller vessels of both kinds of earth, used in making and keeping the chica.

Among the gold pieces are the nose-jewels, which in form resemble the foot of a chalice, and very little less: these were appended to the septum, which divides the two nostrils. There are also found collars, bracelets, and ear pendants, resembling the nose-jewels: but all these are no thicker than paper: the idols which are at full length are every where hollow within; and as they are all of one piece, without any mark of soldering, the method they used in making them is not easily conceived. If it be said that they were cast; still the difficulty remains, how the mould could be of such a fragility as to be taken away without damaging works, which in all their parts, are so extremely thin.

The maize has ever been the delight of the Indians; for besides being their food, their favourite-liquor chica was made of it; the Indian artists therefore used to shew their skill in making ears of it in a kind of very hard stone; and so perfect was the resemblance that they could hardly be distinguished by the eye from nature; especially as the colour was imitated to the greatest perfection; some represented the yellow maize, some the white; and in others the grains seemed as if smoke dried by the length of time they had been kept in the houses. The most surprizing circumstance of the whole is, the manner of their working, which, when we consider their want of instruments and wretched form of those they had, it appears an inexplicable mystery: for either they work'd with copper tools, a metal little able to resist the hardness of stones, or to give the nice polish conspicuous on their works, other stones must have been used for tools. But the labour, time, and patience requisite to make only a hole in the gallinazos, as was made in the mirrours; and much more to give their surfaces such a smoothness and polish, that they are not to be distinguished from the finest glass, must have been prodigious. These are works which the most ingenious of our artists would be extremely at a loss to produce, if they were allowed only pieces of copper and stones without any other tools or materials. There cannot be a greater proof of the ingenuity of these people, that by mere dint of genius, and unassisted by information, they should attain to such contrivances and such a delicacy of workmanship.

Yet all that we have said is surpassed by the ingenuity of the Indians in working emeralds, with which they were supplied

ſupplied from the coaſt of Manta, and the countries dependent on the government of Atacames, Coaquis, or Quaques. But theſe mines are now entirely loſt, very probably thro' negligence. Theſe curious emeralds are found in the tombs of the Indians of Manta and Acatames: and are in beauty, ſize and hardneſs ſuperior to thoſe found in the juriſdiction of Santa Fé; but what chiefly raiſes the admiration of the connoiſſeur, is to find them worked, ſome in ſpherical, ſome cylindrical, ſome conical, and of various other figures; and all with a perfect accuracy. But the unſurmountable difficulty here is, to explain how they could work a ſtone of ſuch hardneſs; it being evident, that ſteel and iron were utterly unknown to them. They pierced emeralds and other gems with all the delicacy of the preſent times, furniſhed with ſo many tools: and the direction of the whole is alſo very obſervable; in ſome it paſſes thro' the diameter; in others, only to the centre of the ſtone, and coming out at its circumference they formed triangles at a ſmall diſtance from one another; and thus the figure of the ſtone to give it a relief was varied with the direction of the holes.

After this account of the guacas of theſe idolatrous nations, the cuſtom which equally prevailed among the ſouthern nations of Peru, I proceed to their ſuperb edifices, whether temples, palaces or fortreſſes: and tho' thoſe in the kingdom of Quito are not the moſt ſtately and magnificent, the court and reſidence of the Yncas, having been in the province of Cuſco; yet ſome of the former ſufficiently denote the grandeur of the Indians, who then inhabited it, and their fondneſs for ſuch edifices; intending as it were to hide the ruſticity of their architecture under richneſs and magnificence, which they profuſely beſtowed on all their edifices whether of brick or ſtone.

The greateſt part of one of theſe works is ſtill exiſting near the town of Cayambe, being a temple built of unbaked bricks. It ſtands on an eminence of ſome height; its figure is perfectly circular, and its diameter eight toiſes. Of this ſtructure nothing now remains but the walls, which are in good condition; and about two toiſes and a half in height, and four or five feet in thickneſs. The cement of the bricks is of the ſame earth with that of which they are made: and the hardneſs of them may be conceived from remaining ſo long in a good condition expoſed to all the injuries of the weather, having no cover.

Beſides the ancient tradition that this ſtructure was one of the temples of thoſe times, the manner of its conſtruction counte-

countenances ſuch a conjecture: for its circular form without any ſeparation in the inſide, ſhews it to have been a place of publick reſort, and not any habitation. The ſmallneſs of the door renders it probable, that tho' the Yncas entered into their palaces in the chairs in which they were carried, as will be ſeen hereafter, this place they entered on foot in token of veneration: the dimenſions of the door not admitting of any other manner. And as I have before obſerved, that one of the principal temples was not far from hence, this was probably the very ſtructure.

