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EPITOME
OF
PHYSICAL GEOGRAPHY.

MAPS I. AND II.

THE EARTH PROJECTED ON THE HORIZON OF LONDON.

THE LAND MASSES.

The projection used in constructing these maps of the earth possesses two advantages over the one usually adopted by geographers. The first is, that nearly all the *land* is brought into one hemisphere, while the other is nearly covered with *water,* thus constituting a *land* and *water,* or a *terrestrial* and an *oceanic,* hemisphere. Now, what is here presented superficially to the eye is really the case in nature, all the great *masses of land* being found in the *northern* portion of the earth, and the *waters* of the great ocean in the *southern*. The other advantage is, that England is shown to occupy nearly the centre of the terrestrial or habitable hemisphere, and, consequently, of the civilized and commercial portions of the earth. Its antipode, the Islands of New Zealand, occupy the same situation in the great mass of waters.

In describing the principal features of the land it will appear, by referring to the maps, that the *form* and *structure* of the Old and New World exhibit a striking contrast to each other, especially in the direction of their greatest extension, which is *inverse*. The great mass of continental land—Europe and Asia—stretches from *west* to *east* over half the globe, while the American continent has its greatest length extending from *north* to *south*, and its width, although varying considerably, never exceeding a fifth of the earth's circumference. The result of this arrangement is, that Europe and Asia occupy *similar* climatic zones, the variations in the temperature of which depend chiefly on the relative position of the land and the water, while the two Americas traverse nearly all the zones of the earth, from the frigid to the torrid zone, both in a north and south direction ; hence a greater amount and variety of phenomena is presented here in the New than in the Old World.

The *solid* portion of the earth, as well as the fluid, has varied considerably during successive periods of the earth's history, for although the land may be encroached upon by the ocean to a certain extent, yet is the fact of the gradual *elevation of the land* no less certain. Observations go to prove, also, that when an elevation takes place in one portion of the earth's surface, there is a corresponding depression in another. At present the mutual relations of area between the solid and the fluid portions are as 1 to 2.4-5ths, or, in other words, the ocean occupies :nearly three fourths of the earth's surface, and the land rather more than one fourth. The various pelagic and oceanic

islands form about 1-22d of the continental masses, which, whether we divide the earth through the equator from *east to west,* or any meridian lying between the Peak of Teneriffe and Paris, in a north and south direction, are found to abound in one hemisphere to a much greater extent than in the other. Again, if we observe the map *attentively,* we shall see, that, from south latitude 40º to the antarctic pole, the earth is almost entirely covered with water, which prevails also to such an extent between the eastern shores of Asia. and the western coasts of America that we may make the divisions of *north-east land* and *south-west water.*

Another feature to be observed is the *Peninsula* form of the continents, all the masses of which *terminate in a point* like a *wedge or* a *pyramid* towards the south, which is also found to be repeated on a smaller scale in the peninsulas of Southern India, Malacca, and Arabia, &c., in Asia; Greece, Italy, &c., in Europe. This peculiar form of the land has the effect of considerably extending the coast line, of so much importance in a commercial point of view; and it is a circumstance not to be overlooked, also, that the greatest extension of continental land towards the south, is under the same meridian in which the greatest known projection towards the *North* Pole is found.

With respect to the formation of the *great continental masses of land*, there are certain laws found to prevail, which, as they are of importance, we should endeavour not to forget. 1st. All the great continental masses of land rise gradually *from the shores of the sea toward the interior*. In all the continents this line of elevation is *not central*, but nearer to the coast on the one side than the other. Hence arise two *unequal slopes* toward the ocean in contrary directions. By looking at the maps we shall perceive that in the Old World these declivities are from *north to* south, and in the New World from west to east. The *principal* slopes of the Old World are those which commence from the great table lands in Central Asia, which are north 2,600 miles (and account for the depression of Siberia), and south only 400 ; and the descents from the elevated land of Africa in the region of the Orange and the Zambeze Rivers, the north slope of which is 3,300 miles, and the south 600 miles. In the New World, where they are also in an opposite direction to the extent of the continental land, the chief slopes are those which extend from Porto Rico through Mexico to the Pacific Ocean; (the highest point falling within the plateau of Mexico), where the slope in an *eastern* direction is 2,000 miles, and the western declivity but 300 M. In N. America a line drawn from the highest point of the central chain of the Rocky Mountains, to San Francisco in the west; in the *east*, terminating at Washington would be exhibited a slope of 1,600 miles—while that to the *west*, would be but 800 miles. This law of *increase of elevation* applies, not only to the low lands and *table lands,* but to the *mountains* also, which, with them, experience a proportional gradation; nor is this at all remarkable when it is considered that the *plains* and *plateaus* of the earth are probably nothing more than the broad level tops of mountains having their bases or bottoms resting on the bed of the ocean. 3dly**.** In the *Old* World *all* the *longer* slopes are towards the *north,* while all the short are turned toward the *south*. In the New World the least elevated slopes are toward the east, and the more rugged and precipitous toward the *west*, the law in each hemisphere being peculiar to itself. These elevations of the land are also found to go on increasing more or less from the poles to the equator, but the *greatest* elevation is not, however, to be found *at the equator*, where the earth bulges the the most, but within or near the tropics ; in the Old World, *within* the tropic of Cancer (Himalaya mountains, 27º north latitude), and *near* the tropic of Capricorn in the New World (Nev. de Sorata, 180º south latitude). The effect of this arrangement on the part of GOD who formed the earth and fashioned it, is stamped with infinite wisdom, for by it *the heats* of the torrid zone are tempered, and a *variety of climate* given, which otherwise would not exist ; for, if the land went on to *increase towards the north*, the most civilized portion of the earth would be a frozen and uninhabited desert.

