

NOTES

AND

ILLUSTRATIONS.

NOTE I. p. 8.

TYRE was situated at such a distance from the Arabian Gulf, or Red Sea, as made it impracticable to convey commodities from thence to that city by land-carriage. This induced the Phenicians to render themselves masters of *Rhinocrura* or *Rhinocolura*, the nearest port in the Mediterranean to the Red Sea. They landed the cargoes which they purchased in Arabia, Ethiopia, and India, at Elath, the safest harbour in the Red Sea towards the North. Thence they were carried by land to Rhinocolura, the distance not being very considerable; and, being re-shipped in that port, were transported to Tyre, and distributed over the world. Strabon. Geogr. edit. Casaub. lib. xvi. p. 1128. Diodor. Sicul. Biblioth. Histor. edit. Wesselingii, lib. i. p. 70.

NOTE II. p. 11.

The Periplus Hannonis is the only authentic monument of the Carthaginian skill in naval affairs, and one of the most curious fragments transmitted to us by antiquity. The learned and industrious Mr. Dodwell, in a dissertation prefixed to the Periplus of Hanno, in the edition of the Minor Geographers published at Oxford, endeavours to prove that this is a spurious work, the composition of some Greek, who assumed Hanno's name. But M. de Montesquieu, in his *l'Esprit des Loix*, lib. xxi. c. 8. and

M. de Bougainville, in a dissertation published tom. xxvi. of the Mémoires de l'Académie des Inscriptions, &c. have established its authenticity by arguments which to me appear unanswerable. Ramusio has accompanied his translation of this curious voyage with a dissertation tending to illustrate it. Racolte de Viaggi, vol. i. p. 112. M. de Bougainville has, with great learning and ability, treated the same subject. It appears that Hanno, according to the mode of ancient navigation, undertook this voyage in small vessels, so constructed that he could keep close in with the coast. He sailed from Gades to the island of Cerne in twelve days. This is probably what is known to the moderns by the name of the Isle of Arguim. It became the chief station of the Carthaginians on that coast; and M. de Bougainville contends, that the cisterns found there are monuments of the Carthaginian power and ingenuity. Proceeding from Cerne, and still following the winding of the coast, he arrived, in seventeen days, at a promontory, which he called *The West Horn*, probably Cape Palmas. From this he advanced to another promontory, which he named *The South Horn*, and which is manifestly Cape de Tres Puntas, about five degrees north of the line. All the circumstances contained in the short abstract of his journal, which is handed down to us, concerning the appearance and state of the countries on the coast of Africa, are confirmed and illustrated by a comparison with the accounts of modern navigators. Even those circumstances which, from their seeming improbability, have been produced to invalidate the credibility of his relation, tend to confirm it. He observes, that in the country to the south of Cerne, a profound silence reigned through the day; but during the night innumerable fires were kindled along the banks of the rivers, and the air resounded with the noise of pipes and drums, and cries of joy. The same thing, as Ramusio observes, still takes place. The excessive heat obliges the Negroes to take shelter in the woods, or in their houses, during the day. As soon as the sun sets, they sally out, and by torch-light enjoy the pleasure of music and dancing, in which they spend the night. Ramus. i. 113. F. In another place, he mentions the sea as burning with torrents of fire. What occurred to M. Adanson, on the same coast, may explain this: "As soon," says he, "as the

sun dipped beneath the horizon, and night overspread the earth with darkness, the sea lent us its friendly light. While the prow of our vessel ploughed the foaming surges, it seemed to set them all on fire. Thus we sailed in a luminous inclosure, which surrounded us like a large circle of rays, from whence darted in the wake of the ship a long stream of a light." *Voy. to Senegal*, p. 176. This appearance of the sea observed by Hunter, has been mentioned as an argument against the authenticity of the *Periplus*. It is, however, a phenomenon very common in warm climates. Captain Cook's *Second Voyage*, vol. i. p. 15. The *Periplus of Hanno* has been translated, and every point with respect to it has been illustrated with much learning and ingenuity, in a work published by Don Pedr. Rodrig. Campomanes, intitled, *Antiguedad maritima de Cartago, con el Periplo de su General Hannon traducido e ilustrado*. Mad. 1756. 4to.

NOTE III. p. 12.

Long after the navigation of the Phenicians and of Eudoxus round Africa, Polybius, the most intelligent and best informed historian of antiquity, and particularly distinguished by his attention to geographical researches, affirms, that it was not known, in his time, whether Africa was a continued continent stretching to the south, or whether it was encompassed by the sea. Polybii *Hist. lib. iii.* Pliny the naturalist asserts, that there can be no communication between the southern and northern temperate zones. *Plinii Hist. Natur. edit. in usum Delph. 4to. lib. ii. c. 68.* If they had given full credit to the accounts of those voyages, the former could not have entertained such a doubt, the latter could not have delivered such an opinion. Strabo mentions the voyage of Eudoxus, but treats it as a fabulous tale, *lib. ii. p. 155.*; and, according to his account of it, no other judgment can be formed with respect to it. Strabo seems not to have known any thing with certainty concerning the form and state of the southern parts of Africa. *Geogr. lib. xvii. p. 1180.* Ptolemy, the most inquisitive and learned of all the ancient geographers, was equally unacquainted with any parts of Africa situated a few degrees beyond the equinoctial line; for he supposes that this great continent was not sur-

rounded by the sea, but that it stretched, without interruption, towards the south pole; and he so far mistakes its true figure, that he describes the continent as becoming broader and broader as it advanced towards the south. Ptolemæi Geogr. lib. iv. c. 9. Brietii Parallela Geogr. veteris et novæ, p. 86.

NOTE IV. p. 19.

A fact recorded by Strabo affords a very strong and singular proof of the ignorance of the ancients with respect to the situation of the various parts of the earth. When Alexander marched along the banks of the Hydaspes and Acesine, two of the rivers which fall into the Indus, he observed that there were many crocodiles in those rivers, and that the country produced beans of the same species with those which were common in Egypt. From these circumstances, he concluded that he had discovered the source of the Nile, and prepared a fleet to sail down the Hydaspes to Egypt. Strab. Geogr. lib. xv. p. 1020. This amazing error did not arise from any ignorance of geography peculiar to that monarch; for we are informed by Strabo, that Alexander applied with particular attention in order to acquire the knowledge of this science, and had accurate maps or descriptions of the countries through which he marched. Lib. ii. p. 120. But in his age the knowledge of the Greeks did not extend beyond the limits of the Mediterranean.

NOTE V. p. 19.

As the flux and reflux of the sea is remarkably great at the mouth of the river Indus, this would render the phenomenon more formidable to the Greeks. Varen. Geogr. vol. i. p. 251.

NOTE VI. p. 42.

It is probable that the ancients were seldom induced to advance so far as the mouth of the Ganges, either by motives of curiosity or views of commercial advantage. In consequence of this, their idea concerning the position of that great river was very erroneous. Ptolemy places that

branch of the Ganges, which he distinguishes by the name of the Great Mouth, in the hundred and forty-sixth degree of longitude from his first meridian in the Fortunate Islands. But its true longitude, computed from that meridian, is now determined, by astronomical observations, to be only a hundred and five degrees. A geographer so eminent must have been betrayed into an error of this magnitude by the imperfection of the information which he had received concerning those distant regions; and this affords a striking proof of the intercourse with them being extremely rare. With respect to the countries of India beyond the Ganges, his intelligence was still more defective, and his errors more enormous. I shall have occasion to observe, in another place, that he has placed the country of the Seres, or China, no less than sixty degrees further east than its true position. M. d'Anville, one of the most learned and intelligent of the modern geographers, has set this matter in a clear light, in two dissertations published in *Mem. de l'Academ. des Inscript. &c.* tom. xxxii. p. 573. 604.

NOTE VII. p. 23.

It is remarkable, that the discoveries of the ancients were made chiefly by land; those of the moderns are carried on chiefly by sea. The progress of conquest led to the former, that of commerce to the latter. It is a judicious observation of Strabo, that the conquests of Alexander the Great made known the East, those of the Romans opened the West, and those of Mithridates King of Pontus the North. Lib. i. p. 26. When discovery is carried on by land alone, its progress must be slow and its operations confined. When it is carried on only by sea, its sphere may be more extensive, and its advances more rapid; but it labours under peculiar defects. Though it may make known the position of different countries, and ascertain their boundaries as far as these are determined by the ocean, it leaves us in ignorance with respect to their interior state. Above two centuries and a half have elapsed since the Europeans sailed round the southern promontory of Africa, and have traded in most of its ports; but, in a considerable part of that great continent, they

have done little more than survey its coasts, and mark its capes and harbours. Its interior regions are in a great measure unknown. The ancients, who had a very imperfect knowledge of its coasts, except where they are washed by the Mediterranean or Red Sea, were accustomed to penetrate into its inland provinces, and, if we may rely on the testimony of Herodotus and Diodorus Siculus, had explored many parts of it now altogether unknown. Unless both modes of discovery be united, the geographical knowledge of the earth must remain incomplete and inaccurate.

NOTE VIII. p. 27.

The notion of the ancients concerning such an excessive degree of heat in the torid zone, as rendered it uninhabitable, and their persisting in this error long after they began to have some commercial intercourse with several parts of India lying within the tropics, must appear so singular and absurd, that it may not be unacceptable to some of my readers to produce evidence of their holding this opinion, and to account for the apparent inconsistency of their theory with their experience. Cicero, who had bestowed attention upon every part of philosophy known to the ancients, seems to have believed that the torrid zone was uninhabitable, and, of consequence, that there could be no intercourse between the northern and southern temperate zones. He introduces Africanus thus addressing the younger Scipio: "You see this earth encompassed, and as it were bound in by certain zones, of which two, at the greatest distance from each other, and sustaining the opposite poles of Heaven, are frozen with perpetual cold; the middle one, and the largest of all, is burnt with the heat of the sun; two are habitable, the people in the southern one are antipodes to us, with whom we have no connection." *Somnium Scipionis*, c. 6. Geminus a Greek philosopher, contemporary with Cicero, delivers the same doctrine, not in a popular work, but in his *Εισαγωγή εις Φαινομενα*, a treatise purely scientific. "When we speak," says he, "of the southern temperate zone, and its inhabitants, and concerning those who are called antipodes, it must be always understood, that we have no certain know-

ledge or information concerning the southern temperate zone, whether it be inhabited or not. But from the spherical figure of the earth, and the course which the sun holds between the tropics, we conclude that there is another zone situated to the south, which enjoys the same degree of temperature with the northern one which we inhabit." Cap. xiii. p. 31. ap. Petavii Opus de Doctr. Tempor. in quo Uranologium sive Systemata var. Auctorum. Amst. 1705. vol. iii. The opinion of Pliny the naturalist, with respect to both these points, was the same: "There are five divisions of the earth, which are called zones. All that portion which lies near to the two opposite poles is oppressed with vehement cold and eternal frost. There, unblest with the aspect of milder stars, perpetual darkness reigns, or at the utmost a feeble light reflected from surrounding snows. The middle of the earth, in which is the orbit of the sun, is scorched and burnt up with flames and fiery vapour. Between these torrid and frozen districts lie two other portions of the earth, which are temperate; but, on account of the burning region interposed, there can be no communication between them. Thus Heaven has deprived us of three parts of the earth." Lib. ii. c. 68. Strabo delivers his opinion to the same effect, in terms no less explicit: "The portion of the earth which lies near the equator, in the torrid zone, is rendered uninhabitable by heat." Lib. ii. p. 154. To these I might add the authority of many other respectable philosophers and historians of antiquity.