At the extremity of the plain which runs northward from Latacunga, are ſtill ſeen the walls of a palace of the Yncas of Quito; and is ſtill called by its ancient name Callo. At preſent it ſerves for the manſion-houſe of a plantation belonging to the Auguſtines at Quito. If it wants the beauty and grandeur which characterize the works of the ancient Egyptians, Greeks, Romans, and other nations verſed in the fine arts; yet, if we make proper allowance for the ruſticity of the Indians, and compare this with their other buildings, the dignity of the prince will be abundantly conſpicuous in the prodigious magnitude of the materials, and the magnificence of the ſtructure. You enter it thro' a paſſage five or ſix toiſes in length; leading into a court, round which are three ſpacious ſaloons, filling the three other ſides of its ſquares. Each of theſe ſaloons has ſeveral compartments; and behind that which faces the entrance, are ſeveral ſmall buildings which ſeem to have been offices, except one; and this from the many diviſions in it, was, in all probability a menagerie. Tho' the principal parts ſtill continue, the ancient work is ſomething diſfigured, dwellings having been lately built among them, and alterations made in the chief apartments.

This palace is entirely of ſtone, equal in hardneſs to flint, and the colour almoſt black. They are exceedingly well cut, and joined ſo curiouſly that the point of a knife, or even ſo much as a piece of the fineſt paper cannot be put betwixt them; ſo that they only ſhew the walls to be of different ſtones, and not one entire compoſition; but no cement is perceivable. The ſtones without are all of a convex figure; but at the entrance of the door are plane. But there is a viſible inequality both in the ſtones and in the courſes; which gives a more ſingular air to the work; for a ſmall ſtone is immediately followed by one large and ill ſquared; and that above is made to fit the inequalities of the other two,

two, and at the ſame time fill up all the interſtices between the projections and irregularity of their faces; and this in ſuch perfection, that whatſoever way they are viewed; all parts appear joined with the ſame preciſion. The height of theſe walls is about two toiſes and a half, and about three or four feet in thickneſs. The doors are about two toiſes high, and their breadth at the bottom about three or four feet; but runs narrowing upwards, where the aperture is only two feet and a half. The doors of the palaces, where the Yncas reſided, were made of ſuch a height to allow room for the chairs in which the monarch was carried on men's ſhoulders into his apartment, the only place in which his feet touched the ground. It is not known whether this or the other palaces of the Yncas had any ſtories; nor how they were roofed: for thoſe we examined were either open or had been roofed by the Spaniards: But it is highly probable that they covered them with boards, in the form of a terrace, that is, ſuported by beams laid acroſs: for in the walls there is nothing near the ground that affords room for a conjecture, that they ever ſupported any roofs: on this horizontal roof they contrived ſome ſlope for carrying off the waters. The reaſon of contracting their doors at the top was, that the lintel might be of one ſtone; for they had no idea either of arches or of key-ſtones, as may be concluded from no ſuch works occuring among all their edifices.

About fifty toiſes north of this palace fronting its entrance is a mountain, the more ſingular as being in the midſt of a plain: its height is betwixt twenty five and thirty toiſes, and ſo exactly, on every ſide, formed with the conical roundneſs of a ſugar-loaf, that it ſeems to owe its form to induſtry; eſpecially as the end of its ſlope on all ſides forms exactly with the ground the ſame angle in every part. And what ſeems to confirm this opinion is, that guacas or mauſoleums of prodigious magnitude were greatly affected by the Indians in thoſe times. Hence the common opinion, that it is factitious, and that the earth was taken out of the breach north of it, where a little river runs, does not ſeem improbable. But this is no more than conjecture, not being founded on any evident proof. In all appearance this eminence, now called Panecillo de Callo ſerved as a watch tower, commanding an uninterrupted view of the country, in order to provide for the ſafety of the prince on any ſudden alarm of an invaſion, of which they were under continual apprehenſions, as will appear from the account of their fortreſſes.