Another difference between the Old and the New World is to be found in the vast *plateaus* and *table lands* which abound in the former, while extensive *level plains* covering two thirds of the surface are to be observed in the latter, the few elevated lands of which are all narrow and confined, the mountainous portions especially, being, as it were, jammed in upon the western coasts. In contrast to this, we have in Central Asia alone, where elevation is on the most gigantic scale, no less

than *four* immense chains of mountains, each supporting vast table lands of from 5,000 to 14,000 feet in elevation. In the New World the chains of the Andes and Cordilleras are all that are entitled to observation.—Neither is the Old World entirely without plains, for by referring to the map we see that the European, Baltic, and Russian plains occupy more than two thirds of the whole of Europe, and the low plains of Siberia stretching onward even to the Pacific Ocean.—[The elevated table lands, and the low lands will be further noticed in the maps where they occur.]

Although the *high* mountains, as well as the *plateaus*, and the *low lands* have been raised at periods succeeding to each other, yet *most of lhe highest mountian chains* are but of comparatively recent date. Many, now far inland, were once as elevated islands surrounded by the ocean, the strata of which during a vast period continuing to accumulate, at length filled up the cavities which surrounded their bases. Hence the great mountain chains are found to run on in the direction of the land. They are sometimes met with *in groups*, intersected in every direction by *valleys,* which form the *water-courses* of *rivers* or *torrents* fed by the snows from their summits : but most frequently in long-extended chains running parallel to each other and separated by *narrow valleys;* the highest and most rugged generally occupying the *centre,* where the chains are widest, and peak after peak rises in endless succession, the ridges at their sides, and the valleys lying between them gradually decreasing in elevation, and becoming less bold and precipitous as they recede from the central mass, until at last they sink down in gentle undulations to the level of the plains below. The *valleys* which occur in the regions of the most steep mountains are often exceedingly difficult of access, and terrific and gloomy in their aspect. In the Alps and in the Himalayas these narrow *gorges*, or *defiles* as they are sometimes called, are some of them almost always covered with snow, and are elevated to the height of from 11,000 to 14,500 feet above the level of the sea; they are, however, the only means of intercourse with the people on the opposite side. In all the mountain chains one side is almost always more precipitate than the other, and there is not anything in nature probably more calculated to convey a false impression that the apparent elevations of mountains. For instance, although the Himalaya, reaches the elevation of *five miles above the level of the sea,* yet the rise is so gradual, even on its southern side, which is the most precipitous, as to make it appear scarcely a mile and a half, and the ascent of the plain of the Ganges is so easy, that at Saharampore, at the foot of the Himalaya, it is only 1,100 feet above Calcutta. Again, the declivity of M. Blanc does not amount to 45º; and the Silla of Caraccas, the most perpendicular of any height yet known, describes an angle of inclination which is only 53½º in 7,000 feet. *Mountains* have a climate peculiarly their own, and influence to a great extent that of the adjacent countries, protecting some from the effects of cold and piercing winds, while they are a defence to others from the scorching rays of the sun, and where near the coast, present an impenetrable barrier to the furious waves of the tempestous ocean. Upon their *altitude* and *direction* depend the course and extent of the great *river systems* of the earth. Reaching high into air, they *break* the clouds as they sail onward in their course, and compel them to deposit their moisture upon their sides, from whence it rolls down in torrents into the valleys beneath, which form as it were so many natural reservoirs or tanks, by which in a thousand ways the various springs and fountains, brooks and rivers, of the earth are supplied . M. Boué has ingeniously conceived the direction of the great mountain ranges to have considerably influenced or retarded the advancement of civilization, no less than the distribution of the animal and vegetable creation, the differences being far greater between those nations the countries of which are divided by mountain ranges running on in a direction of from *east to west*, than where they extend from the *north to the south,* or in the direction of the meridian, along which line the languages and people of the earth may be found to have intermingled.

