

CLASSICS TO GO

**ASPECTS OF NATURE
IN DIFFERENT LANDS
AND DIFFERENT CLIMATES**

VOLUME 1



ALEXANDER VON HUMBOLDT

Aspects of Nature

**In Different Lands and Different
Climates**

Volume 1

Alexander von Humboldt

AUTHOR'S PREFACE

TO THE

FIRST EDITION.

It is not without diffidence that I present to the public a series of papers which took their origin in the presence of natural scenes of grandeur or of beauty,—on the Ocean, in the forests of the Orinoco, in the Steppes of Venezuela, and in the mountain wildernesses of Peru and Mexico. Detached fragments were written down on the spot and at the moment, and were afterwards moulded into a whole. The view of Nature on an enlarged scale, the display of the concurrent action of various forces or powers, and the renewal of the enjoyment which the immediate prospect of tropical scenery affords to sensitive minds, are the objects which I have proposed to myself. According to the design of my work, whilst each of the treatises of which it consists should form a whole complete in itself, one common tendency should pervade them all. Such an artistic and literary treatment of subjects of natural history is liable to difficulties of composition, notwithstanding the aid which it derives from the power and flexibility of our noble language. The unbounded riches of Nature occasion an accumulation of separate images; and accumulation disturbs the repose and the unity

of impression which should belong to the picture. Moreover, when addressing the feelings and imagination, a firm hand is needed to guard the style from degenerating into an undesirable species of poetic prose. But I need not here describe more fully dangers which I fear the following pages will shew I have not always succeeded in avoiding.

Nevertheless, notwithstanding faults which I can more easily perceive than amend, I venture to hope that these descriptions of the varied Aspects which Nature assumes in distant lands, may impart to the reader a portion of that enjoyment which is derived from their immediate contemplation by a mind susceptible of such impressions. As this enjoyment is enhanced by insight into the more hidden connection of the different powers and forces of nature, I have subjoined to each treatise scientific elucidations and additions.

Throughout the entire work I have sought to indicate the unfailing influence of external nature on the feelings, the moral dispositions, and the destinies of man. To minds oppressed with the cares or the sorrows of life, the soothing influence of the contemplation of nature is peculiarly precious; and to such these pages are more especially dedicated. May they, "escaping from the stormy waves of life," follow me in spirit with willing steps to the recesses of the primeval forests, over the boundless surface of the Steppe, and to the higher ridges of the Andes. To them is addressed the poet's voice, in the sentence of the Chorus—

“Auf den Bergen ist Freiheit! Der Hauch der
Grüfte
Steigt nicht hinauf in die reinen Lüfte;
Die Welt ist vollkommen überall,
Wo der Mensch nicht hinkommt mit seiner
Qual.”

AUTHOR'S PREFACE

TO THE SECOND AND THIRD EDITIONS.

The twofold aim of the present work (a carefully prepared and executed attempt to enhance the enjoyment of Nature by animated description, and at the same time to increase in proportion to the state of knowledge at the time the reader's insight into the harmonious and concurrent action of different powers and forces of Nature) was pointed out by me nearly half a century ago in the Preface to the First Edition. In so doing, I alluded to the various obstacles which oppose a successful treatment of the subject in the manner designed. The combination of a literary and of a purely scientific object,—the endeavour at once to interest and occupy the imagination, and to enrich the mind with new ideas by the augmentation of knowledge,—renders the due arrangement of the separate parts, and the desired unity of composition, difficult of attainment. Yet, notwithstanding these disadvantages, the public have long regarded my imperfectly executed undertaking with friendly partiality.