In order to explain the sense in which this doctrine was generally received, we may observe, that Parmenides, as we are informed by Strabo, was the first who divided the earth into five zones, and he extended the limits of the zone which he supposed to be uninhabitable on account of heat, beyond the tropics. Aristotle, as we learn likewise from Strabo, fixed the boundaries of the different zones in the same manner as they are defined by modern geographers. But the progress of discovery having gradually demonstrated that several regions of the earth which lay within the tropics were not only habitable, but populous and fertile, this induced later geographers to circumscribe the limits of the torrid zone. It is not easy to ascertain with precision the boundaries which they allotted

to it. From a passage in Strabo, who, as far as I know, is the only author of antiquity from whom we receive any hint concerning this subject, I should conjecture, that those who calculated according to the measurement of the earth by Eratosthenes, supposed the torrid zone to comprehend near sixteen degrees, about eight on each side of the equator; whereas such as followed the computation of Posidonius allotted about twenty-four degrees, or somewhat more than twelve degrees on each side of the equator, to the torrid zone. Strabo, lib. ii. p. 151. According to the former opinion, about two-thirds of that portion of the earth which lies between the tropics was considered as habitable; according to the latter, about one half of it. With this restriction, the doctrine of the ancients concerning the torrid zone appears less absurd; and we can conceive the reason of their asserting this zone to be uninhabitable, even after they had opened a communication with several places within the tropics. When men of science spoke of the torrid zone, they considered it as it was limited by the definition of geographers to sixteen, or at the utmost to twenty-four degrees; and as they knew almost nothing of the countries nearer to the equator, they might still suppose them to be uninhabitable. In loose and popular discourse, the name of the torrid zone continued to be given to all that portion of the earth which lies within the tropics. Cicero seems to have been unacquainted with those ideas of the later geographers; and, adhering to the division of Parmenides, describes the torrid zone as the largest of the five. Some of the ancients rejected the notion concerning the intolerable heat of the torrid zone as a popular error. This we are told by Plutarch was the sentiment of Pythagoras; and we learn from Strabo, that Eratosthenes and Polybius had adopted the same opinion; lib. ii. p. 154. Ptolemy seems to have paid no regard to the ancient doctrine and opinions concerning the torrid zone.

NOTE IX. p. 47.

The court of Inquisition, which effectually checks a spirit of liberal inquiry, and of literary improvement, wherever it is established, was unknown in Portugal in the fifteenth century, when the people of that kingdom began

their voyages of discovery. More than a century elapsed, before it was introduced by John III., whose reign commenced A. D. 1521.

NOTE X. p. 56.

An instance of this is related by Hakluyt, upon the authority of the Portuguese historian Garcia de Resende. Some English merchants having resolved to open a trade with the coast of Guinea, John II. of Portugal dispatched ambassadors to Edward IV., in order to lay before him the right which he had acquired by the Pope's bull to the dominion of that country, and to request of him to prohibit his subjects to prosecute their intended voyage. Edward was so much satisfied with the exclusive title of the Portuguese, that he issued his orders in the terms which they desired. Hakluyt, *Navigations, Voyages, and Traffics of the English*, vol. ii. part ii. p. 2.

NOTE XI. p. 66.

The time of Columbus's death may be nearly ascertained by the following circumstances. It appears from the fragment of a letter addressed by him to Ferdinand and Isabella, A. D. 1501, that he had at that time been engaged forty years in a sea-faring life. In another letter, he informs them, that he went to sea at the age of fourteen: from those facts it follows, that he was born A. D. 1447. *Life of Christo. Columbus*, by his son Don Ferdinand. Churchill's *Collection of Voyages*, vol. ii. p. 484, 485.

NOTE XII. p. 79.

The spherical figure of the earth was known to the ancient geographers. They invented the method, still in use, of computing the longitude and latitude of different places. According to their doctrine, the equator, or imaginary line which encompasses the earth, contained three hundred and sixty degrees; these they divided into twenty-four parts, or hours, each equal to fifteen degrees. The country of the *Seres* or *Sinae*, being the furthest part of India known to the ancients, was supposed by Marinus Tyrius,

the most eminent of the ancient geographers before Ptolemy, to be fifteen hours, or two hundred and twenty-five degrees to the east of the first meridian, passing through the Fortunate Islands. Ptolemæi Geogr. lib. i. c. 11. If this supposition was well founded, the country of the Seres, or China, was only nine hours, or one hundred and thirty-five degrees west from the Fortunate or Canary Islands; and the navigation in that direction was much shorter than by the course which the Portuguese were pursuing. Marco Polo, in his travels, had described countries, particularly the island of Cipango or Zipangri, supposed to be Japan, considerably to the east of any part of Asia known to the ancients. Marcus Paulus de Region. Oriental. lib. ii. c. 70. lib. iii. c. 2. Of course, this country, as it extended further to the east, was still nearer to the Canary Islands. The conclusions of Columbus, though drawn from inaccurate observations, were just. If the suppositions of Marinus had been well-founded, and if the countries which Marco Polo visited, had been situated to the east of those whose longitude Marinus had ascertained, the proper and nearest course to the East-Indies must have been to steer directly west. Herrera, dec. 1. lib. i. c. 2. A more extensive knowledge of the globe has now discovered the great error of Marinus, in supposing China to be fifteen hours, or two hundred and twenty-five degrees east from the Canary Islands; and that even Ptolemy was mistaken, when he reduced the longitude of China to twelve hours, or one hundred and eighty degrees. The longitude of the western frontier of that vast Empire is seven hours, or one hundred and fifteen degrees from the meridian of the Canary Islands. But Columbus followed the light which his age afforded, and relied upon the authority of writers, who were at that time regarded as the instructors and guides of mankind in the science of geography.

NOTE XIII. p. 96.

As the Portuguese, in making their discoveries, did not depart far from the coast of Africa, they concluded that birds, whose flight they observed with great attention, did not venture to any considerable distance from land. In the infancy of navigation, it was not known that birds

often stretched their flight to an immense distance from any shore. In sailing towards the West-Indian islands, birds are often seen at the distance of two hundred leagues from the nearest coast. Sloane's Nat. Hist. of Jamaica, vol. i. p. 30. Catesby saw an owl at sea, when the ship was six hundred leagues distant from land. Nat. Hist. of Carolina, pref. p. 7. Hist. Naturelle de M. Buffon, tom. xvi. p. 32. From which it appears, that this indication of land, on which Columbus seems to have relied with some confidence, was extremely uncertain. This observation is confirmed by Capt. Cook, the most extensive and experienced navigator of any age or nation. "No one yet knows (says he) to what distance any of the oceanic birds go to sea; for my own part, I do not believe that there is one in the whole tribe that can be relied on in pointing out the vicinity of land." Voyage towards the South Pole, vol. i. p. 275.

NOTE XIV. p. 107.

In a letter of the Admiral's to Ferdinand and Isabella, he describes one of the harbours in Cuba, with all the enthusiastic admiration of a discoverer.—"I discovered a river which a galley might easily enter: the beauty of it induced me to sound, and I found from five to eight fathoms of water. Having proceeded a considerable way up the river, every thing invited me to settle there. The beauty of the river, the clearness of the water through which I could see the sandy bottom, the multitude of palm trees of different kinds, the tallest and finest I had seen, and an infinite number of other large and flourishing trees, the birds, and the verdure of the plains are so wonderfully beautiful, that this country excels all others as far as the day surpasses the night in brightness and splendour, so that I often said, that it would be in vain for me to attempt to give Your Highnesses a full account of it, for neither my tongue nor my pen could come up to the truth; and indeed I am so much amazed at the sight of such beauty, that I know not how to describe it." Life of Columb. c. 30.

NOTE XV. p. 112.

The account which Columbus gives of the humanity

and orderly behaviour of the natives on this occasion is very striking. "The King (says he in a letter to Ferdinand and Isabella) having been informed of our misfortune, expressed great grief for our loss, and immediately sent aboard all the people in the place in many large canoes; we soon unloaded the ship of every thing that was upon deck, as the King gave us great assistance: he himself, with his brothers and relations, took all possible care that every thing should be properly done, both aboard and on shore. And, from time to time, he sent some of his relations weeping, to beg of me not to be dejected, for he would give me all that he had. I can assure Your Highnesses, that so much care would not have been taken in securing our effects in any part of Spain, as all our property was put together in one place near his palace, until the houses which he wanted to prepare for the custody of it, were emptied. He immediately placed a guard of armed men, who watched during the whole night, and those on shore lamented as if they had been much interested in our loss. The people are so affectionate, so tractable, and so peaceable, that I swear to Your Highnesses, that there is not a better race of men, nor a better country in the world. They love their neighbour as themselves; their conversation is the sweetest and mildest in the world, cheerful, and always accompanied with a smile. And although it is true that they go naked, yet Your Highnesses may be assured that they have many very commendable customs; the King is served with great state, and his behaviour is so decent, that it is pleasant to see him, as it is likewise to observe the wonderful memory which these people have, and their desire of knowing every thing, which leads them to inquire into its causes and effects." *Life of Columbus*, c. 32. It is probable, that the Spaniards were indebted for this officious attention, to the opinion which the Indians entertained of them as a superior order of beings.

NOTE XVI. p. 119.

Every monument of such a man as Columbus is valuable. A letter which he wrote to Ferdinand and Isabella, describing what passed on this occasion, exhibits a most striking picture of his intrepidity, his humanity, his prudence, his public spirit, and courtly address. "I would

have been less concerned for this misfortune, had I alone been in danger, both because my life is a debt that I owe to the Supreme Creator, and because I have at other times been exposed to the most imminent hazard. But what gave me infinite grief and vexation was, that after it had pleased our Lord to give me faith to undertake this enterprise, in which I had now been so successful, that my opponents would have been convinced, and the glory of Your Highnesses, and the extent of your territory, increased by me; it should please the Divine Majesty to stop all by my death. All this would have been more tolerable, had it not been attended with the loss of those men whom I had carried with me, upon promise of the greatest prosperity, who, seeing themselves in such distress, cursed not only their coming along with me, but that fear and awe of me, which prevented them from returning, as they often had resolved to have done. But besides all this, my sorrow was greatly increased by recollecting that I had left my two sons at school at Cordova, destitute of friends, in a foreign country, when it could not in all probability be known that I had done such services as might induce Your Highnesses to remember them. And though I comforted myself with the faith that our Lord would not permit that, which tended so much to the glory of his Church, and which I had brought about with so much trouble, to remain imperfect, yet I considered, that, on account of my sins, it was his will to deprive me of that glory, which I might have attained in this world. While in this confused state, I thought on the good fortune which accompanies Your Highnesses, and imagined that although I should perish, and the vessel be lost, it was possible that you might somehow come to the knowledge of my voyage, and the success with which it was attended. For that reason I wrote upon parchment with the brevity which the situation required, that I had discovered the lands which I promised, in how many days I had done it, and what course I had followed. I mentioned the goodness of the country, the character of the inhabitants, and that Your Highnesses' subjects were left in possession of all that I had discovered. Having sealed this writing, I addressed it to Your Highnesses, and promised a thousand ducats to any person who should deliver it sealed, so that if any foreigner found it, the promised reward might prevail on them not

to give the information to another. I then caused a great cask to be brought to me, and wrapping up the parchment in an oiled cloth, and afterwards in a cake of wax, I put it into the cask, and having stopped it well, I cast it into the sea. All the men believed that it was some act of devotion. Imagining that this might never chance to be taken up, as the ships approached nearer to Spain, I made another packet like the first, and placed it at the top of the poop, so that, if the ship sunk, the cask remaining above water might be committed to the guidance of fortune."

NOTE XVII. p. 123.