Did not calculation prove otherwise, it might be thought that these great and magnificent mountain chains, which cover so many thousand miles of the earth's surface, contained a mass of materials more than equal to the less elevated masses of the globe, or that, at least, they bore some great proportion to them. The fact is, however, contrary to such a conclusion, for Baron Humboldt has proved, by the nicest calculations, that they exercise very little influence upon the general mass —that the lofty range of the Alps, which cover an area of 45,000 square miles, would, if reduced to

powder and spread over the continent of Europe, only, *raise* its general surface 21½ feet ; and that the Pyrénees, which divide Spain from France, would only have the effect of raising the same continent six feet; while the central table land of Spain, the greatest height of which is only 1,920 feet, would if applied to the same purpose raise the general land of Europe to the altitude of 76 feet : hence the greatest elevations of the earth are inconsiderable in their amount when compared with the high lands and their gently undulating slopes. It may, therefore, be considered, in a general way, that the extent of the low lands are compensated for by those which are elevated, and that the plateaus and table lands of the earth exercise a far higher amount of influence upon its *mean* surface than those great hills or chains of mountains which rise many thousands of feet above their surface. —Respecting the elevations of the various continents, the *mean* height of Europe has been determined to be 671 feet above the level of the sea; Asia, 1,154 feet; and the *united* continent of America, 949 feet. South America, dissected from the northern portion, which resembles the same portions of the Old World in being considerably depressed, maintains a general elevation of 1,151 feet, the same amount as that of Asia.

The mountain chains will be specially referred to in the maps of their respective localities. *Isolated mountains* situated in a plain are *never* found but as a volcano, either active or extinct, as Etna, and the Peak of Teneriffe, &c.

THE OCEAN.

The *waters,* which cover nearly *three fourths* of the earth's surface, are divided into five oceans, from their watering the coasts of *five* continents, namely, the Pacific, the Atlantic, the Indian, and the North and South Polar or Icy Oceans; the *first* being the common reservoir of the whole. The general form of the outlines of the three great oceans is in *opposition* to that of the land, and have their greatest openings toward the south, and narrowing towards the north, each possessing a form peculiar to itself.

The *Pacific Ocean may* be regarded as an oval expanse of waters, composed of land-locked or closed seas, of which there are five of gigantic size in Asia alone, the Sea or Straits of Behring, the Sea of Ochotsk, the Japan Sea, the South China Sea, and the Vermilion Sea, or Gulf of California. Its narrowest part (in the Kamtchatkan Sea) is about 170 miles ; its greatest width from east to west in the region of the equator is more than 16,000 miles; altogether, it may be considered as covering an area of more than 50 millions of square miles. In this *great ocean* it is that we find the largest amount of continental islands; for, beside New Holland, almost a continent in itself, and the East Indian Archipelago, there are thousands of *pelagic* or oceanic islands found studding its centre in a manner unparalleled in any other ocean. (See Polynesia, in the southern hemisphere.)

The *Atlantic Ocean* is in form that of a valley, with nearly parallel sides, composed of *inland seas,* and advances farther into the lands of the Old and New Worlds than any other ocean. There are at least *four* mediterraneans or central seas, without taking into account the Polar Oceans, or the Mediterranean (properly so called), namely, the *Black* or *Caspian Sea,* the *Baltic,* the *Gulf of Mexico,* and *Hudson's Bay* The coasts laved by the Atlantic are the most *indented* or *jagged* of all the oceans, and by its blending with the land approaches nearest to the character of an *inland ocean;* if the Pacific, therefore, is the most truly *oceanic,* the *Atlantic* may be regarded as the most *maritime* of all the oceans. It contains the most important groups of *continental* islands on the earth's surface, as the British Isles, the W. I. Isles, and those of the Mediterranean Sea, &c..The *pelagic* group are unimportant; they are the *Azores ,* the *Madeiras*, the *Canaries,* the *Cape Verd*, the *St. Helena,* &c. The narrowest portion of this sea lies between Greenland and Norway, where its extent is only 900 miles; its greatest width, which is 4,150 miles, is found between Northern Africa and Florida; its superficial extent is 25 millions of miles, which, although only half that of the Great or Pacific Ocean, yet lips with its waters afar more extended coast than all the other oceans united together. This will immediately appear if we carefully examine the map, and look to the indentations of the N. American coast, which give a line of shore extending to 24,000 miles; and

Northern Europe, which, being deeply jagged by the abrasions or washings of the ocean, and by its *inland seas,* adds 17,200 miles more.