The second edition of the “*Ansichten der Natur*” was prepared by me in Paris in 1826; and at the same time two fresh treatises were added,—one an Essay

on the Structure and mode of Action of Volcanoes in different regions of the earth; and the other on the "Vital Power," bearing the title "Lebenskraft, oder der rhodische Genius." During my long stay at Jena, Schiller, in the recollection of his youthful medical studies, loved to converse with me on physiological subjects; and the considerations in which I was then engaged on the muscular and nervous fibres when excited by contact with chemically different substances, often gave a more specific and graver turn to our discourse. The "Rhodian Genius" was written at this time: it appeared first in Schiller's "Horen," a periodical journal; and it was his partiality for this little work which encouraged me to allow it to be reprinted. My brother, in a letter forming part of a collection which has recently been given to the public (Wilhelm von Humboldt's Briefe an eine Freundin, Th. ii. S. 39), touches tenderly on the subject of the memoir in question, but adds at the same time a very just remark: "The development of a physiological idea is the object of the entire treatise; men were fonder at that time than they would now be of such semi-poetic clothing of severe scientific truths."

In my eightieth year, I am still enabled to enjoy the satisfaction of completing a third edition of my work, remoulding it entirely afresh to meet the requirements of the present time. Almost all the scientific Elucidations or Annotations have been either enlarged or replaced by new and more comprehensive ones. I have hoped that these volumes might tend to inspire and cherish a love for

the study of Nature, by bringing together in a small space the results of careful observation on the most varied subjects; by showing the importance of exact numerical data, and the use to be made of them by well-considered arrangement and comparison; and by opposing the dogmatic half-knowledge and arrogant scepticism which have long too much prevailed in what are called the higher circles of society.

The expedition made by Ehrenberg, Gustav Rose, and myself, by the command of the Emperor of Russia, in 1829, to Northern Asia (in the Ural and Altai mountains, and on the shores of the Caspian Sea), falls between the period of publication of the second and third editions. This expedition has contributed materially to the enlargement of my views in all that regards the form of the surface of the earth, the direction of mountain-chains, the connection of steppes and deserts with each other, and the geographical distribution of plants in relation to ascertained conditions of temperature. The long subsisting want of any accurate knowledge on the subject of the great snow-covered mountain-chains which are situated between the Altai and the Himalaya (*i. e.* the Thian-schan and the Kuen-lün), and the ill-judged neglect of Chinese authorities, have thrown great obscurity around the geography of Central Asia, and have allowed imagination to be substituted for the results of observation in works which have obtained extensive circulation. In the course of the last few months the hypsometrical comparison of the culminating summits of the two

continents has almost unexpectedly received important corrections and additions, of which I hasten to avail myself. (Vol. i. pp. [57-58](#), and [92-93](#).) The determinations of the heights of two mountains in the eastern chain of the Andes of Bolivia, the Sorata and the Illimani, have been freed from the errors which had placed those mountains above the Chimborazo, but without as yet altogether restoring to the latter with certainty its ancient pre-eminence among the snowy summits of the New World. In the Himalaya the recently executed trigonometrical measurement of the Kinchinjinga (28178 English feet) places it next in altitude to the Dhawalagiri, a new and more exact trigonometrical measurement of which has also been recently made.

For the sake of uniformity with the two previous editions of the “Ansichten der Natur,” I have given the degrees of temperature in the present work (unless where expressly stated otherwise) in degrees of Reaumur’s scale. The linear measures are the old French, in which the toise equals six Parisian feet. The miles are geographical, fifteen to a degree of the equator. The longitudes are reckoned from the Observatory at Paris as a first meridian.

BERLIN, 1849.

NOTE BY THE TRANSLATOR.

In the translation the temperatures are given in degrees of Fahrenheit, retaining at the same time the original figures in Reaumur's scale. In the same manner the measures are given in English feet, generally retaining at the same time the original statements in Parisian or French feet or toises, a desirable precaution where accuracy is important. The miles are given in geographical miles, 60 to a degree, but in this case the original figures have usually been omitted, the conversion being so simple as to render the introduction of error very improbable. In a very few instances "English miles" appear without any farther epithet or explanation; these have been taken by the author from English sources, and may probably signify statute miles. The longitudes from Greenwich are substituted for those from Paris, retaining in addition the original statement in particular cases.

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STEPPES AND DESERTS.