Some Spanish authors, with the meanness of national jealousy, have endeavoured to detract from the glory of Columbus, by insinuating that he was led to the discovery of the New World, not by his own inventive or enterprising genius, but by information which he had received. According to their account, a vessel having been driven from its course by easterly winds, was carried before them far to the west, and landed on the coast of an unknown country, from which it returned with difficulty; the pilot, and three sailors, being the only persons who survived the distresses which the crew suffered from want of provisions and fatigue in this long voyage. In a few days after their arrival, all the four died; but the pilot having been received into the house of Columbus, his intimate friend disclosed to him, before his death, the secret of the discovery which he had accidentally made, and left him his papers containing a journal of the voyage, which served as a guide to Columbus in his undertaking. Gomara, as far as I know, is the first author who published this story. Hist. c. 13. Every circumstance is destitute of evidence to support it. Neither the name of the vessel nor its destination is known. Some pretend that it belonged to one of the sea-port towns in Andalusia, and was sailing either to the Canaries, or to Madeira; others, that it was a Biscayner in its way to England; others, a Portuguese ship trading on the coast of Guinea. The name of the pilot is alike unknown, as well as that of the port in which he landed on his return. According to some, it was in Portugal; according to others, in Madeira, or the Azores. The year in which this voyage was made is no less uncer-

tain. Monson's Nav. Tracts. Churchill, iii. 371. No mention is made of this pilot, or his discoveries, by And. Bernaldes, or Pet. Martyr, the contemporaries of Columbus. Herrera, with his usual judgment, passes over it in silence. Oviedo takes notice of this report, but considers it as a tale fit only to amuse the vulgar. Hist. lib. ii. c. 2. As Columbus held his course directly west from the Canaries, and never varied it, some later authors have supposed that this uniformity is a proof of his being guided by some previous information. But they do not recollect the principles on which he founded all his hopes of success, that by holding a westerly course, he must certainly arrive at those regions of the east described by the ancients. His firm belief of his own system led him to take that course, and to pursue it without deviation.

The Spaniards are not the only people who have called in question Columbus's claim to the honour of having discovered America. Some German authors ascribed this honour to Martin Behaim, their countryman. He was of the noble family of the Behaims of Schwartzbach, citizens of the first rank in the Imperial town of Nuremberg. Having studied under the celebrated John Muller, better known by the name of Regiomontanus, he acquired such knowledge of cosmography, as excited a desire of exploring those regions, the situation and qualities of which he had been accustomed, under that able master, to investigate and describe. Under the patronage of the Duchess of Burgundy he repaired to Lisbon, whither the fame of the Portuguese discoveries invited all the adventurous spirits of the age. There, as we learn from Herman Schedel, of whose *Chronicon Mundi* a German translation was printed at Nuremberg, A. D. 1493, his merit as a cosmographer raised him, in conjunction with Diego Cano, to the command of a squadron fitted out for discovery in the year 1483. In that voyage, he is said to have discovered the kingdom of Congo. He settled in the island of Fayal, one of the Azores, and was a particular friend of Columbus. Herrera, dec. 1. lib. i. c. 2. Magellan had a terrestrial globe made by Behaim, on which he demonstrated the course that he proposed to hold in search of the communication with the South Sea, which he afterwards discovered. Gomara Hist. c. 19. Herrera, dec. 11. lib. ii. c. 19. In the year 1492, Behaim visited his relations in Nurem-

berg, and left with them a map drawn with his own hand, which is still preserved among the archives of the family. Thus far the story of Martin Behaim seems to be well authenticated; but the account of his having discovered any part of the New World appears to be merely conjectural.

In the first edition, as I had at that time hardly any knowledge of Behaim but what I derived from a frivolous dissertation 'De vero Novi Orbis Inventore,' published at Frankfurt, A. D. 1714, by Jo. Frid. Stuvinius, I was induced, by the authority of Herrera, to suppose that Behaim was not a native of Germany; but from more full and accurate information, communicated to me by the learned Dr. John Reinhold Forster, I am now satisfied that I was mistaken. Dr. Forster has been likewise so good as to favour me with a copy of Behaim's map, as published by Doppelmayer in his account of the Mathematicians and Artists of Nuremberg. From this map, the imperfection of cosmographical knowledge at that period is manifest. Hardly one place is laid down in its true situation. Nor can I discover from it any reason to suppose that Behaim had the least knowledge of any region in America. He delineates, indeed, an island to which he gives the name of St. Brandon. This, it is imagined, may be some part of Guiana, supposed at first to be an island. He places it in the same latitude with the Cape Verd isles, and I suspect it to be an imaginary island which has been admitted into some ancient maps on no better authority than the legend of the Irish St. Brandon or Brendan, whose story is so childishly fabulous as to be unworthy of any notice. Girald. Cambrensis ap. Missingham Florilegium Sanctorum, p. 427.

The pretensions of the Welsh to the discovery of America seem not to rest on a foundation much more solid. In the twelfth century, according to Powell, a dispute having arisen among the sons of Owen Guyneth, King of North-Wales, concerning the succession to his crown, Madoc, one of their number, weary of this contention, betook himself to sea in quest of a more quiet settlement. He steered due west, leaving Ireland to the north, and arrived in an unknown country, which appeared to him so desirable, that he returned to Wales and carried thither several of his adherents and companions. This is said to have hap-

opened about the year 1170, and after that, he and his colony were heard of no more. But it is to be observed, that Powell, on whose testimony the authenticity of this story rests, published his history above four centuries from the date of the event which he relates. Among a people as rude and as illiterate as the Welsh at that period, the memory of a transaction so remote must have been very imperfectly preserved, and would require to be confirmed by some author of greater credit, and nearer to the æra of Madoc's voyage, than Powell. Later antiquaries have indeed appealed to the testimony of Meredith ap Rees, a Welsh bard, who died A. D. 1477. But he, too, lived at such a distance of time from the event, that he cannot be considered as a witness of much more credit than Powell. Besides, his verses, published by Hakluyt, vol. iii. p. 1., convey no information, but that Madoc, dissatisfied with his domestic situation, employed himself in searching the ocean for new possessions. But even if we admit the authenticity of Powell's story, it does not follow that the unknown country which Madoc discovered by steering west, in such a course as to leave Ireland to the north, was any part of America. The naval skill of the Welsh in the twelfth century was hardly equal to such a voyage. If he made any discovery at all, it is more probable that it was Madeira, or some other of the western isles. The affinity of the Welsh language with some dialects spoken in America, has been mentioned as a circumstance which confirms the truth of Madoc's voyage. But that affinity has been observed in so few instances, and in some of these is so obscure, or so fanciful, that no conclusion can be drawn from the casual resemblance of a small number of words. There is a bird, which, as far as is yet known, is found only on the coasts of South-America, from Port Desire to the Straits of Magellan. It is distinguished by the name of *Penguin*. This word in the Welsh language signifies *White-head*. Almost all the authors who favour the pretensions of the Welsh to the discovery of America, mention this as an irrefragable proof of the affinity of the Welsh language with that spoken in this region of America. But Mr. Pennant, who has given a scientific description of the Penguin, observes, that all the birds of this genus have black heads, "so that we must resign every hope (adds he) founded on this hypothesis of retrieving the Cambrian race in

the New World." Philos. Transact. vol. lviii. p. 91, &c. Besides this, if the Welsh, towards the close of the twelfth century, had settled in any part of America, some remains of the Christian doctrine and rites must have been found among their descendants, when they were discovered about three hundred years posterior to their migration; a period so short, that, in the course of it, we cannot well suppose that all European ideas and arts would be totally forgotten. Lord Lyttelton, in his notes to the fifth book of his History of Henry II., p. 371., has examined what Powell relates concerning the discoveries made by Madoc, and invalidates the truth of his story by other arguments of great weight.

The pretensions of the Norwegians to the discovery of America seem to be better founded than those of the Germans or Welsh. The inhabitants of Scandinavia were remarkable in the middle ages for the boldness and extent of their maritime excursions. In 874, the Norwegians discovered, and planted a colony in Iceland. In 982, they discovered Greenland, and established settlements there. From that, some of their navigators proceeded towards the west, and discovered a country more inviting than those horrid regions with which they were acquainted. According to their representation, this country was sandy on the coasts, but in the interior parts level and covered with wood, on which account they gave it the name of *Helle-land*, and *Mark-land*, and having afterwards found some plants of the vine which bore grapes, they called it *Win-land*. The credit of this story rests, as far as I know, on the authority of the *saga*, or chronicle of King Olaus, composed by Snorro Sturlonides, or *Sturlusons*, published by Perinskiold, at Stockholm, A. D. 1697. As Snorro was born in the year 1179, his chronicle might be compiled about two centuries after the event which he relates. His account of the navigation and discoveries of *Biorn*, and his companion *Lief*, is a very rude confused tale, p. 104. 110. 326. It is impossible to discover from him what part of America it was in which the Norwegians landed. According to his account of the length of the days and nights, it must have been as far north as the fifty-eighth degree of latitude, on some part of the coast of Labradore, approaching near to the entry of Hudson's Straits. Grapes certainly are not the production of that country. Torfeus

supposes that there is an error in the text, by rectifying of which the place where the Norwegians landed may be supposed to be situated in latitude 49°. But neither is that the region of the vine in America. From perusing Snorro's tale, I should think that the situation of Newfoundland corresponds best with that of the country discovered by the Norwegians. Grapes, however, are not the production of that barren island. Other conjectures are mentioned by M. Mallet, *Introd. à l'Hist. de Dannem.* 175, &c. I am not sufficiently acquainted with the literature of the north to examine them. It seems manifest, that if the Norwegians did discover any part of America at that period, their attempts to plant colonies proved unsuccessful, and all knowledge of it was soon lost.

NOTE XVIII. p. 124.

Peter Martyr, ab Angleria, a Milanese gentleman, residing at that time in the court of Spain, whose letters contain an account of the transactions of that period, in the order wherein they occurred, describes the sentiments with which he himself and his learned correspondents were affected, in very striking terms. "Præ lætitia prosiluisse te, vixque a lachrymis præ gaudio temperasse, quando literas adspexisti meas quibus, de antipodum orbe latenti hactenus, te certiolem feci, mi suavissime Pomponi, insinuasti. Ex tuis ipse literis colligo, quid senseris. Sensisti autem, tantique rem fecisti, quanti virum summa doctrina insignitum decuit. Quis namque cibus sublimibus præstari potest ingeniis, isto suavior? quod condimentum gratius? A me facio conjecturam. Beati sentio spiritus meos, quando accitos alloquor prudentes aliquos ex his qui ab ea redeunt provincia. Implicent animos pecuniarum cumulis augendis miseri avari, libidinibus obscœni; nostras nos mentes, postquam Deo pleni aliquando fuerimus, contemplando, hujuscemodi rerum notitia demulciamus." *Epist.* 152. Pomponio Læto.

NOTE XIX. p. 137.

So firmly were men of science, in that age, persuaded that the countries which Columbus had discovered were connected with the East-Indies, that Benaldes, the Cura

de los Palacios, who seems to have been no inconsiderable proficient in the knowledge of cosmography, contends that Cuba was not an island, but a part of the continent, and united to the dominions of the Great Khan. This he delivered as his opinion to Columbus himself, who was his guest for some time on his return from his second voyage; and he supports it by several arguments, mostly founded on the authority of Sir John Mandeville. MS. *penes me*. Antonio Gallo, who was secretary to the magistracy of Genoa towards the close of the fifteenth century, published a short account of the navigations and discoveries of his countryman Columbus, annexed to his *Opuscula Historica de Rebus Populi Genuensis*; in which he informs us, from letters of Columbus which he himself had seen, that it was his opinion, founded upon nautical observations, that one of the islands he had discovered was distant only two hours or thirty degrees from Cattigara, which, in the charts of the geographers of that age, was laid down, upon the authority of Ptolemy, lib. vii. c. 3., as the most easterly place in Asia. From this he concluded, that if some unknown continent did not obstruct the navigation, there must be a short and easy access, by holding a westerly course, to this extreme region of the East. Muratori *Scriptores Rer. Italicarum*, vol. xxiii. p. 304.

NOTE XX. p. 143.

Bernaldes, the *Cura* or Rector de los Palacios, a contemporary writer, says, that five hundred of these captives were sent to Spain, and sold publicly in Seville as slaves; but that, by the change of climate and their inability to bear the fatigue of labour, they all died in a short time. MS. *penes me*.