The *Indian Ocean* is in form that of a triangle, and abounds in *gulfs*. The two greatest of which are those of *Bengal* and *Persia,* which impress upon it its character. It is scanty both in continental and pelagic islands, the principal of the former being *Madagascar* and *Ceylon,* the latter the *Mauritius* and Bourbon I. It is enclosed, like the greater oceans, on the north, and resembles a great bay; to the south its coasts diverge, and, like the Atlantic, branches off towards the north, where it is joined by the lesser streams which intersect the islands of the Archipelago, and rushes onward to the neighbouring ocean. Its length is equal to its greatest breadth, that of 4,500 miles, and its total area is 20 millions of square miles. The two *Arctic Oceans* are alike in climate, but differ considerably in other respects. The *Southern* Arctic is not encircled by any land, but flows onward in conjunction with the three great oceans; while the *Northern* Arctic is an *inland* Polar Sea, bounded by the northern shores of the great continents of Asia, Europe, and America, which almost enclose it, and cut off its communication with the Atlantic and Pacific Oceans. Whether the poles themselves are encircled with land or ice remains to be determined.

In the same manner as the high mountains rise above the continental land, so also there may be great cavities in the *bottoms* or *basins* of the seas; but it is natural to think that their depths are *less* than the elevations of the high mountains, because the deposition of rivers and the remains of marine animals, living in the sea, help to fill them up. Generally, however, we may conclude the *depths* of the sea to be equal to the *heights* of the elevated portions of the earth.—Near to the coasts of the great land masses the depth is generally *shallow,* being only a continuation as it were by gentle slopes, of the continental land, which is varied by the continual action of its waves. In the *European seas* the depth of the ocean is found to increase with the elevation of the surrounding land. This, however, does not hold good *universally,* for in Eastern Asia the edges of the lands are very high while the sea is remarkably shallow; and on the S. African coast, where the land terminates abruptly, it is necessary to go out to sea, a distance of 600 miles, to get into water of 100 feet in depth. The *variations in depth* are also frequently *sudden and abrupt,* for, in the Gulf of Mexico, Humboldt found, 100 miles north of Yukatan, the sea to be only 600 feet deep, while, on the contrary, Colonel Sabine found, at a little beyond the West Indian Isles, a depth of more than 6,000 feet. Little, therefore, is positively known, but quite sufficient to prove the assertion of Laplace, that there are *depths* in the ocean equal to the *heights* of the land. Captain (now Sir J.) Ross, 450 miles west of the Cape of Good Hope, sounded 14,500 feet without touching the bottom; and 900 miles south of St. Helena his line reached a depth of 27,600 feet, nearly 512 miles, with the same result.

The *ocean is the great equalizer and moderator of climates,* and is *uniform* and *constant* between ten degrees N. and S. of the equator, and over spaces of many thousands of miles where it is not disturbed by currents of cold and heated water. The line of its highest amount of heat or temperature is traced upon the map of the earth, and might be continued in lines running N. and S., in a direction nearly parallel to the equator; it, however, *diminishes* (at least at the surface) *in proportion as we recede from the equator towards the poles*. Its *temperature* under the ordinary condition of its surface is about 6° *higher* than the lower strata of atmosphere, and diminishes downwards until it reaches the icy temperature of 39°, which *exists in all oceans,* but at various depths.

The *saltness* of the ocean is supposed to have arisen from the commingling of the water with the saline particles of the earth in the earlier stages of its formation. Its *weight* or specific gravity increases or diminishes according to the amount of saline particles contained in it (usually about 3 per cent.), which are found in greatest proportion in the *deepest* oceans. Its *least* density (the saline contents) is to be sought for in the Polar Seas, where the melting of the *icefloes* and *icebergs* diminishes the saltness, and in the regions of the equator ; and its *greatest* amount of gravity exists in the Atlantic, where it exceeds that of the Pacific in the Pacific Ocean ; it, however, varies considerably, and the fresh water, being the lightest, always pervades the surface. The *tides* of the

ocean are the result of those changes which affect it at every instant of the day by a regular and periodical succession, which produce such intense agitation and disturbance of the great fluid mass as to cause its waves constantly to break with impetuosity on the shores. These *oscillations* are created by the rapidity of the earth's revolution in an ocean, the waters of which are continually being drawn, as it were, out of their place by the combined influence of the sun and moon, the latter of which they follow in her westerly course. They extend to the greatest depths of the ocean, and move with great regularity and amazing velocity, their speed in very deep water being equal, at least, to 1,000 miles per hour. Each tide has a duration of rather more than half a day; and, although in the open sea the water is raised only a few feet, yet where obstructed by a line of coast, or by a narrow and shelving channel, they force up the waters to an elevation of more than 120 feet.