A widely extended and apparently interminable plain stretches from the southern base of the lofty granitic crest, which, in the youth of our planet, when the Caribbean gulf was formed, braved the invasion of the waters. On quitting the mountain valleys of Caraccas, and the island-studded lake of Tacarigua^[1] whose surface reflects the stems of plantains and bananas, and on leaving behind him meads adorned with the bright and tender green of the Tahitian sugar cane or the darker verdure of the Cacao groves, the traveller, looking southward, sees unroll before him Steppes receding until they vanish in the far horizon.

Fresh from the richest luxuriance of organic life, he treads at once the desolate margin of a treeless desert. Neither hill nor cliff rises, like an island in the ocean, to break the uniformity of the boundless plain; only here and there broken strata of limestone, several hundred square miles in extent, appear sensibly higher than the adjoining parts. "Banks"^[2] is the name given to them by the natives; as if language instinctively recalled the more ancient condition of the globe, when those elevations were shoals, and the Steppes themselves were the bottom of a great Mediterranean sea.

Even at the present time nocturnal illusion still recalls these images of the past. When the rapidly rising and descending constellations illumine the margin of the plain, or when their trembling image is repeated in the lower stratum of undulating vapour, we seem to see before us a shoreless ocean.^[3] Like the ocean, the Steppe fills the mind with the feeling of infinity; and thought, escaping from the visible impressions of space, rises to contemplations of a higher order. Yet the aspect of the clear transparent mirror of the ocean, with its light, curling, gently foaming, sportive waves, cheers the heart like that of a friend; but the Steppe lies stretched before us dead and rigid, like the stony crust^[4] of a desolated planet.

In every zone nature presents the phenomena of these great plains: in each they have a peculiar physiognomy, determined by diversity of soil, by climate, and by elevation above the level of the sea.

In northern Europe, the Heaths, which, covered with a single race of plants repelling all others, extend from the point of Jutland to the mouth of the Scheldt, may be regarded as true Steppes,—but Steppes of small extent and hilly surface, if compared with the Llanos and Pampas of South America, or even with the Prairies of the Missouri^[5] and the Barrens of the Coppermine river, where range countless herds of the shaggy buffalo and musk ox.

A grander and severer aspect characterises the plains of the interior of Africa. Like the wide expanse of the Pacific Ocean, it is only in recent times that attempts have been made to explore them thoroughly. They are parts of a sea of sand, which, stretching eastward, separates fruitful regions from each other, or

encloses them like islands; as where the Desert, near the basaltic mountains of Harudsh,^[6] surrounds the Oasis of Siwah rich in date trees, and in which the ruins of the temple of Ammon mark the venerable site of an ancient civilisation. Neither dew nor rain bathe these desolate plains, or develop on their glowing surface the germs of vegetable life; for heated columns of air, every where ascending, dissolve the vapours, and disperse each swiftly vanishing cloud.

Where the Desert approaches the Atlantic Ocean, as between the Wadi Nun and Cape Blanco, the moist sea air pours in to supply the void left by these upward currents. The mariner, steering towards the mouth of the Gambia through a sea covered with weed, when suddenly deserted by the east trade wind of the tropics,^[7] infers the vicinity of the widely extended heat-radiating desert. Herds of antelopes and swift-footed ostriches roam through these vast regions; but, with the exception of the watered Oases or islands in the sea of sand, some groups of which have recently been discovered, and whose verdant shores are frequented by nomade Tibbos and Tuaricks,^[8] the African Desert must be regarded as uninhabitable by man. The more civilised nations who dwell on its borders only venture to enter it periodically. By trading routes, which have remained unaltered for thousands of years, caravans traverse the long distance from Tafilet to Timbuctoo, and from Moorzouk to Bornou; adventurous undertakings, the possibility of which depends upon the existence of the camel, the "ship of the desert,"^[9] as it is called in the traditional language of the eastern world.