NOTE XXI. p. 156.

Columbus seems to have formed some very singular opinions concerning the countries which he had now discovered. The violent swell and agitation of the waters on the coast of Trinidad led him to conclude this to be the highest part of the terraqueous globe, and he imagined that various circumstances concurred in proving that the sea was here visibly elevated. Having adopted this erroneous

principle, the apparent beauty of the country induced him to fall in with a notion of Sir John Mandeville, c. 102., that the terrestrial paradise was the highest land in the earth; and he believed that he had been so fortunate as to discover this happy abode. Nor ought we to think it strange that a person of so much sagacity should be influenced by the opinion or reports of such a fabulous author as Mandeville. Columbus and the other discoverers were obliged to follow such guides as they could find; and it appears from several passages in the manuscript of Andr. Bernaldes, the friend of Columbus, that no inconsiderable degree of credit was given to the testimony of Mandeville in that age. Bernaldes frequently quotes him, and always with respect.

NOTE XXII. p. 169.

It is remarkable that neither Gomara nor Oviedo, the most ancient Spanish historians of America, nor Herrera, consider Ojeda, or his companion Vespucci, as the first discoverers of the continent of America. They uniformly ascribe this honour to Columbus. Some have supposed that national resentment against Vespucci, for deserting the service of Spain, and entering into that of Portugal, may have prompted these writers to conceal the actions which he performed. But Martyr and Benzoni, both Italians, could not be warped by the same prejudice. Martyr was a contemporary author; he resided in the court of Spain, and had the best opportunity to be exactly informed with respect to all public transactions; and yet neither in his *Decads*, the first general history published of the New World, nor in his *Epistles*, which contain an account of all the remarkable events of his time, does he ascribe to Vespucci the honour of having first discovered the continent. Benzoni went as an adventurer to America in the year 1541, and resided there a considerable time. He appears to have been animated with a warm zeal for the honour of Italy, his native country, and yet does not mention the exploits and discoveries of Vespucci. Herrera, who compiled his general history of America from the most authentic records, not only follows those early writers, but accuses Vespucci of falsifying the dates of both the voyages which he made to the

New World, and of confounding the one with the other, in order that he might arrogate to himself the glory of having discovered the continent. Her. dec. 1. lib. iv. c. 2. He asserts, that in a judicial inquiry into this matter by the royal fiscal, it was proved by the testimony of Ojeda himself, that he touched at Hispaniola when returning to Spain from his first voyage; whereas Vespucci gave out that they returned directly to Cadiz from the coast of Paria, and touched at Hispaniola only in their second voyage; and that he had finished the voyage in five months; whereas, according to Vespucci's account, he had employed seventeen months in performing it. Viaggio primo de Am. Vespucci, p. 36. Viag. secundo, p. 45. Herrera gives a more full account of this inquest in another part of his Decads, and to the same effect. Her. dec. 1. lib. vii. c. 5. Columbus was in Hispaniola when Ojeda arrived there, and had by that time come to an agreement with Roldan, who opposed Ojeda's attempt to excite a new insurrection, and, of consequence, his voyage must have been posterior to that of the admiral. Life of Columbus, c. 84. According to Vespucci's account, he set out on his first voyage May 10th, 1497. Viag. primo, p. 6. At that time Columbus was in the court of Spain preparing for his voyage, and seems to have enjoyed a considerable degree of favour. The affairs of the New World were at this juncture under the direction of Antonio Torres, a friend of Columbus. It is not probable, that at that period a commission would be granted to another person, to anticipate the admiral, by undertaking a voyage which he himself intended to perform. Fonseca, who patronized Ojeda, and granted the licence for his voyage, was not recalled to court, and reinstated in the direction of Indian affairs, until the death of Prince John, which happened September 1497, (P. Martyr, Ep. 182.,) several months posterior to the time at which Vespucci pretends to have set out upon his voyage. A life of Vespucci was published at Florence by the Abate Bandini, A. D. 1745, 4to. It is a work of no merit, written with little judgment, and less candour. He contends for his countryman's title to the discovery of the continent with all the blind zeal of national partiality, but produces no new evidence to support it. We learn from him that Vespucci's account of his voyage was published as early as

the year 1510, and probably sooner. *Vita di Am. Vesp.* p. 52. At what time the name of AMERICA came to be first given to the New World is not certain.

NOTE XXIII. p. 216.

The form employed on this occasion served as a model to the Spaniards in all their subsequent conquests in America. It is so extraordinary in its nature, and gives us such an idea of the proceedings of the Spaniards, and the principles upon which they founded their right to the extensive dominions which they acquired in the New World, that it well merits the attention of the reader. "I Alonso de Ojeda, servant of the most high and powerful Kings of Castile and Leon, the conquerors of barbarous nations, their messenger and captain, notify to you and declare, in as ample form as I am capable, that God our Lord, who is one and eternal, created the heaven and the earth, and one man and one woman, of whom you and we, and all the men who have been or shall be in the world, are descended. But as it has come to pass through the number of generations during more than five thousand years, that they have been dispersed into different parts of the world, and are divided into various kingdoms and provinces, because one country was not able to contain them, nor could they have found in one the means of subsistence and preservation; therefore God our Lord gave the charge of all those people to one man named St. Peter, whom he constituted the lord and head of all the human race, that all men, in whatever place they are born, or in whatever faith or place they are educated, might yield obedience unto him. He hath subjected the whole world to his jurisdiction, and commanded him to establish his residence in Rome, as the most proper place for the government of the world. He likewise promised and gave him power to establish his authority in every other part of the world, and to judge and govern all Christians, Moors, Jews, Gentiles, and all other people of whatever sect or faith they may be. To him is given the name of *Pope*, which signifies admirable, great father and guardian, because he is the father and governor of all men. Those who lived in the time of this holy father obeyed and acknowledged him as their Lord and King, and the superior of the universe. The same

has been observed with respect to them who, since his time, have been chosen to the pontificate. Thus it now continues, and will continue to the end of the world.

“One of these Pontiffs, as lord of the world, hath made a grant of these islands, and of the Tierra Firmè of the ocean sea, to the Catholic Kings of Castile, Don Ferdinand and Donna Isabella, of glorious memory, and their successors, our sovereigns, with all they contain, as is more fully expressed in certain deeds passed upon that occasion, which you may see, if you desire it. Thus His Majesty is King and lord of these islands, and of the continent, in virtue of this donation; and, as King and lord aforesaid, most of the islands to which his title hath been notified, have recognised His Majesty, and now yield obedience and subjection to him as their lord, voluntarily and without resistance; and instantly, as soon as they received information, they obeyed the religious men sent by the King to preach to them, and to instruct them in our holy faith; and all these, of their own free will, without any recompense or gratuity, became Christians, and continue to be so; and His Majesty having received them graciously under his protection, has commanded that they should be treated in the same manner as his other subjects and vassals. You are bound and obliged to act in the same manner. Therefore I now entreat and require you to consider attentively what I have declared to you; and that you may more perfectly comprehend it, that you take such time as is reasonable, in order that you may acknowledge the Church as the superior and guide of the universe, and likewise the holy father called the Pope, in his own right, and His Majesty by his appointment, as King and sovereign lord of these islands, and of the Tierra Firmè; and that you consent that the aforesaid holy fathers shall declare and preach to you the doctrines above mentioned. If you do this, you act well, and perform that to which you are bound and obliged; and His Majesty, and I in his name, will receive you with love and kindness, and will leave you, your wives and children, free and exempt from servitude, and in the enjoyment of all you possess, in the same manner as the inhabitants of the islands. Besides this, His Majesty will bestow upon you many privileges, exemptions, and rewards. But if you will not comply, or maliciously delay to obey my injunction, then,

with the help of God, I will enter your country by force, I will carry on war against you with the utmost violence, I will subject you to the yoke of obedience to the Church and King, I will take your wives and children, and will make them slaves, and sell or dispose of them according to His Majesty's pleasure; I will seize your goods, and do you all the mischief in my power, as rebellious subjects, who will not acknowledge or submit to their lawful sovereign. And I protest, that all the bloodshed and calamities which shall follow are to be imputed to you, and not to His Majesty, or to me, or the gentlemen who serve under me; and as I have now made this declaration and requisition unto you, I require the notary here present to grant me a certificate of this, subscribed in proper form." Herrera, dec. 1. lib. vii. c. 14.

NOTE XXIV. p. 230.

Balboa, in his letter to the King, observes, that of the hundred and ninety men whom he took with him, there were never above eighty fit for service at one time. So much did they suffer from hunger, fatigue, and sickness. Herrera, dec. 1. lib. x. c. 16. P. Mart. decad. 226.

NOTE XXV. p. 243.

Fonseca, Bishop of Palencia, the principal director of American affairs, had eight hundred Indians in property; the commendator Lope de Conchillos, his chief associate in that department, eleven hundred; and other favourites had considerable numbers. They sent overseers to the islands, and hired out those slaves to the Planters. Herrera, dec. 1. lib. ix. c. 14. p. 525.

NOTE XXVI. p. 269.

Though America is more plentifully supplied with water than the other regions of the globe, there is no river or stream of water in Yucatan. This peninsula projects from the continent a hundred leagues, but, where broadest, does not extend above twenty-five leagues. It is an extensive plain, not only without mountains, but almost without any inequality of ground. The inhabitants are sup-

plied with water from pits, and, wherever they dig them, find it in abundance. It is probable, from all those circumstances, that this country was formerly covered by the sea. *Herrerae Descriptio Indiæ Occidentalis*, p. 14. *Histoire Naturelle*, par M. de Buffon, tom. i. p. 593.

NOTE XXVII. p. 272.

M. Clavigero censures me for having represented the Spaniards who sailed with Cordova and Grijalva, as fancying, in the warmth of their imagination, that they saw cities on the coast of Yucatan adorned with towers and *cupolas*. I know not what translation of my history he has consulted, (for his quotation from it is not taken from the original,) but I never imagined that any building erected by Americans could suggest the idea of a cupola or dome, a structure which their utmost skill in architecture was incapable of rearing. My words are, that they fancied the villages which they saw from their ships "to be cities adorned with towers and pinnacles." By *pinnacles* I meant some elevation above the rest of the building; and the passage is translated almost literally from Herrera, dec. 2. lib. iii. c. 1. In almost all the accounts of new countries given by the Spanish discoverers in that age, this warmth of admiration is conspicuous; and led them to describe these new objects in the most splendid terms. When Cordova and his companions first beheld an Indian village of greater magnitude than any they had beheld in the islands, they dignified it by the name of *Grand Cairo*, B. Diaz, c. 2. From the same cause Grijalva and his associates thought the country, along the coast of which they held their course, entitled to the name of New Spain.

NOTE XXVIII. p. 278.

The height of the most elevated point in the Pyrenees is, according to M. Cassini, six thousand six hundred and forty-six feet. The height of the mountain Gemmi, in the canton of Berne, is ten thousand one hundred and ten feet. The height of the Peak of Teneriffe, according to the measurement of P. Feuillé, is thirteen thousand one hundred and seventy-eight feet. The height of Chimborazzo, the most elevated point of the Andes, is twenty

thousand two hundred and eighty feet; no less than seven thousand one hundred and two feet above the highest mountain in the ancient continent. *Voyage de D. Juan Ulloa, Observations Astron. et Physiq. tom. ii: p. 114.* The line of congelation on Chimborazzo, or that part of the mountain which is covered perpetually with snow, is no less than two thousand four hundred feet from its summit. *Prevot Hist. Gener. des Voyages, vol. xiii. p. 636.*

NOTE XXIX. p. 279.