About

About two leagues north-eaſt of the town of Atun-Canar, or great Canar, is a fortreſs or palace of the Yncas. It is the moſt entire, the largeſt and beſt built in all the kingdom. Cloſe by its entrance runs a little river, and the back part of it terminates in a high and thick wall at the ſlope of a mountain. In the middle of it is a kind of oval tower; about two toiſes high from the ground within the fort, but without it riſes ſix or eight above that of the hill. In the middle of the tower is a ſquare of four walls; which on the ſide facing the country leave no paſſage; and all its angles touch the circumference of the oval. On the oppoſite ſide only, is a very narrow paſs anſwering to the inward part of the tower. In the middle of this ſquare is an apartment of two ſmall rooms, without any communication; and the doors of them oppoſite to the ſpace which ſeparates them. In the ſides towards the country are loop-holes; and in critical times was made a court of guard. From the outſide of this oval tower a wall is extended on the left ſide about forty toiſes, and about twenty five on the right; this wall was continued in a great number of irregular angles, and incloſed a large ſpot of ground. It had only one entrance, which was in the ſide oppoſite to the tower; and facing the laſt angle on the right near the rivulet. From this gate or entrance was a paſſage, juſt broad enough for two perſons to walk abreaſt; and at the wall turned ſhort off towards the tower; but always of the ſame breadth. After this it winded towards the breach, and widened ſo as to form a parade before the tower. In theſe paſſages, at the diſtance of every two or three paces, one ſees nitches formed within the wall, like ſentry boxes: and on the other ſide two doors which were entrances to the ſame number of corps de logis, and ſeem to have ſerved the ſoldiers of the garriſon for barracks. In the inner ſquare to the left of the tower, were ſeveral apartments of which the height, diſpoſition, and doors are a ſufficient proof that this was once the prince's palace. All the walls being full of hollows, reſembling cupboards, in which, as likewiſe in the two chambers of the tower, the nitches, and along the paſſages, were ſtone peggs with a head betwixt ſix and eight inches long, and three or four in diameter; the uſe of theſe probably was for hanging up their arms.

The whole main wall on the ſlope of the mountain, and deſcending laterally from the oval tower is very thick, and the outſide perpendicular. Within is a large rampart, and on it a parapet of an unuſual height: and though the rampart reached quite round the wall, there was only one aſcent to it which was adjoining to the oval tower. The outward and inward

ward walls are all of the same kind of stone, very hard and well polished, and dispos'd like those of Callo. The apartments also were without cieling or flooring, like those of the abovementioned palace.

At Pomallacta, within the jurisdiction of the town of Guasuntos, are some rudera of another fortress like the former: and it is a common opinion here, that there was a subterraneous communication between these two fortifications; but this does not seem at all probable. For besides the distance of six leagues, the ground is very uneven, and interrupted by some of the smaller branches of the Cordilleras, breaches and brooks. The inhabitants are however very tenacious of their opinion: and some affirm that a few years before our arrival in the country, a person entered this subterraneous passage at the fort of Canar, but his light going out, he was obliged to return. They farther say, that the entrance is within the fort at the foot of the tower, where indeed there is a small low door, but now choaked up with earth; and was doubtless for some use. But this does not imply that it led to the other fortress, as besides a great quantity of lights, there must also have been here and there vent-holes or spiracles, which considering the mountains, is utterly impracticable.

Many other walls and ruins are seen all over the country, both in the plains, on the sides of the hills, and on their summits; but most in desert places, and without any vestige of a town or village near them. And except these three, they are either of adoves or unknown stone, without any arrangement. The more irregular are thought to be the works of Indians before they were reduced by the Yncas: but those of Callo and the other two fortresses, by their superior symmetry shew, that they are of a later date, and built under the direction of the Yncas, who applied themselves with exemplary attention to promote necessary arts throughout all their conquests; possibly from this political view, that the people, sensible of the happy change, might be the better subjects. All these remains of antique edifices, the Indians call Inga Perca, *i. e.* the Ynca's walls.

Another Indian method of fortification, and of which there are still some remains, was to dig three or four ranges of moats quite round the tops of such mountains, as though high and steep, were not subject to frosts: and every one on the inside strengthened by a parapet; whence they could safely annoy the enemy. These they called Pucuras; and within the last range of moats they built barracks for the garrison. These kinds of forts were so common, that one scarce meets with

with a mountain without them. On the peaks of Pambamarca, are three or four; and one of them on the place where we fixed our ſignal for the meridian triangles. In like manner we found them on almoſt all the other mountains; and the outward moat of circumvallation was above a league in extent. The breadth and depth of each was alike; but in reſpect of one another there was not the ſame uniformity, ſome of them having a breadth of two toiſes and even more, and others not one; and the like difference is obſervable in their depth. It was however, their conſtant care to make the inward bank at leaſt three or four feet higher than the outward, to have the greater advantage over the aſſailants.