There are upon the two hemispheres *two lines* marked, the one showing the line of the mean highest heat of the waters of the ocean, and the other showing the *cooling* influences of the *land* in the *higher* latitudes, where it is apparent that the *least* quantity of land is sufficient to *depress* the general temperature. Hence it is seen to *dip* on the land, while it is carried up towards the pole when over the ocean, thus showing that the *mean temperature* of the land in the *high* latitudes is much *lower* than the water, while in the region of the equator, where the land is nearly under a vertical sun, the contrary is the case, the land being *warmer* than the *ocean,* the mean highest heat of which may be traced by the second line.

The direction of the *winds,* &c., being marked in the general maps which follow, the descriptions of them will be given where they respectively occur.

EUROPE.

Europe, although *the smallest, is* yet the most important of all the continents of the earth; it is pre-eminently the seat of religion and of civilization. Here flourish the purest theology and the soundest philosophy, the various arts, and the most exalted sciences ; here it is that intellectual growth has reached an elevation never attained by the human race in any other portion of the earth, in the first ages of which, all that was great and noble existed only in Asia; and even that existed only as the germ, which has since been transplanted, and brought to maturity, in Europe ; hence, for the last 2,000 years, Europe has been gradually in the ascendant, until at last the civilized nations of its soil have subjugated and brought under their dominion almost every other portion of the globe. As the European nations are more or less advanced in pure religion, so in proportion is their amount of influence: hence the islands of Great Britain, insignificant as they are in a geographical point of view, broken off as it were from the near continent, and existing only as fragments in the open sea, exercise an amount of influence over the whole globe not possessed by the Czar of Russia or the Emperor of the Turkish empire, who rule over kingdoms a hundred times greater in extent.—*Continental Europe contains about* 1,720,000 square miles, nearly two thirds of which forms one vast level *plain,* the greatest elevation of which does not exceed 1,200 feet. It is divided from the great plain of Northern Siberia by the Ural mountains, whose immense riches in minerals, abounding in gold, platina, magnetic iron, and copper, are enormous. The S. Western portion of the great plain between the Ural and the Carpathian M. is one continuous level, with scarcely an elevated spot for a distance of 1,500 miles, Moscow, the *highest* point, being only 480 feet high; from which city the land slopes until it sinks below the level of the ocean. *Holland,* placed at the western extremity of this great lowland, were it not for its *dykes,* would be overflowed. S.E. in the regions of the Caspian and Ural Seas, a considerable portion of the vast cavity, extending to 18,000 leagues, is *below* the *level of the ocean,* the surface of the Caspian, its greatest depression being as much as 85 feet below the Mediterranean. Here, between the Dnieper and the Black Sea, it forms a dreary waste, a dead level, bounded only by the horizon—burnt up by the sun in summer, yet teeming with green vegetation in the spring, but during the winter it is the scene of terrific snowstorms, dangerous alike to man and beast. The *table lands of Europe* are on a small scale ; the principal one is found in *Central Spain,* and extends over 93,000 square miles, its highest point being 1,920 feet ; it is for the most part barren, but luxuriant to excess as it approaches the shores of

the Mediterranean : it extends into the interior of France, although with considerable depression, divided only by the Pyrenées.

The mountains of Europe are the *smallest* of the continental ranges, the Alps only occupying 45,000 square miles ; the greatest elevation is reached in M. Blanc, which is 15,759 feet ; beside these, there are the *Pyrenées,* dividing the high lands of France and Spain, the highest of which, Point Nethou, is 11,168 feet. The other principal chains are the *Apennines* in Italy, the *Castilian* in Spain, and the *Carpathian* and *Balkan* mountains in Germany, which do not exceed 5,000 feet. The mountains of Europe, therefore, bear no comparison with those of Asia or America, the most elevated crests of the Alps being only level with the central regions of the Asiatic continent. They are like the coast, varied, rent and cleft asunder by multitudinous valleys: less simple and massive in their structure than the Asiatic, or the American, multiplicity supplies the deficiency of magnitude.