As a particular description makes a stronger impression than general assertions, I shall give one of Rio de la Plata by an eye-witness, P. Cattaneo, a Modenese Jesuit, who landed at Buenos Ayres in 1749, and thus represents what he felt when such new objects were first presented to his view. "While I resided in Europe, and read in books of history or geography that the mouth of the river de la Plata was an hundred and fifty miles in breadth, I considered it as an exaggeration, because in this hemisphere we have no example of such vast rivers. When I approached its mouth, I had the most vehement desire to ascertain the truth with my own eyes; and I found the matter to be exactly as it was represented. This I deduce particularly from one circumstance: When we took our departure from Monte-Video, a fort situated more than a hundred miles from the mouth of the river, and where its breadth is considerably diminished, we sailed a complete day before we discovered the land on the opposite bank of the river; and when we were in the middle of the channel, we could not discern land on either side, and saw nothing but the sky and water, as if we had been in some great ocean. Indeed we should have taken it to be sea, if the fresh water of the river, which was turbid like the Po, had not satisfied us that it was a river. Moreover, at Buenos Ayres, another hundred miles up the river, and where it is still much narrower, it is not only impossible to discern the opposite coast, which is indeed very low, but perceive the houses or the tops of the steeples in the Portuguese settlement at Colonia on the other side of the river." *Lettera prima, published by Muratori, Il Cristianesimo Felicè, &c. i. p. 257.*

NOTE XXX. p. 282.

Newfoundland, part of Nova Scotia, and Canada, are the countries which lie in the same parallel of latitude with the kingdom of France; and in every part of these the water of the rivers is frozen during winter to the thickness of several feet; the earth is covered with snow as deep; almost all the birds fly during that season, from a climate where they could not live. The country of the Eskimaux, part of Labrador, and the countries on the south of Hudson's Bay, are in the same parallel with Great Britain; and yet in all these the cold is so intense, that even the industry of Europeans has not attempted cultivation.

NOTE XXXI. p. 284.

Acosta is the first philosopher, as far as I know, who endeavoured to account for the different degrees of heat in the old and new continents, by the agency of the winds which blow in each. *Histoire Moral.* &c. lib. ii. and iii. M. de Buffon adopts this theory, and has not only improved it by new observations, but has employed his amazing powers of descriptive eloquence in embellishing and placing it in the most striking light. Some remarks may be added, which tend to illustrate more fully a doctrine of much importance in every inquiry concerning the temperature of various climates.

When a cold wind blows over land, it must in its passage rob the surface of some of its heat. By means of this, the coldness of the wind is abated. But if it continue to blow in the same direction, it will come, by degrees, to pass over a surface already cooled, and will suffer no longer any abatement of its own keenness. Thus, as it advances over a large tract of land, it brings on all the severity of intense frost.

Let the same wind blow over an extensive and deep sea; the superficial water must be immediately cooled to a certain degree, and the wind proportionally warmed. But the superficial and colder water, becoming specifically heavier than the warmer water below it, descends; what is warmer supplies its place, which, as it comes to be cooled in its turn, continues to warm the air which passes

over it, or to diminish its cold. This change of the superficial water and successive ascent of that which is warmer, and the consequent successive abatement of coldness in the air, is aided by the agitation caused in the sea by the mechanical action of the wind, and also by the motion of the tides. This will go on, and the rigour of the wind will continue to diminish until the whole water is so far cooled, that the water on the surface is no longer removed from the action of the wind, fast enough to hinder it from being arrested by frost. Whenever the surface freezes, the wind is no longer warmed by the water from below, and it goes on with undiminished cold.

From those principles may be explained the severity of winter frosts in extensive continents; their mildness in small islands; and the superior rigour of winter in those parts of North America with which we are best acquainted. In the north-west parts of Europe, the severity of winter is mitigated by the west winds, which usually blow in the months of November, December, and part of January.

On the other hand, when a warm wind blows over land, it heats the surface, which must therefore cease to abate the fervour of the wind. But the same wind blowing over water, agitates it, brings up the colder water from below, and thus is continually losing somewhat of its own heat.

But the great power of the sea to mitigate the heat of the wind or air passing over it, proceeds from the following circumstance:—that on account of the transparency of the sea, its surface cannot be heated to a great degree by the sun's rays; whereas the ground, subjected to their influence, very soon acquires great heat. When, therefore, the wind blows over a torrid continent, it is soon raised to a heat almost intolerable; but during its passage over an extensive ocean, it is gradually cooled; so that on its arrival at the furthest shore, it is again fit for respiration.

Those principles will account for the sultry heats of large continents in the torrid zone: for the mild climate of islands in the same latitude; and for the superior warmth in summer which large continents, situated in the temperate or colder zones of the earth, enjoy, when compared with that of islands. The heat of a climate depends not

only upon the immediate effect of the sun's rays, but on their continued operation, on the effect which they have formerly produced, and which remains for some time in the ground. This is the reason why the day is warmest about two in the afternoon, the summer warmest about the middle of July, and the winter coldest about the middle of January.

The forests which cover America, and hinder the sunbeams from heating the ground, are a great cause of the temperate climate in the equatorial parts. The ground not being heated, cannot heat the air; and the leaves, which receive the rays intercepted from the ground, have not a mass of matter sufficient to absorb heat enough for this purpose. Besides, it is a known fact, that the vegetative power of a plant occasions a perspiration from the leaves in proportion to the heat to which they are exposed; and, from the nature of evaporation, this perspiration produces a cold in the leaf proportional to the perspiration. Thus the effect of the leaf in heating the air in contact with it, is prodigiously diminished. For those observations, which throw much additional light on this curious subject, I am indebted to my ingenious friend, Mr. Robison, professor of natural philosophy in the university of Edinburgh.

NOTE XXXII. p. 284.

The climate of Brasil has been described by two eminent naturalists, Piso and Margrave, who observed it with a philosophical accuracy for which we search in vain in the accounts of many other provinces in America. Both represent it as temperate and mild, when compared with the climate of Africa. They ascribe this chiefly to the refreshing wind which blows continually from the sea. The air is not only cool, but chilly through the night, in so much that the natives kindle fires every evening in their huts. Piso *de Medicina Brasiliensi*, lib. i. p. 1., &c. Margravius *Histor. Rerum Natural. Brasiliæ*, lib. viii. c. 3. p. 264. Nieuhoff, who resided long in Brasil, confirms their description. Churchill's Collection, vol. ii. p. 26. Gunilla, who was a missionary many years among the Indians upon the river Oronoco, gives a similar description of the temperature of the climate there. *Hist. de l'Orenoque*, tom. i. p. 26. P. Acugna felt a very considerable degree of cold

in the countries on the banks of the river Amazons. *Relat.* vol. ii. p. 56. M. Biet, who lived a considerable time in Cayenne, gives a similar account of the temperature of that climate, and ascribes it to the same cause. *Voyage de la France, Equinox*, p. 390. Nothing can be more different from these descriptions than that of the burning heat of the African coast given by M. Adanson. *Voyage to Senegal*, passim.

NOTE XXXIII. p. 286.

Two French frigates were sent upon a voyage of discovery in the year 1739. In latitude 44° south, they began to feel a considerable degree of cold. In latitude 48° , they met with islands of floating ice. *Histoire des Navigations aux Terres Australes*, tom. ii. p. 256, &c. Dr. Halley fell in with ice in latitude 59° . *Id.* tom. i. p. 47. Commodore Byron, when on the coast of Patagonia, latitude $50^{\circ} 33'$ south, on the fifteenth of December, which is mid-summer in that part of the globe, the twenty-first of December being the longest day there, compares the climate to that of England in the middle of winter. *Voyages by Hawkesworth*, i. 25. Mr. Banks having landed on Terra del Fuego, in the Bay of Good Success, latitude 55° , on the sixteenth of January, which corresponds to the month of July in our hemisphere, two of his attendants died in one night of extreme cold, and all the party were in the most imminent danger of perishing. *Id.* ii. 51, 52. By the fourteenth of March, corresponding to September in our hemisphere, winter was set in with rigour, and the mountains were covered with snow. *Ibid.* 72. Captain Cook, in his voyage towards the South Pole, furnishes new and striking instances of the extraordinary predominance of cold in this region of the globe. "Who would have thought (says he) that an island of no greater extent than seventy leagues in circuit, situated between the latitude of 54° and 55° , should in the very height of summer be, in a manner, wholly covered, many fathoms deep, with frozen snow; but more especially the S. W. coast? The very summits of the lofty mountains were cased with snow and ice; but the quantity that lay in the valleys is incredible; and at the bottom of the bays, the coast was terminated by a wall of ice of considerable height." Vol. ii. p. 217.

In some places of the ancient continent, an extraordinary degree of cold prevails in very low latitudes. Mr. Bogle, in his embassy to the court of the Delai Lama, passed the winter of the year 1774 at Chamnanning, in latitude $31^{\circ} 39' N$. He often found the thermometer in his room twenty-nine degrees under the freezing point by Fahrenheit's scale; and in the middle of April the standing waters were all frozen, and heavy showers of snow frequently fell. The extraordinary elevation of the country seems to be the cause of this excessive cold. In travelling from Indostan to Thibet, the ascent to the summit of the Boutan Mountains is very great, but the descent on the other side is not in equal proportion. The kingdom of Thibet is an elevated region, extremely bare and desolate. Account of Thibet, by Mr. Stewart, read in the Royal Society, p. 7. The extraordinary cold in low latitudes in America cannot be accounted for by the same cause. Those regions are not remarkable for elevation. Some of them are countries depressed and level.

The most obvious and probable cause of the superior degree of cold towards the southern extremity of America, seems to be the form of the continent there. Its breadth gradually decreases as it stretches from St. Antonio southwards, and from the bay of St. Julian to the Straits of Magellan its dimensions are much contracted. On the east and west sides, it is washed by the Atlantic and Pacific Oceans. From its southern point it is probable that a great extent of sea, without any considerable tract of land, reaches to the Antarctic pole. In whichever of these directions the wind blows, it is cooled before it approaches the Magellanic regions, by passing over a vast body of water; nor is the land there of such extent, that it can recover any considerable degree of heat in its progress over it. These circumstances concur in rendering the temperature of the air in this district of America more similar to that of an insular, than to that of a continental climate, and hinder it from acquiring the same degree of summer heat with places in Europe and Asia in a correspondent northern latitude. The north wind is the only one that reaches this part of America, after blowing over a great continent. But from an attentive survey of its position, this will be found to have a tendency rather to diminish than augment the degree of heat. The southern extremity

of America is properly the termination of the immense ridge of the Andes, which stretches nearly in a direct line from north to south, through the whole extent of the continent. The most sultry regions in South America, Guiana, Brasil, Paraguay, and Tucuman, lie many degrees to the east of the Magellanic regions. The level country of Peru, which enjoys the tropical heats, is situated considerably to the west of them. The north wind thén, though it blows over land, does not bring to the southern extremity of America an increase of heat collected in its passage over torrid regions; but before it arrives there, it must have swept along the summits of the Andes, and comés impregnated with the cold of that frozen region.

Though it be now demonstrated that there is no southern continent in that region of the globe which it was supposed to occupy, it appears to be certain from Captain Cook's discoveries, that there is a large tract of land near the south pole, which is the source of most of the ice spread over the vast southern ocean. Vol. ii. p. 230. 239, &c. Whether the influence of this remote frozen continent may reach the southern extremity of America, and affect its climate, is an inquiry not unworthy of attention.

NOTE XXXIV. p. 288.