These African plains occupy an extent nearly three times as great as that of the neighbouring Mediterranean sea. They are situated partly within, and partly in the vicinity of the tropics; and on this situation their peculiar character depends. In the eastern part of the old continent, the same geognostic phenomenon occurs in the temperate zone. On the plateaux of central Asia, between the gold mountains or the Altai and the Kuen-lun,^[10] from the Chinese wall to beyond the Celestial mountains, and towards the sea of Aral, there extend, through a length of many thousand miles, the most vast, if not the most elevated, Steppes on the surface of the globe. I have myself had the opportunity, fully thirty years after my South American journey, of visiting a portion of them; namely, the Calmuck Kirghis Steppes between the Don, the Volga, the Caspian, and the Chinese lake Dsaisang, being an extent of almost 2800 geographical miles.

These Asiatic Steppes, which are sometimes hilly and sometimes interrupted by pine forests, possess (dispersed over them in groups) a far more varied vegetation than that of the Llanos and Pampas of Caraccas and Buenos Ayres. The finest part of these plains, which is inhabited by Asiatic pastoral tribes, is adorned with low bushes of luxuriant white-blossomed Rosaceæ, and with Fritillarias, Tulips, and Cypripedias.

As the torrid zone is characterised on the whole by a disposition in all vegetation to become arborescent, so some of the Asiatic Steppes in the temperate zone are characterised by the great height attained by flowering herbaceous plants, Saussureas and other Synantheræ, and Papilionaceæ especially a host of species of Astragalus. In traversing pathless portions of these Steppes, the traveller, seated in the low Tartar carriages, sees the thickly crowded plants bend beneath

the wheels, but without rising up cannot look around him to see the direction in which he is moving. Some of the Asiatic Steppes are grassy plains; others are covered with succulent, evergreen, articulated soda plants: many glisten from a distance with flakes of exuded salt which cover the clayey soil, not unlike in appearance to fresh fallen snow.

These Mongolian and Tartarian Steppes, interrupted frequently by mountainous features, divide the very ancient civilisation of Thibet and Hindostan from the rude nations of Northern Asia. They have in various ways exercised an important influence on the changeful destinies of man. They have compressed the population towards the south, and have tended, more than the Himalaya, or than the snowy mountains of Srinagur and Ghorka, to impede the intercourse of nations, and to place permanent limits to the extension of milder manners, and of artistic and intellectual cultivation in northern Asia.

But, in the history of the past, it is not alone as an opposing barrier that we must regard the plains of Central Asia: more than once they have proved the source from whence devastation has spread over distant lands. The pastoral nations of these Steppes,—Moguls, Getæ, Alani, and Usuni,—have shaken the world. As in the course of past ages, early intellectual culture has come like the cheering light of the sun from the East, so, at a later period, from the same direction barbaric rudeness has threatened to overspread and involve Europe in darkness. A brown pastoral race,^[11] of Tukiuish or Turkish descent, the Hiongnu, dwelling in tents of skins, inhabited the elevated Steppe of Gobi. Long terrible to the Chinese power, a part of this tribe was driven back into Central Asia. The shock or impulse thus given passed from nation to nation, until it reached the ancient land of the Finns, near the Ural mountains. From thence, Huns, Avari, Ghazarés, and various admixtures of Asiatic races, broke forth. Armies of Huns appeared successively on the Volga, in Pannonia, on the Marne, and on the Po, desolating those fair and fertile fields which, since the time of Antenor, civilised man had adorned with monument after monument. Thus went forth from the Mongolian deserts a deadly blast, which withered on Cisalpine ground the tender long-cherished flower of art.

From the salt Steppes of Asia, from the European Heaths smiling in summer with their purple blossoms rich in honey, and from the arid Deserts of Africa devoid of all vegetation, let us now return to those South American plains of which I have already begun to trace the picture, albeit in rude outlines.

The interest which this picture can offer to the beholder is, however, exclusively that of pure nature. Here no Oasis recalls the memory of earlier inhabitants; no carved stone,^[12] no ruined building, no fruit tree once the care of the cultivator but now wild, speaks of the art or industry of former generations. As if estranged from the destinies of mankind, and riveting attention solely to the present moment, this corner of the earth appears as a wild theatre for the free development of animal and vegetable life.