The junction and poliſh ſo much admired in all the remaining ſtone works of the Indians plainly ſhew, that they made uſe of ſome ſtones to poliſh others, by rubbing them together; it being highly improbable that they could bring them to ſuch perfection with the few and aukward tools they uſed: and as for the working of iron they were undoubtedly ſtrangers to it, their being many mines of that metal in this country, and not one of them with any marks of having ever been touched. And no iron was found among them at the arrival of the Spaniards. But on the contrary, they ſhewed an extreme fondneſs for any thing made of that metal.

I ſhall conclude this chapter with an account of the ſtones and minerals found in this kingdom: and a few remarks on the wild Indians bordering on theſe provinces.

I have already mentioned the quarries or mines producing the two kinds of ſtone of which the Indians made their mirrours; and which were thoſe moſt eſteemed. There are likewiſe quarries of other ſtones, which in a country where gold and ſilver mines do not abound, would be thought valuable. Of theſe one is in the plain of Talqui, ſouth of Cuenca; out of which are taken very large and beautiful blocks of white and very clear alabaſter. Its only fault is its ſofneſs: yet that is not ſuch as to hinder all kinds of works from being made of it; or rather its eaſineſs contributes to their perfection: nor is there any danger of large flakes flying off, which often ſpoil an entire piece. The only quarries of this ſtone are near Cuenca; but thoſe of rock cryſtal I have ſeen in many parts, from whence I have had ſome very large, clear and tranſparent pieces, and of a remarkable hardneſs: but as it is not eſteemed here, no uſe is made of it; ſo that what is found is purely by accident. In the ſame juriſdiction of Cuenca; and about two leagues north weſt of the city; not far from the villages of Racan and Saanſay, is a ſmall mountain, entirely covered with flints; moſtly black, ſome

ſome of a reddiſh caſt, and others whitiſh. But being ſtrangers to the manner of cutting and filing them for fire-arms, the people make no uſe of them: and on ſome occaſions flints either for muſkets or piſtols, have been ſold at Cuenca, Quito, and all over the country for two rials each; but one is the common price of them, being brought from Europe. Conſequently, as there is here a whole quarry of them, their exorbitant price is wholly owing to a want of induſtry, as this would in a ſhort time render them as expert at cutting flints as the Europeans.

HAVING mentioned the mines of metals and the quarries of large ſtones; it would be a very great impropriety to omit the gems found in this province. I have already obſerved that the juriſdictions of Atacames and Manta, formerly abounded in emeralds of a fineneſs ſurpaſſing thoſe of the mines of Santa Fé. Not a ſmall number of them was deſtroyed by an error of the firſt Spaniards who came hither, imagining that if they were real gems, they would ſtand the ſtroke of a hammer on an anvil. The loſs of the mines of Atacames, and the neglect of many others of gold and ſilver, was in ſome meaſure compenſated by the diſcovery of ſeveral in the juriſdiction of Cuenca; but which have been but little improved, tho' they exhibit the moſt inviting ſigns of their great riches, namely fragments of rubies; and which intelligent perſons ſay are very fine. Theſe are uſually found among the ſands of a rapid river not far from the village of Azogues. The Indians and others frequently make it their buſineſs to go and waſh thoſe ſands, where they find ſmall ſparks, about the bigneſs of a lentil, and ſometimes larger; and it is not to be queſtioned but theſe are waſhed away by the continual alliſion of the water in its paſſage along the mine. But the inhabitants content with this piddling work, do not trouble themſelves to trace the origin of the mine; tho' there is all the appearance in the world, that it would turn to very good account. I myſelf, when I was at that village, ſaw ſome of theſe ſparks in their natural ſtate; and both their colour and hardneſs ſufficiently ſhewed that they were of a very fine ſort.

ANOTHER kind of ſtone is found in great plenty all over this country. It is of a fine green, and harder than alabaſter, tho' not pellucid: but no more valued than any of the former; except that a few toys or utenſils are made of it.