M. Condamine is one of the latest and most accurate observers of the interior state of South America. "After descending from the Andes, (says he,) one beholds a vast and uniform prospect of water and verdure, and nothing more. One treads upon the earth, but does not see it; as it is so entirely covered with luxuriant plants, weeds, and shrubs, that it would require a considerable degree of labour to clear it for the space of a foot." Relation abrégée d'un Voyage, &c. p. 48. One of the singularities in the forests is a sort of osiers, or withs, called *bejuco*s by the Spaniards, *lianes* by the French, and *nibbes* by the Indians, which are usually employed as ropes in America. This is one of the parasitical plants, which twists about the trees it meets with, and rising above their highest branches, its tendrils descend perpendicularly, strike into the ground, take root, rise up around another tree, and

thus mount and descend alternately. Other tendrils are carried obliquely by the wind, or some accident, and form a confusion of interwoven cordage, which resembles the rigging of a ship. Bancroft, Nat. Hist. of Guiana, 99. These withs are often as thick as the arm of a man. *Ib.* p. 75. M. Bouguer's account of the forests in Peru perfectly resembles this description. *Voyages au Peru*, p. 16. Oviedo gives a similar description of the forests in other parts of America. *Hist. lib. ix. p. 144. D.* The country of the Moxos is so much overflowed, that they are obliged to reside on the summit of some rising ground during some part of the year, and have no communication with their countrymen at any distance. *Lettres Edifiantes*, tom. x. p. 187. Garcia gives a full and just description of the rivers, lakes, woods, and marshes in those countries of America which lie between the tropics. *Origen de los Indios*, lib. ii. c. 5. § 4, 5. The incredible hardships to which Gonzalez Pizarro was exposed in attempting to march into the country to the east of the Andes, convey a very striking idea of that part of America in its original uncultivated state. *Garcil. de la Vega, Royal. Comment. of Peru*, part ii. book iii. c. 2—5.

NOTE XXXV. p. 290.

The animals of America seem not to have been always of a size inferior to those in other quarters of the globe. From antlers of the moose-deer which have been found in America, it appears to have been an animal of great size. Near the banks of the Ohio, a considerable number of bones of an immense magnitude have been found. The place where this discovery has been made lies about one hundred and ninety miles below the junction of the river Scioto with the Ohio. It is about four miles distant from the banks of the latter, on the side of the marsh called the Salt Lick. The bones lie in vast quantities about five or six feet under ground, and the stratum is visible in the bank on the edge of the Lick. *Journal of Colonel George Croglan, MS. penes me.* This spot seems to be accurately laid down by Evans in his map. These bones must have belonged to animals of enormous bulk; but naturalists being acquainted with no living creature of such size, were at first inclined to think that they were mineral substances.

Upon receiving a greater number of specimens, and after inspecting them more narrowly, they are now allowed to be the bones of an animal. As the elephant is the largest known quadruped, and the tusks which were found nearly resembled, both in form and quality, the tusks of an elephant, it was concluded that the carcasses deposited on the Ohio were of that species. But Dr. Hunter, one of the persons of our age best qualified to decide with respect to this point, having accurately examined several parcels of tusks, and grinders, and jaw-bones, sent from the Ohio to London, gives it as his opinion, that they did not belong to an elephant, but to some huge carnivorous animal of an unknown species. *Phil. Transact.* vol. lviii. p. 34. Bones of the same kind, and as remarkable for their size, have been found near the mouths of the great rivers Oby, Jeniseia, and Lena, in Siberia. *Strahlenberg, Descript. of North and East Parts of Europe and Asia*, p. 402, &c. The elephant seems to be confined in his range to the torrid zone, and never multiplies beyond it. In such cold regions as those bordering on the frozen sea, he could not live. The existence of such large animals in America might open a wide field for conjecture. The more we contemplate the face of nature, and consider the variety of her productions, the more we must be satisfied that astonishing changes have been made in the terraqueous globe by convulsions and revolutions, of which no account is preserved in history.

NOTE XXXVI. p. 291.

This degeneracy of the domestic European animals in America may be imputed to some of these causes. In the Spanish settlements, which are situated either within the torrid zone, or in countries bordering upon it, the increase of heat, and diversity of food, prevent sheep and horned cattle from attaining the same size as in Europe. They seldom become so fat, and their flesh is not so juicy, or of such delicate flavour. In North America, where the climate is more favourable, and similar to that of Europe, the quality of the grasses which spring up naturally in their pasture-grounds is not good. *Mitchell*, p. 151. Agriculture is still so much in its infancy, that artificial food for cattle is not raised in any quantity. During a winter,

long in many provinces, and rigorous in all, no proper care is taken of their cattle. The general treatment of their horses and horned cattle is injudicious and harsh in all the English colonies. These circumstances contribute more, perhaps, than any thing peculiar in the quality of the climate, to the degeneracy of breed in the horses, cows, and sheep of many of the North American provinces.

NOTE XXXVII. p. 292.

In the year 1518, the island of Hispaniola was afflicted with a dreadful visitation of those destructive insects, the particulars of which Herrera describes, and mentions a singular instance of the superstition of the Spanish planters. After trying various methods of exterminating the ants, they resolved to implore protection of the saints; but as the calamity was new, they were at a loss to find out the saint who could give them the most effectual aid. They cast lots in order to discover the patron whom they should invoke. The lots decided in favour of St. Saturninus. They celebrated his festival with great solemnity, and immediately, adds the historian, the calamity began to abate. Herrera, dec. 2. lib. iii. c. 15. p. 107.

NOTE XXXVIII. p. 294.

The author of *Recherches Philosophiques sur les Americains* supposes this difference in heat to be equal to twelve degrees, and that a place thirty degrees from the equator in the old continent is as warm as one situated eighteen degrees from it in America, tom. i. p. 11. Dr. Mitchell, after observations carried on during thirty years, contends that the difference is equal to fourteen or fifteen degrees of latitude. *Present State*, &c. p. 257.

NOTE XXXIX. p. 294.

January 3d, 1765, Mr. Bertram, near the head of St. John's river, in East Florida, observed a frost so intense, that in one night the ground was frozen an inch thick upon the banks of the river. The limes, citrons, and banana trees, at St. Augustin, were destroyed. Bertram's Journal, p. 20. Other instances of the extraordinary operations of

cold in the southern provinces of North America are collected by Dr. Mitchill. Present State, p. 206, &c. February 7th, 1747, the frost at Charlestown was so intense, that a person having carried two quart bottles of hot water to bed, in the morning they were split to pieces, and the water converted into solid lumps of ice. In a kitchen, where there was a fire, the water in a jar in which there was a live large eel, was frozen to the bottom. Almost all the orange and olive trees were destroyed. Description of South Carolina, 8vo. Lond. 1761.

NOTE XL. p. 295.

A remarkable instance of this occurs in Dutch Guiana, a country every where level, and so low, that during the rainy seasons it is usually covered with water near two feet in height. This renders the soil so rich, that on the surface, for twelve inches in depth, it is a stratum of perfect manure, and as such has been transported to Barbadoes. On the banks of the Essequibo, thirty crops of ratan canes have been raised successively; whereas in the West-Indian islands not more than two is ever expected from the richest land. The expedients by which the planters endeavour to diminish this excessive fertility of soil are various. Bancroft, Nat. Hist. of Guiana, p. 10, &c.

NOTE XLI. p. 306.

Muller seems to have believed, without sufficient evidence, that the Cape had been doubled, tom. i. p. 11. &c.; and the Imperial Academy of St. Petersburg give some countenance to it by the manner in which *Tschukotskoi-noss* is laid down in their charts. But I am assured, from undoubted authority, that no Russian vessel has ever sailed round that cape; and as the country of *Tschutki* is not subject to the Russian Empire, it is very imperfectly known.

NOTE XLII. p. 309.

Were this the place for entering into a long and intricate geographical disquisition, many curious observations might arise from comparing the accounts of the two Russian voyages and the charts of their respective navigations. One remark is applicable to both. We cannot rely with absolute certainty on the position which they assign to se-

veral of the places which they visited. The weather was so extremely foggy, that they seldom saw the sun or stars; and the position of the islands and supposed continents was commonly determined by reckoning, not by observation. Behring and Tschirikow proceeded much further towards the east than Krenitzin. The land discovered by Behring, which he imagined to be part of the American continent, is in the 236th degree of longitude from the first meridian in the isle of Ferro, and in $58^{\circ} 28'$ of latitude. Tschirikow came upon the same coast in longit. 241° , lat. 56° . Muller, i. 248, 249. The former must have advanced 60 degrees from the port of Petropawlowski, from which he took his departure, and the latter 65 degrees. But from the chart of Krenitzin's voyage, it appears that he did not sail further towards the east than the 208th degree, and only 32 degrees from Petropawlowski. In 1741, Behring and Tschirikow, both in going and returning, held a course which was mostly to the south of that chain of islands, which they discovered; and observing the mountainous and rugged aspect of the headlands which they descried towards the north, they supposed them to be promontories belonging to some part of the American continent, which, as they fancied, stretched as far south as the latitude 56. In this manner they are laid down in the chart published by Muller, and likewise in a manuscript chart drawn by a mate of Behring's ship, communicated to me by Mr. Professor Robison. But in 1769, Krenitzin, after wintering in the island Alaxa, stood so far towards the north in his return, that his course lay through the middle of what Behring and Tschirikow had supposed to be a continent, which he found to be an open sea, and that they had mistaken rocky isles for the headlands of a continent. It is probable, that the countries discovered in 1741, towards the east, do not belong to the American continent, but are only a continuation of the chain of islands. The number of volcanos in this region of the globe is remarkable. There are several in Kamtschatka, and not one of the islands, great or small, as far as the Russian navigation extends, is without them. Many are actually burning, and the mountains in all bear marks of having been once in a state of eruption. Were I disposed to admit such conjectures as have found place in other inquiries concerning the peopling of America, I might suppose that this part of the earth, having mani-

festly suffered violent convulsions from earthquakes and volcanos, an isthmus, which may have formerly united Asia to America, has been broken, and formed into a cluster of islands by the shock.

It is singular, that at the very time the Russian navigators were attempting to make discoveries in the north-west of America, the Spaniards were prosecuting the same design from another quarter. In 1769, two small vessels sailed from Loretto in California to explore the coasts of the country to the north of that peninsula. They advanced no further than the port of Monte-Rey in latitude 36. But, in several successive expeditions fitted out from the port of St. Blas in New Galicia, the Spaniards have advanced as far as the latitude 58. *Gazeta de Madrid*, March 19. and May 14. 1776. But as the journals of those voyages have not yet been published, I cannot compare their progress with that of the Russians, or show how near the navigators of the two nations have approached to each other. It is to be hoped that the enlightened minister, who has now the direction of American affairs in Spain, will not withhold this information from the public.

NOTE XLIII. p. 311.

Our knowledge of the vicinity of the two continents of Asia and America, which was very imperfect when I published the History of America in the year 1777, is now complete. Mr. Coxe's Account of the Russian Discoveries between Asia and America, printed in the year 1780, contains many curious and important facts with respect to the various attempts of the Russians to open a communication with the New World. The history of the great Voyage of Discovery, begun by Captain Cook in 1776, and completed by Captains Clerk and Gore, published in the year 1780, communicates all the information that the curiosity of mankind could desire with regard to this subject.

At my request, my friend Mr. Playfair, Professor of Mathematicks in the University of Edinburgh, has compared the narrative and charts of those illustrious navigators with the more imperfect relations and maps of the Russians. The result of this comparison I communicate in his own words, with much greater confidence in his

scientific accuracy, than I could have ventured to place in any observations which I myself might have made upon the subject.

“The discoveries of Captain Cook in his last voyage have confirmed the conclusions which Dr. Robertson had drawn, and have connected together the facts from which they were deduced. They have now rendered it certain that Behring and Tschirikow touched on the coast of America in 1741. The former discovered land in lat. $58^{\circ} 28'$, and about 236° east from Ferro. He has given such a description of the Bay in which he anchored, and the high mountain to the westward of it, which he calls St. Elias, that though the account of his voyage is much abridged in the English translation, Captain Cook recognised the place as he sailed along the western coast of America in the year 1778. The isle of St. Hermogenes, near the mouth of Cook's river, Schumagins Isles on the coast of Alashka, and Foggy Isle, retain in Captain Cook's chart the names which they had received from the Russian navigator. Cook's Voy. vol. ii. p. 347.