The Steppe extends from the Caraccas coast chain to the forests of Guiana, and from the snowy mountains of Merida (on the slope of which the Natron Lake Urao is an object of superstitious veneration to the natives,) to the great delta formed

by the Orinoco at its mouth. To the south-west a branch is prolonged, like an arm of the sea,^[13] beyond the banks of the Meta and Vichada to the unvisited sources of the Guaviare, and to the lonely mountain to which the excited fancy of the Spanish soldiery gave the name of Paramo de la Suma Paz—the seat of perfect peace.

This Steppe occupies a space of 16,000 (256,000 English) square miles. It has often been erroneously described as running uninterruptedly, and with an equal breadth, to the straits of Magellan, forgetting the forest-covered plain of the Amazons which intervenes between the grassy Steppes of the Apure and those of the river Plate. The Andes of Cochabamba, and the Brazilian group of mountains, send forth, between the province of Chiquitos and the isthmus of Villabella, some detached spurs, which advance, as it were, to meet each other.^[14] A narrow plain connects the forest lands of the Amazons with the Pampas of Buenos Ayres. The latter far surpass the Llanos of Venezuela in area; and their extent is so great that while their northern margin is bordered by palm trees, their southern extremity is almost continually covered with ice.

The Tuyu, which resembles the Cassowary (the *Struthio rhea*), is peculiar to these Pampas, which are also the haunt of troops of dogs^[15] descended from those introduced by the colonists, but which have become completely wild, dwelling together in subterranean hollows, and often attacking with blood-thirsty rage the human race whom their progenitors served and defended.

Like the greater portion of the desert of Sahara,^[16] the northernmost of the South American plains, the Llanos, are in the torrid zone: during one half of the year they are desolate, like the Lybian sandy waste; during the other, they appear as a grassy plain, resembling many of the Steppes of Central Asia.^[17]

It is a highly interesting though difficult task of general geography to compare the natural conditions of distant regions, and to represent by a few traits the results of this comparison. The causes which lessen both heat and dryness in the New World^[18] are manifold, and in some respects as yet only partially understood. Amongst these may be classed the narrowness and deep indentation of the American land in the northern part of the torrid zone, where consequently the atmosphere, resting on a liquid base, does not present so heated an ascending current;—the extension of the continent towards the poles;—the expanse of ocean over which the trade-winds sweep freely, acquiring thereby a cooler temperature;—the flatness of the eastern coasts;—currents of cold sea-water from the antarctic regions, which, coming from the south-west to the north-east, first strike the coast of Chili in the parallel of 35° south latitude, and advance along the coast of Peru as far north as Cape Pariña, and then turn suddenly to the west;—the numerous lofty mountain chains rich in springs, and whose snow-clad summits, rising high above all the strata of clouds, cause descending currents of cold air to roll down their declivities;—the abundance of rivers of enormous breadth, which, after many windings, seek the most distant coast;—Steppes which from not being sandy are less susceptible of acquiring a high degree of heat,—impenetrable forests occupying the alluvial plains situated immediately beneath the equator, protecting with their shade the soil beneath from the direct influence of the sunbeams, and exhaling in the interior of the

country at a great distance from the mountains and from the ocean vast quantities of moisture, partly imbibed and partly elaborated:—all these circumstances afford to the flat part of America a climate which by its humidity and coolness contrasts wonderfully with that of Africa. It is to the same causes that we are to attribute the luxuriant vegetation, the magnificent forests, and that abundant leafiness by which the new continent is peculiarly characterised.

If, therefore, one side of our planet has a moister atmosphere than the other, the consideration of the present condition of things is amply sufficient to explain the problem presented by this inequality. The physical inquirer needs not to clothe the explanation of these phenomena in a mantle of geological myths. He needs not to assume that on our planet the harmonious reconciliation of the destructive conflict of the elements took place at different epochs in the eastern and the western hemispheres; or that America emerged later than the other parts of the globe from the chaotic watery covering,^[19] as an island of swamps and marshes tenanted by alligators and serpents.