The *rivers* of Europe flow generally in a *north-west* and *south-east* direction, and are so equally distributed as to facilitate inland navigation and the progress of commerce. The general level of the great plain is also a great help to the internal commerce of Europe being highly favourable to the construction of *canals,* which receive their supplies from the watersheds in the regions of the Alps and Carpathian mountains. The principal rivers are the *Volga, 2,400* miles; the *Danube,* 1,626 miles; the *Dneiper,* 1,200 miles ; and the *Don,* 1,100 miles in length. Others, such as the *Rhine, Vistula, Tagus,* and the *Loire,* are also very important streams, and contribute largely to the commerce of the various localities in which they are respectively situated. The greatest number of the *larger* rivers of Europe are found not to empty themselves into the *ocean,* but into the *inland seas* for which it is remarkable, hence the Black Sea receives fully one third, and the Caspian and Mediterranean another third, while the Atlantic Ocean, which surrounds the *western coast, receives only one seventh*.

The *lines* which run across the map show the northern and southern limits of the growth of the principal *cerealia* or *plants* used as food for man, and the boundaries of the growth of *mosses* and *berries, trees,* &c. ; the limit of *perpetual ground frost ;* and of the fall of *snow* towards the equator.

ASIA.

Asia is the *great* continent of the Old World, where, entire countries push themselves out into the bosom of the ocean, apart from the central land, which, notwithstanding, preponderates greatly over the protruding masses, as China, Indo-China, Arabia, &c. This peculiarity, however, materially increases its coast, and gives to it a line exceeding 30,000 miles.

In this continent all is grandeur and magnificence ; here was the seat of the earliest existence of mankind and of civilization; the earliest records of history are centred here, and monuments of antique art remain to this day of colossal greatness which testify the skill and power of those races which once occupied the soil, but which have long since passed away, leaving a degenerate, and effeminate race to occupy their position full of gross idolatry and the most wretched superstitions. —The *Asiatic continent*, would, if divided by a line extending from the Tonquin Bay to the North Sea, separate the historic and intellectual portion of Asia from the north-eastern, which is equally remarkable for what is barren in nature, and unintellectual in man, where also we witness the depression of the mountain systems, and the absence of that rich vegetation which abounds in the south-western, where India's clime seems to have concentrated all its luxuriance and strength.—The extent of the whole continent, reckoning from the east coast of Asia Minor to the Pacific, is in length 5,000 miles; while the total area is not less than 17½ millions of square miles.

Asia has its centre occupied by magnificent *table lands,* which extend over nearly two fifths of the entire continent, and are completely shut out from the sea on all sides. The most extensive is that of *Tibet,* the slope of which is formed by the Himalaya; it occupies an area of 7,600,000 square miles, and has a mean altitude of 11,500 feet. The *high land* of Iran or Persia covers over a space of

1,700,000 square miles, and has a general elevation of from 4,000 to 7,000 feet. The most eastern, that of Syria and Arabia, has an altitude of 8,000 feet. In Hindostan a *central plateau,* of 4,000 feet in height, is bounded by the Ghats, which descend rapidly to the Malabar coast, and form, with the space between, the valley of the *Concan*.

The *Low lands* occupy an area of 6,000,000 square miles, and are spread round the more elevated parts of the interior, and embrace countries of great extent along the sea. In these *plains* the great empires by which the history of this division of the globe is so distinguished have obtained their greatest power, and continued for the longest period of time. The *principal low lands* are the *Chinese* and *Indo-Chinese,* and the *Gt. Siberian,* which latter gradually sinks from the borders of the central high land into the marshes or *Tundra*. East of the great low land are the *steppes*. or desert wastes which cover the territory of the Khirghis Cossacks, in the regions of the Aral Sea, and also continue on to the Irtish and the Oby Rivers. They are occupied by a nomadic or wandering people, who are compelled continually to shift their locality to find pasture for their cattle; the northern steppes are partially covered with dense jungle forests, while the water-courses, overflowing the plains, furnish abundant pasture lands of the finest and most luxurious grasses in the southern.