“Tschirikow came upon the same coast about $2^{\circ} 30'$ farther south than Behring, near the Mount Edgumbe of Captain Cook.

“With regard to Krenitzin, we learn from Coxe's Account of the Russian Discoveries, that he sailed from the mouth of the Kamtchatka river with two ships in the year 1768. With his own ship he reached the island Oonolashka, in which there had been a Russian settlement since the year 1762, where he wintered probably in the same harbour or bay where Captain Cook afterwards anchored. The other ship wintered at Alashka, which was supposed to be an island, though it be in fact a part of the American continent. Krenitzin accordingly returned without knowing that either of his ships had been on the coast of America; and this is the more surprising, because Captain Cook has informed us that Alashka is understood to be a great continent, both by the Russians and the natives at Oonolashka.

“According to Krenitzin, the ship which had wintered at Alashka had hardly sailed 32° to the eastward of the harbour of St. Peter and St. Paul in Kamtchatka; but, according to the more accurate charts of Captain Cook, it had sailed no less than $37^{\circ} 17'$ to the eastward of that harbour. There is nearly the same mistake of 5° in the

longitude which Krenitzin assigns to Oonolashka. It is remarkable enough, that in the chart of those seas, put into the hand of Captain Cook by the Russians on that island, there was an error of the same kind, and very nearly of the same extent.

“But what is of most consequence to be remarked on the subject is, that the discoveries of Captain Cook have fully verified Dr. Robertson’s conjecture “that it is probable that future navigators in those seas, by steering farther to the north than Behring and Tschirikow or Krenitzin had done, may find that the continent of America approaches still nearer to that of Asia.” Vol. ii. p. 44. It has accordingly been found that these two continents, which, in the parallel of 55° , or that of the southern extremity of Alashka, are about four hundred leagues asunder, approach continually to one another as they stretch together toward the north, until, within less than a degree from the polar circle, they are terminated by two capes only thirteen leagues distant. The east cape of Asia is in latitude $66^{\circ} 6'$ and in longitude $190^{\circ} 22'$ east from Greenwich; the western extremity of America, or Prince of Wales’ Cape, is in latitude $65^{\circ} 46'$, and in longitude $191^{\circ} 45'$. Nearly in the middle of the narrow strait (Behring’s Strait) which separates these capes, are the two islands of St. Diomede, from which both continents may be seen. Captain King informs us, that as he was sailing through this strait, July 5, 1779, the fog having cleared away, he enjoyed the pleasure of seeing from the ship the continents of Asia and America at the same moment, together with the islands of St. Diomede lying between them. Cook’s Voy. vol. iii. p. 244.

“Beyond this point the strait opens towards the Arctic Sea, and the coasts of Asia and America diverge so fast from one another, that in the parallel of 69° they are more than one hundred leagues asunder. Ib. p. 277. To the south of the strait there are a number of islands, Clerk’s, King’s, Anderson’s, &c., which, as well as those of St. Diomede, may have facilitated the migrations of the natives from the one continent to the other. Captain Cook, however, on the authority of the Russians at Oonolashka, and for other good reasons, has diminished the number of islands which had been inserted in former charts of the northern Archipelago. He has also placed Alashka, or the promontory which stretches from the continent of Ame-

rica S. W. towards Kamtchatka, at the distance of five degrees of longitude farther from the coast of Asia than it was reckoned by the Russian navigators.

“The geography of the Old and New World is therefore equally indebted to the discoveries made in this memorable voyage; and as many errors have been corrected, and many deficiencies supplied, by means of these discoveries, so the accuracy of some former observations has been established. The basis of the map of the Russian Empire, as far as regarded Kamtchatka, and the country of the Tschutzki, was the position of four places, Yakutsh, Ochotz, Bolcheresk, and Petropawlowski, which had been determined by the astronomer Krassilnicow in the year 1744. *Nov. Comment. Petrop. vol. iii. p. 465, &c.* But the accuracy of his observations was contested by M. Engel, and M. Robert de Vaugondy; *Coxe, Append. i. No. 2. p. 267. 272.*; and the former of these geographers ventured to take away no less than 28 degrees from the longitude, which, on the faith of Krassilnicow’s observations, was assigned to the eastern boundary of the Russian Empire. With how little reason this was done, will appear from considering that our British navigators, having determined the position of Petropawlowski by a great number of very accurate observations, found the longitude of that port $158^{\circ} 43'$ E. from Greenwich, and its latitude $53^{\circ} 1'$; agreeing, the first to less than seven minutes, and the second to less than half a minute, with the calculations of the Russian astronomer: a coincidence which, in the situation of so remote a place, does not leave an uncertainty of more than four English miles, and which, for the credit of science, deserves to be particularly remarked. The chief error in the Russian maps has been in not extending the boundaries of that Empire sufficiently towards the east. For as there was nothing to connect the land of the Tschutzki and the north-east point of Asia with those places whereof the position had been carefully ascertained, except the imperfect accounts of Behring’s and Synd’s voyages, considerable errors could not fail to be introduced, and that point was laid down as not more than $23^{\circ} 2'$ east of the meridian of Petropawlowski. *Coxe, App. i. No. 2.* By the observations of Captain King, the difference of longitude between Petropawlowski and the East Cape is $31^{\circ} 9'$; that is $80^{\circ} 7'$ greater than it was supposed to be by the Russian geo-

graphers."—It appears from Cook's and King's Voy. iii. p. 272., that the continents of Asia and America are usually joined together by ice during winter. Mr. Samwell confirms this account of his superior officer. "At this place, viz. near the latitude of 66° N. the two coasts are only thirteen leagues asunder, and about midway between them lie two islands, the distance from which to either shore is short of twenty miles. At this place the natives of Asia could find no difficulty in passing over to the opposite coast, which is in sight of their own. That in a course of years such an event would happen, either through design or accident, cannot admit of a doubt. The canoes which we saw among the Tschutzski were capable of performing a much longer voyage; and, however rude they may have been at some distant period, we can scarcely suppose them unequal to a passage of six or seven leagues. People might have been carried over by accident on floating pieces of ice. They might also have travelled across on sledges or on foot; for we have reason to believe that the strait is entirely frozen over in the winter; so that, during that season, the continents, with respect to the communication between them, may be considered as one land." Letter from Mr. Samwell, Scots Magazine for 1788, p. 604. It is probable that this interesting portion of geographical knowledge will, in the course of a few years, receive farther improvement. Soon after the publication of Captain Cook's last voyage, the great and enlightened Sovereign of Russia, attentive to every thing that may contribute to extend the bounds of science, or to render it more accurate, formed the plan of a new voyage of discovery, in order to explore those parts of the ocean lying between Asia and America, which Captain Cook did not visit, to examine more accurately the islands which stretch from one continent almost to the other, to survey the north-east coast of the Russian Empire, from the mouth of the Kovyma, or Kolyma, to the North Cape, and to settle, by astronomical observations, the position of each place worth notice. The conduct of this important enterprise is committed to Captain Billings, an English officer in the Russian service, of whose abilities for that station it will be deemed the best evidence, that he accompanied Captain Cook in his last voyage. To render the expedition more extensively useful, an eminent naturalist is appointed to attend Captain Bill-

ings. Six years will be requisite for accomplishing the purposes of the voyage. Coxe Supplement to Russian Discoveries, p. 27, &c.

NOTE XLIV. p. 324.

Few travellers have had such opportunity of observing the natives of America, in its various districts, as Don Antonio Ulloa. In a work lately published by him, he thus describes the characteristic features of the race: "A very small forehead, covered with hair towards its extremities, as far as the middle of the eye-brows; little eyes; a thin nose, small and bending towards the upper lip; the countenance broad; the ears large; the hair very black, lank, and coarse; the limbs well turned, the feet small, the body of just proportion; and altogether smooth and free from hair, until old age, when they acquire some beard, but never on the cheeks." *Noticias Americanas*, &c. p. 307. M. le Chevalier de Pinto, who resided several years in a part of America which Ulloa never visited, gives a sketch of the general aspect of the Indians there. "They are all of copper colour with some diversity of shade, not in proportion to their distance from the equator, but according to the degree of elevation of the territory which they inhabit. Those who live in a high country are fairer than those in the marshy low lands on the coast. Their face is round, further removed, perhaps, than that of any people from an oval shape. Their forehead is small, the extremity of their ears far from the face, their lips thick, their nose flat, their eyes black, or of a chestnut colour, small, but capable of discerning objects at a great distance. Their hair is always thick and sleek, and without any tendency to curl. They have no hair on any part of their body but the head. At the first aspect a southern American appears to be mild and innocent, but on a more attentive view, one discovers in his countenance something wild, distrustful and sullen." *MS. penes me*. The two portraits drawn by hands very different from those of common travellers, have a near resemblance.

NOTE XLV. p. 325.

Amazing accounts are given of the persevering speed of the Americans. Adair relates the adventures of a Chik-kasah warrior, who ran through woods and over mountains,

three hundred computed miles, in a day and a half and two nights. Hist. of Amer. Ind. 396.

NOTE XLVI. p. 330.

M. Godin le Jeune, who resided fifteen years among the Indians of Peru and Quito, and twenty years in the French colony of Cayenne, in which there is a constant intercourse with the Galibis and other tribes on the Orinoco, observes, that the vigour of constitution among the Americans is exactly in proportion to their habits of labour. The Indians, in warm climates, such as those on the coasts of the South Sea, on the river of Amazons, and the river Orinoco, are not to be compared for strength with those in cold countries; and yet, says he, boats daily set out from Para, a Portuguese settlement on the river of Amazons, to ascend that river against the rapidity of the stream, and with the same crew they proceed to San Pablo, which is eight hundred leagues distant. No crew of white people, or even of negroes, would be found equal to a task of such persevering fatigue, as the Portuguese have experienced; and yet the Indians, being accustomed to this labour from their infancy, perform it. MS. *penes me.*

NOTE XLVII. p. 336.

Don Antonio Ulloa, who visited a great part of Peru and Chili, the kingdom of New Granada, and several of the provinces bordering on the Mexican Gulf, while employed in the same service with the French mathematicians during the space of ten years, and who afterwards had an opportunity of viewing the North-Americans, asserts, "that if we have seen one American, we may be said to have seen them all, their colour and make are so nearly the same." Notic. Americanas, p. 308. A more early observer, Pedro de Cieca de Leon, one of the conquerors of Peru, who had likewise traversed many provinces of America, affirms that the people, men and women, although there is such a multitude of tribes or nations as to be almost innumerable, and such diversity of climates, appear nevertheless like the children of one father and mother. Chronica del' Peru, parte i. c. 19. There is, no doubt, a certain combination of features, and peculiarity of aspect, which forms what may be called a European or Asiatic countenance. There must likewise be one that

may be denominated American, common to the whole race. This may be supposed to strike the traveller at first sight, while not only the various shades, which distinguish people of different regions, but the peculiar features which discriminate individuals, escape the notice of a transient observer. But when persons who had resided so long among the Americans concur in bearing testimony to the similarity of their appearance in every climate, we may conclude that it is more remarkable than that of any other race. See likewise Garcia Origen de los Indies, p. 54. 242. Torquemada Monarch. Indiana, ii. 571.

NOTE XLVIII. p. 339.

M. le Chevalier de Pinto observes, that in the interior parts of Brasil, he had been informed that some persons resembling the white people of Darien have been found ; but that the breed did not continue, and their children became like other Americans. This race, however, is very imperfectly known. MS. *penes me*.

NOTE XLIX. p. 341.