There is, indeed, a striking similarity between South America and the southern peninsula of the old continent in the form of the outline and in the direction of the coasts; but the nature of the soil, and the relative position of the neighbouring masses of land, produce in Africa that extraordinary aridity which over an immense area checks the development of organic life. Four-fifths of South America are situated on the southern side of the equator; or in a hemisphere which from the greater proportion of sea and from other causes is cooler and moister than our northern half of the globe,^[20] to which the larger part of Africa belongs. The breadth of the South American Steppe, measured from east to west, is only a third of that of the African Desert. The Llanos receive the influence of the tropical sea wind, while the African Deserts, being situated in the same zone of latitude as Arabia and the south of Persia, are in contact with strata of air which have blown over warm heat-radiating continents. The venerable and only lately appreciated father of history, Herodotus, in the true spirit of an enlarged view of nature, described the Deserts of northern Africa, of Yemen, of Kerman and Mekran (the Gedrosia of the Greeks), and even as far as Moultan, as forming a single connected sea of sand.^[21]

In addition to the action of these hot winds, there is (so far as we know) an absence or comparative paucity in Africa of large rivers, of widely extended forests producing coolness and exhaling moisture, and of lofty mountains. Of mountains covered with perpetual snow, we know only the western part of the Atlas,^[22] whose narrow range, seen in profile from the Atlantic, appeared to the ancient navigators when sailing along the coast as a single detached lofty sky-supporting mount. The eastern prolongation of the chain extends nearly to Dakul, where Carthage, once mistress of the seas, now lies in mouldering ruins. As forming a long extended coast-chain, or Gætulian rampart, the effect of the Atlas range is to intercept the cool north breezes, and the vapours which ascend from the Mediterranean.

The Mountains of the Moon, Djebel-al-Komr,^[23] (fabulously represented as forming part of a mountainous parallel extending from the high plateaux of Habesh, an African Quito, to the sources of the Senegal), were supposed to rise

above the limit of perpetual snow. The Cordillera of Lupata, which extends along the eastern coast of Mozambique and Monomotapa, as the Andes along the western coast of Peru, is believed to be covered with perpetual snow in the gold districts of Machinga and Mocanga. But all these mountains, with the abundant waters to which they give rise, are far remote from the immense Desert which stretches from the southern declivity of the Atlas to the Niger.

Possibly, however, all the causes of heat and dryness which have been enumerated may have been insufficient to transform such considerable parts of the African plains into a dreadful desert, without the concurrence of some revolution of nature,—such, for instance, as an irruption of the ocean, whereby these flat regions may have been despoiled of their coating of vegetable soil, as well as of the plants which it nourished. Profound obscurity veils the period of such an event, and the force which determined the irruption. Perhaps it may have been caused by the great “rotatory current”^[24] which sends the warmer water of the Mexican gulf over the banks of Newfoundland and to the shores of the old continent, and causes West India cocoa-nuts and other tropical fruits to reach the coasts of Ireland and Norway. There is still at least at the present time, an arm of this current directed from the Azores to the south-east, which sometimes produces disasters by carrying ships upon the west coast of Africa, which it strikes at a part lined by sand-hills. Other sea coasts (I particularly recall that of Peru between Amotape and Coquimbo) shew that in these hot regions of the earth, where rain never falls and where neither Lecideas nor other Lichens^[25] germinate, centuries and perhaps thousands of years may elapse before the moveable sand can afford to the roots of plants a secure holding place.

These considerations are sufficient to explain why, with an external similarity of form, Africa and South America present so marked a difference of character both in respect to climate and to vegetation. But although the South American Steppe is covered with a thin coating of mould or fertile earth, and although it is periodically bathed by rains, and becomes covered at such seasons with luxuriantly sprouting herbage, yet it never could attract the surrounding nations or tribes to forsake the beautiful mountain valleys of Caraccas, the margin of the sea, or the wooded banks of the Orinoco, for the treeless and springless wilderness; and thus, previous to the arrival of European and African settlers, the Steppe was almost entirely devoid of human inhabitants.