The *mountain chains* of Central Asia, so remarkable for their stupendous elevation, are the most colossal upon the surface of the earth. Four great belts, running in a direction from *west* to *east,* nearly parallel to each other, are found supporting the immense weight of the great table lands already mentioned, which chains are *knotted* or connected together by transverse elevations. They are the *Altai* or Gold Mountains, the *Thian Schan* or Celestial Mountains, the *Huen-lün,* and the *Himalaya*. The *Altai* forms the southern boundary of the great Siberian lowland, where, on the northern slopes, between the Rivers Irtish and Oby, are the ore-diggings, which produce abundance of silver, and about one sixth part gold. They attain an elevation of 5,400 feet above the sea, and are from 400 to 1,000 miles in breadth, being also remarkable for having their tops level like plains or table lands. The *Thian Schan is* a volcanic range, with deep open fissures, from which issue those hot luminous vapours from which sal-ammoniac is obtained. Streams of sulphurous fire and lava still stream from the active volcano of Turfan. The immense range of the *Kuen-lun* contains ligneous rocks, which, like the Thian Schan, emit fire and vapours, which may be seen at an immense distance.

The *Himalaya,* the mean elevation of which is stupendous (from 16,000 to 20,000 feet), are the most important mountains of the Old World. In form they are irregular, and proceed from the south in alluvial hills, north of which dense jungles succeed, which exist at an elevation of 1,000 feet above the level of the sea, and extend all along the range. To the pestilential jungle succeed the rugged rocks, which have an altitude of 6,000 feet; and beyond these and the higher ranges, in the valleys (called *dahs)* are fine pastures and flourishing fields of corn, interspersed with towns and villages. To the north-east their elevation increases, and vegetation becomes gradually stunted until the conical peaks rise above the table lands, and enter the regions of perpetual snow. These mountains not only attain to a great height, but occupy an immensity of space in length, for, if the Hindoo-koosh be considered a prolongation of them, it is the longest line of elevation on the surface of the earth next to the Cordilleras of the Andes, which run along the west coast of the two Americas. Confining them to India and Tibet, their length exceeds 1,300 miles, while their breadth varies from 250 to 350 miles. The total area covered by them is from 500,000 to 600,000 square miles, 370,000 more than the European Alps. The whole region is overtopped everywhere by the most elevated ranges, which are *always* covered with snow,—hence the name Himalya *(the dwelling of snow)*. Hodgson, who explored the *alpine* region of the range, found at his first survey fifty summits, out of which twenty-three attained an elevation of upwards of 20,000 feet, and seventeen which exceeded the height of the American mountain Chimborazo, which until recently was considered the most elevated protuberance of the whole earth. It is, however, now ascertained, not only that the Dhawalaghiri Mountain is 6,608 feet higher, but that there are in the Tartaric chain in North Tibet, behind the southernmost chain of the Himalaya, mountains which reach to the

incredible elevation of from 29,000 to 30,000 feet, being 1,000 or 2,000 feet higher than the Dhawalaghiri itself.

The *Passes* across the Himalaya are exceedingly lofty, many of them from 15,000 to 15,500 feet in height, and, therefore, little lower than the summit of Mont Blanc, the greatest European elevation; others are from 16,000 to 19,000 and 20,000 feet above the level of the sea, and form the only commercial thoroughfares for the people of those regions ; they are extremely dangerous, and are overhung by tremendous rocky protuberances, forming the most frightful chasms. In journeying through the more elevated of them, men and animals are equally distressed, suffering intensely from the rarity of the atmosphere, and the terrific cold winds, which with the pelting snow-drifts, and violent thunderstorms, are frequently the companions of their perilous adventures.

One remarkable feature of the Himalaya is the *difference* of temperature, which is found to vary with the elevation of the different ranges—the limit of perpetual snow in the first range is 16,000 feet, while in the more elevated and northern it sinks to 13,000 feet ;—a distribution of temperature in the upper layers of the atmosphere of those regions, which renders the elevated plain of Western Tibet habitable for the millions who exist upon its surface.

Ranges diverging from the principal, and running N. and S. through Assam, Siam, &c., yield abundance of *gold* and *silver, rubies,* and *sapphires;* while large quantities of *tin ore* are found very near their surface. The mountains of China, Southern Tartary, Mantchuria, even on to Kamtchatka, are supposed to abound more or less with the precious metals, as well as with the most costly stones.

The principal *volcanoes* of Asia are found in the islands of the Pacific Ocean, and are remarkable also for their numbers, which are observed to occupy particular *zones* or districts, one of the most active is that which includes the Isles of Timor, Sumbawa, Java, Sumatra, Banda, &c., all of which are gradually being elevated still higher above the surface of the ocean, through the upheaving forces of the subterranean fires,—the range which contains the most numerous volcanoes is found in the island of Java, where are thirty-eight, many of which attain an elevation of from 5,000 to 13,000 feet. In the year 1772 one of the most extensive volcanic mountains of Java was swallowed up, and with it 40 villages and 3,000 of their in- habitants.