The testimonies of different travellers, concerning the Patagonians, have been collected and stated with a considerable degree of accuracy by the author of Recherches Philosophiques, &c. tom. i. 281, &c. iii. 181, &c. Since the publication of his work, several navigators have visited the Magellanic regions, and, like their predecessors, differ very widely in their accounts of its inhabitants. By Commodore Byron and his crew, who sailed through the Straits in 1764, the common size of the Patagonians was estimated to be eight feet, and many of them much taller. Phil. Transact. vol. lvii. p. 78. By Captains Wallis and Carteret, who actually measured them in 1766, they were found to be from six feet to six feet five and seven inches in height. Phil. Trans. vol. lx. p. 22. These, however, seem to have been the very people whose size had been rated so high in the year 1764 ; for several of them had beads and red baize of the same kind with what had been put on board Captain Wallis's ship, and he naturally concluded that they had got these from Mr. Byron. Hawkesw. i. In 1767 they were again measured by M. Bougainville, whose account differs little from that of Captain Wallis. Voy. 129. To these I shall add a testimony of great

weight. In the year 1762, Don Bernardo Ibeznez de Echavarrí accompanied the Marquis de Valdelirios to Buenos Ayres, and resided there several years. He is a very intelligent author, and his reputation for veracity unimpeached among his countrymen. In speaking of the country towards the southern extremity of America, "By what Indians," says he, "is it possessed? Not certainly by the fabulous Patagonians, who are supposed to occupy this district. I have from many eye-witnesses, who have lived among those Indians, and traded much with them, a true and accurate description of their persons. They are of the same stature with Spaniards. I never saw one who rose in height two *varas* and two or three inches," *i. e.* about 80 or 81.332 inches English, if Echavarrí makes his computation according to the *vara* of Madrid. This agrees nearly with the measurement of Captain Wallis. Reyno Jesuítico, 238. Mr. Falkner, who resided as a missionary forty years in the southern parts of America, says that "the Patagonians, or Puelches, are a large bodied people; but I never heard of that gigantic race which others have mentioned, though I have seen persons of all the different tribes of southern Indians." Introd. p. 26. M. Dobrizhoffer, a Jesuit, who resided eighteen years in Paraguay, and who had seen great numbers of the various tribes which inhabit the countries situated upon the Straits of Magellan, confirms, in every point, the testimony of his brother-missionary Falkner. Dobrizhoffer enters into some detail with respect to the opinions of several authors concerning the stature of the Patagonians. Having mentioned the reports of some early travellers with regard to the extraordinary size of some bones found on that coast which were supposed to be human; and having endeavoured to show that these bones belonged to some large marine or land animal, he concludes, "de hisce ossibus crede quicquid libuerit, dummodo, me suasore, Patagones pro gigantibus desinas habere." Hist. de Abissonibus, vol. ii. p. 19, &c.

NOTE L. p. 345.

Antoniô Sanchez Ribeiro, a learned and ingenious physician, published a dissertation in the year 1765, in which he endeavours to prove, that this disease was not introduced from America, but took its rise in Europe, and was brought on by an epidemical and malignant disorder. Did

I choose to enter into a disquisition on this subject, which I should not have mentioned if it had not been intimately connected with this part of my inquiries, it would not be difficult to point out some mistakes with respect to the facts upon which he founds, as well as some errors in the consequences which he draws from them. The rapid communication of this disease from Spain over Europe, seems however to resemble the progress of an epidemic, rather than that of a disease transmitted by infection. The first mention of it is in the year 1493, and before the year 1497: it had made its appearance in most countries of Europe, with such alarming symptoms as rendered it necessary for the civil magistrate to interpose, in order to check its career.—Since the publication of this work, a second edition of Dr. Sanchez's Dissertation has been communicated to me. It contains several additional facts in confirmation of his opinion, which is supported with such plausible arguments, as render it a subject of inquiry well deserving the attention of learned physicians.

NOTE LI. p. 349.

The people of Otaheite have no denomination for any number above two hundred, which is sufficient for their transactions. Voyages, by Hawkesworth, ii. 228.

NOTE LII. p. 355.

As the view which I have given of rude nations is extremely different from that exhibited by very respectable authors, it may be proper to produce some of the many authorities on which I found my description. The manners of the savage tribes in America have never been viewed by persons more capable of observing them with discernment, than the philosophers employed by France and Spain, in the year 1735, to determine the figure of the earth. M. Bouguer, D. Antonio d'Ulloa, and D. Jorge Juan, resided long among the natives of the least civilized provinces in Peru. M. de la Condamine had not only the same advantages with them for observation, but, in his voyage down the Maragnon, he had an opportunity of inspecting the state of the various nations seated on its banks, in its vast course across the continent of South America. There is a wonderful resemblance in their representation of the character of the Americans. "They are all ex-

"tremely indolent," says M. Bouguer, "they are stupid, they pass whole days sitting in the same place, without moving, or speaking a single word. It is not easy to describe the degree of their indifference for wealth, and all its advantages. One does not well know what motive to propose to them, when one would persuade them to perform any service. It is vain to offer them money; they answer, that they are not hungry." *Voyage au Perou*, p. 102. "If one considers them as men, the narrowness of their understanding seems to be incompatible with the excellence of the soul. Their imbecillity is so visible, that one can hardly form an idea of them different from what one has of the brutes. Nothing disturbs the tranquillity of their souls, equally insensible to disasters and to prosperity. Though half-naked, they are as contented as a monarch in his most splendid array. Riches do not attract them in the smallest degree, and the authority of dignities to which they may aspire are so little the objects of their ambition, that an Indian will receive with the same indifference the office of a judge (Alcade) or that of a hangman, if deprived of the former and appointed to the latter. Nothing can move or change them. Interest has no power over them, and they often refuse to perform a small service, though certain of a great recompense. Fear makes no impression upon them, and respect as little. Their disposition is so singular that there is no method of influencing them, no means of rousing them from that indifference which is proof against all the endeavours of the wisest persons; no expedient which can induce them to abandon that gross ignorance, or lay aside that careless negligence, which disconcert the prudence and disappoint the care of such as are attentive to their welfare." *Voyage d'Ulloa*, tom. i. 335. 356. Of those singular qualities he produces many extraordinary instances, p. 336—347. "Insensibility," says M. de la Condamine, "is the basis of the American character. I leave others to determine, whether this should be dignified with the name of apathy, or disgraced with that of stupidity. It arises, without doubt, from the small number of their ideas, which do not extend beyond their wants. Gluttons even to voracity, when they have wherewithal to satisfy their appetite. Temperate, when necessity obliges them, to such a degree, that they can endure want without seeming to desire any thing. Pusillanimous and cowardly to excess, unless when

they are rendered desperate by drunkenness. Averse to labour, indifferent to every motive of glory, honour, or gratitude; occupied entirely by the object that is present, and always determined by it alone, without any solicitude about futurity; incapable of foresight or of reflection; abandoning themselves, when under no restraint, to a puerile joy, which they express by frisking about and immoderate fits of laughter; without object or design, they pass their life without thinking, and grow old without advancing beyond childhood, of which they retain all the defects. If this description were applicable only to the Indians in some provinces of Peru, who are slaves in every respect but the name, one might believe, that this degree of degeneracy was occasioned by the servile dependence to which they are reduced; the example of the modern Greeks being proof how far servitude may degrade the human species. But the Indians in the missions of the Jesuits, and the savages who still enjoy unimpaired liberty, being as limited in their faculties, not to say as stupid, as the other, one cannot observe, without humiliation, that man, when abandoned to simple nature, and deprived of the advantages resulting from education and society, differs but little from the brute creation." *Voyage de la Riv. de Amaz.* 52, 53. M. de Chanvalon, an intelligent and philosophical observer, who visited Martinico in 1751, and resided there six years, gives the following description of the Caribs: "It is not the red colour of their complexion, it is not the singularity of their features, which constitutes the chief difference between them and us. It is their excessive simplicity: it is the limited degree of their faculties. Their reason is not more enlightened or more provident than the instinct of brutes. The reason of the most gross peasants, that of the Negroes brought up in the parts of Africa most remote from intercourse with Europeans, is such, that we discover appearances of intelligence, which, though imperfect, is capable of increase. But of this the understanding of the Caribs seems to be hardly susceptible. If sound philosophy and religion did not afford us their light, if we were to decide according to the first impression which the view of that people makes upon the mind, we should be disposed to believe that they do not belong to the same species with us. Their stupid eyes are the true mirror of their souls; it appears to be without functions. Their indolence is extreme; they have never the least solicitude about the mo-

ment which is to succeed that which is present." Voyage à la Martinique, p. 44, 45. 51. M. de la Borde, Tertré, and Rochefort confirm this description. "The characteristics of the Californians," says P. Venegas, "as well as of all other Indians, are stupidity and insensibility; want of knowledge and reflection; inconstancy, impetuosity, and blindness of appetite; an excessive sloth, and abhorrence of all labour and fatigue; an excessive love of pleasure and amusement of every kind, however trifling or brutal; pusillanimity; and, in fine, a most wretched want of every thing which constitutes the real man, and renders him rational, inventive, tractable, and useful to himself and society. It is not easy for Europeans, who never were out of their own country, to conceive an adequate idea of those people; for, even in the least frequented corners of the globe, there is not a nation so stupid, of such contracted ideas, and so weak both in body and mind, as the unhappy Californians. Their understanding comprehends little more than what they see; abstract ideas, and much less a chain of reasoning, being far beyond their power; so that they scarce ever improve their first ideas, and these are in general false, or at least inadequate. It is in vain to represent to them any future advantages which will result to them from doing or abstaining from this or that particular immediately present; the relation of means and ends being beyond the stretch of their faculties. Nor have they the least notion of pursuing such intentions as will procure themselves some future good, or guard them against future evils. Their will is proportional to their faculties, and all their passions move in a very narrow sphere. Ambition they have none, and are more desirous of being accounted strong than valiant. The objects of ambition with us, honour, fame, reputation, titles, posts, and distinctions of superiority, are unknown among them; so that this powerful spring of action, the cause of so much seeming good and real evil in the world, has no power here. This disposition of mind, as it gives them up to an amazing languor and lassitude, their lives fleeting away in a perpetual inactivity and detestation of labour, so it likewise induces them to be attracted by the first object which their own fancy, or the persuasion of another, places before them; and at the same time renders them as prone to alter their resolutions with the same facility. They look with indifference upon any kindness done them; nor is

even the bare remembrance of it to be expected from them. In a word, the unhappy mortals may be compared to children, in whom the development of reason is not completed. They may indeed be called a nation who never arrive at manhood." *Hist. of California, English Transl. i. 64, 67.* Mr. Ellis gives a similar account of the want of foresight and inconsiderate disposition of the people adjacent to Hudson's Bay. *Voyage, p. 194, 195.*

The incapacity of the Americans is so remarkable, that Negroes from all the different provinces of Africa are observed to be more capable of improving by instruction. They acquire the knowledge of several particulars which the Americans cannot comprehend. Hence the Negroes, though slaves, value themselves as a superior order of beings, and look down upon the Americans with contempt, as void of capacity and of rational discernment. *Ulloa Notic. Americ. 322, 323.*

NOTE LIII. p. 361.

Dobrizhoffer, the last traveller I know who has resided among any tribe of the ruder Americans, has explained so fully the various reasons which have induced their women to suckle their children long, and never to undertake rearing such as were feeble or distorted, and even to destroy a considerable number of their offspring, as to throw great light on the observations I have made, p. 72, 73. *Hist. de Abissonibus, vol. ii. p. 107. 221.* So deeply were these ideas unprinted in the minds of the Americans, that the Peruvians, a civilized people when compared with the barbarous tribes whose manners I am describing, retained them; and even their intercourse with the Spaniards has not been able to root them out. When twins are born in any family, it is still considered as an ominous event, and the parents have recourse to rigorous acts of mortification, in order to avert the calamities with which they are threatened. When a child is born with any deformity, they will not, if they can possibly avoid it, bring it to be baptized, and it is with difficulty they can be brought to rear it. *Arriaga Extirpac. de la Idolat. del Peru, p. 32, 33.*

END OF THE FIRST VOLUME.