HERE are alſo ſome mines of ſulphur, and ſome parts afford vitriol; but no farther known than as nature has placed them in view, not only the improvement of them being entirely neglected, but ſcarce any notice taken of thoſe which lie on the

ſurface

ſurface of the ground; either becauſe the inhabitants ſtand in no need of thoſe minerals; or from their ſtrong averſion to any thing that requires labour.

NORTH of Quito, betwixt two plantations, at the foot of mount Anlagua, one of which bears the ſame name, and the other that of Courogal, runs a very large river, which petrifies any wood, leaves, &c. thrown into it. I have had whole branches thus petrified, and the poroſity of the ſtem, the fibres of the rind, even the ſmalleſt veins of the leaves, and the meander of its fibrille, equally diſcernable as when freſh cut from the tree. I have alſo had large pieces of timber petrified, which at firſt ſight appeared to be wood thoroughly dried; no viſible alteration having been made in them except in the colour.

WITH all theſe appearances I cannot think that the wood, leaves, and the like which are put into the river, are really turn'd into ſtone of ſuch a hardneſs as that I experienced: but as the appearance is undeniable, I ſhall offer an explanation of this ſuppoſed tranſmutation.

IT must be obſerved, that the rocks and all the parts which this river waſhes, are covered with a cruſt of a hardneſs little inferior to that of the main rock; and this increaſes its volume, and diſtinguiſhes itſelf from the original rock, which is ſomething yellowiſh: the inference I would draw from hence is, that the water of the river is mixed with petrifying viſcid, and glutinous particles, which adhere to the body they ſurround: and as by their extreme ſubtility they inſinuate themſelves thro' its pores, they fill the place of the fibres which the water inſenſibly rots off and detaches, till at length all that was leaf or wood gives way to that petrifying matter; which ſtill retains the impreſſion of the parts of the original, with its ſeveral veins, fibres and ramifications. For at the time of its inſinuation the ducts of the wood or leaves ſerve for a kind of mould, by which it naturally takes the entire figure of the body into which it has obtruded itſelf.

AN obſervation I made with ſome branches confirms me in this opinion: for having open'd them I found ſome leaves and bits of wood which ſnapp'd on breaking; and the inſide was as hard as real ſtone; the texture only remaining of its firſt ſubſtance. But in others the parts conſolidated by the ſtony matter ſnapp'd, and the fibres not having yet undergone a total corruption, retain'd the appearance of wood, tho' ſome were more rotten and decay'd than others. I had alſo ſome leaves, the ſurface of which was only cover'd with a very fine lapideous

 tegument,

tegument, but within were entire leaves, except here and there a little mark of decay.

It is likewise to be observed, that this matter much more easily fastens on any corruptible substance, than on the more compact and solid, as stones and the like: the reason of which is that in one it meets with pores, in which it fixes itself; but having no such hold on the harder bodies, it is soon washed off by the agitation of the water; that if now and then such crusts are seen on stones, they never make any sensible addition to their volume, tho' some excrement is now conspicuous from the difference of the colour: that of the petrified leaves both within and without is of a pale yellow; and the same prevails in the stems: tho' in these always with a mixture of that of the wood itself when dry.

Tho' all the jurisdictions of the kingdom of Quito, from N. to S. are not molested by the vicinity of wild Indians, yet it is the misfortune of the governments of Quixos and Macas, Jaen and Maynas to be surrounded and intermixed with those barbarians, so that by only passing the eastern Cordillera of the Andes, towards that part you usually meet with them: and from some parts of those eminences the smoke of their cottages may be seen. This sight is most frequently beheld from the mountain on the back of the town of Cayambe; and all along to the northward, from the village of Mira within the jurisdiction of the town of San Miguel de Ibarra. The sportsmen, when hunting on those hills, often see the smoke both on this side and likewise on the same Cordillera from the jurisdiction of Riobamba, to that of Cuenca. The village of Mira has often been surprized with the sudden appearance of some of these Indians, but they have as suddenly turned back, and with the same haste they came. It is not uncommon for Indians of these jurisdictions, from a fondness for sloth and licentiousness, to leave their houses and go over to the savages; as among them they may, without controul, follow their natural idolatry, and give themselves up to drunkenness and all manner of vice: and, what they think a supreme happiness, be served and tended by women, whose office it is to take care of and support them. All their occupation being hunting, whenever compelled by necessity, or induced by a sudden fit of industry. Thus they live in a debasement of human nature; without laws or religion; in the most infamous brutality; strangers to moderation; and without the least controul or restraint on their excesses.

End of the FIRST VOLUME.

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