The Llanos are, indeed, well suited to the rearing of cattle, but the care of animals yielding milk^[26] was almost unknown to the original inhabitants of the New Continent. Hardly any of the American tribes have ever availed themselves of the advantages which nature offered them in this respect. The American race (which, with the exception of the Esquimaux, is one and the same from 65° North to 55° South latitude), has not passed from the state of hunters to that of cultivators of the soil through the intermediate stage of a pastoral life. Two kinds of native cattle (the Buffalo and the Musk Ox) feed in the northern prairies of western Canada and the plains of arctic America, in Quivira, and around the colossal ruins of the Aztec fortress which rises in the wilderness, like an American Palmyra, on the solitary banks of the Gila. The long-horned Rocky Mountain Sheep abounds on the arid limestone rocks of California. The Vicunas, Huanacos,

Alpacas, and Lamas, belong to South America; but the two first named of all these useful animals, *i. e.*, the Buffalo and the Musk Ox, have retained their natural freedom for two thousand years, and the use of milk and cheese, like the possession and cultivation of farinaceous grasses,^[27] has remained a distinguishing characteristic of the nations of the old world.

If some of the latter have crossed from northern Asia to the west coast of America, and if, keeping by preference to the cooler mountain regions,^[28] they have followed the lofty ridge of the Andes towards the south, their migration must have taken place by ways in which they could not be accompanied by their flocks and herds, or bring with them the cultivation of corn. When the long shaken empire of the Hiongnu fell, may we conjecture that the movement of this powerful tribe may also have occasioned in the north-east of China and in Corea a shock and an impulse which may have caused civilized Asiatics to pass over into the new continent? If such a migration had consisted of inhabitants of the Steppes in which agriculture was not pursued, this hazardous hypothesis (which has hitherto been but little favoured by the comparison of languages) would at least explain the striking absence of the Cereals in America. Possibly one of those Asiatic priestly colonies whom mystic dreams sometimes impelled to embark in long voyages, (of which the history of the peopling of Japan^[29] in the time of Thsinchi-huang-ti offers a memorable example), may have been driven by storms to the coasts of New California.

If, then, pastoral life, that beneficent middle stage which attaches nomadic hunting hordes to desirable pastures and prepares them, as it were, for agriculture, has remained unknown to the aboriginal nations of America, this circumstance sufficiently explains the absence of human inhabitants in the South American Steppes. This absence has allowed the freest scope for the abundant development of the most varied forms of animal life; a development limited only by their mutual pressure, and similar to that of vegetable life in the forests of the Orinoco, where the Hymenæa and the gigantic laurel are never exposed to the destructive hand of man, but only to the pressure of the luxuriant climbers which twine around their massive trunks. Agoutis, small spotted antelopes, cuirassed armadilloes, which, like rats, startle the hare in its subterranean holes, herds of lazy chiguires, beautifully striped viverræ which poison the air with their odour, the large maneless lion, spotted jaguars (often called tigers) strong enough to drag away a young bull after killing him;—these and many other forms of animal life^[30] wander through the treeless plain.

Thus almost exclusively inhabited by these wild animals, the Steppe would offer little attraction or means of subsistence to those nomadic native hordes, who, like the Asiatics of Hindostan, prefer vegetable nutriment, if it were not for the occasional presence of single individuals of the fan palm, the Mauritia. The benefits of this life-supporting tree are widely celebrated; it alone, from the mouth of the Orinoco to north of the Sierra de Imataca, feeds the unsubdued nation of the Guaranis.^[31] When this people were more numerous and lived in closer contiguity, not only did they support their huts on the cut trunks of palm trees as pillars on which rested a scaffolding forming the floor, but they also, it is said, twined from the leaf-stalks of the Mauritia cords and mats, which, skilfully