The Islands of N. Guinea and Gilolo, the latter of which is especially marked by the number of its volanic cones, and the Japan and Kurilie Isles, with many others, are also subject to volcanic eruptions.

Asia yields to the New World in her *rivers*, for the *Tigris* and *Euphrates* (famous in history), are the only important streams we find in Western Asia : together, they drain an extent of land 230,000 miles in area, and pursue their parallel course, excepting in a few instances, through an uncultivated tract covered with grass and brushwood. The *Euphrates* has a length of 1,800 miles, and, with the *Tigris*, receive the few small rivers which exist in Persia, remarkable for the absence of any important streams, which arises from the absence of those extensive valleys which are the channels of running waters.

The peculiar characteristic of the river system of India that of *double rivers*, as in the case of the Tigris and Euphrates, which run on continuously, is also found to exist in the *Ganges* and *Brahmapootra* and the great rivers of *Birmah* and *Cochin China*. The *Indus,* which has an immense tributary stream attached to it in the *Sutlej,* has, with it, its rise in the northern slopes of the Himalaya. It is not a river much fitted for navigation purposes, being unsafe for small boats, and only available for steamers drawing but little water. The *Ganges* takes rise on the southern slope of the Himalaya, in the most elevated region of the globe and by its tributary stream, the *Jumna,* almost connects itself with the *Sutlej,* thus presenting the inhabitants of Northern and Western India with advantages of communication denied to those who are located *beyond* the Ganges. Hence the people of India *within* the Ganges have attained to greater political power and a higher degree of civilization. The *Ganges,* and the *Brahmapootra,* a river fully equal to it, receive their waters not only from the vast resources of the Himalaya, but from other immense rivers which empty

themselves into, and increase, the bulk of their waters ; added to this, during *the floods,* which exist from June to September, they receive vast supplies of water from the melting of snow and the incessant rains in the regions of the mountains, which swell these streams to such an extent that all the. lower portions of Bengal are, for hundreds of miles, completely inundated. The waters poured off from these rivers are incredible, the *Ganges* in the dry season discharging more than 146,000 feet and the *Brahmapootra* more than 80,000 cubic feet in a second; and this is so impregnated with the detritus, or particles of matter, brought down from the mountains and other sources, that 600,000 feet of mud are transported through its streams in a second.—These two streams united, drain a surface of 650,000 square miles.

The *Irawaddy* and the *Cambodja,* the former the medium of commerce in the Birman empire, and the latter 1,000 miles long, are also considerable streams which traverse the plains of Yunnan, and, piercing through the mountains, flow onwards through the arms of their deltas into the sea.—All the great rivers of this division of Asia are remarkable for their *deltas,* and are the subjects of *periodical inundations,* which fertilize the immense plains overflowed by them, Four rivers, supplied by the moisture derived from the mountain region bordering on the high land of Eastern Asia, flow through the *Chinese empire,* the *Hoang-Ho* and the *Yangtse-Kiang* being the principal, the former 2,000 miles in length, drains an area of more than 700,000 square miles. In these rivers the *tides* rise to an immense height, and extend for 400 miles up their streams, and thus prevent, for a time, the descent of the fresh waters. The effect of this is that a description of *inland seas* is established, navigable to a great distance, which are frequented by thousands of trading vessels. It is thus that the immense tracts of land lying between these rivers are irrigated, and formed into an immense delta, containing the most productive soil, not only of China but of the earth. These rivers are also connected by an immense number of *canals,* to the intercourse carried on by means of which, commerce and civilization have been equally indebted. The Hoang-Ho receives its name (Yellow River) from the colour of its waters, derived from the vast quantity of earthy matter it contains and conveys into the Pacific Ocean.

The other principal rivers of Eastern Asia are the *Amoor,* the *Lena,* the *Yenessi*, and the double systems of the *Irtish* and the *Oby*. Under the name of *Argum* the Amoor forms the political boundary between the Chinese and the Russians for more than 400 miles—it is 2,000 miles in length, and has a drainage of 853,000 miles, including all the rivers which are supplied from the mountain slopes of the great Siberian desert. The *Lena* has a length of 1,900 miles, and passes through the coldest regions of the earth : before it empties itself into the Northern Arctic Ocean it has to force its way through the immense masses of frozen mud and vegetation which are brought down by the summer floods of this region.

The *Yenessi* is about 2,500 miles in length, and is joined by many lesser streams and the River *Angara* from the Lake Baikal; it has a drainage of 1,000,000 square miles, and empties itself into the Arctic Sea. The *Oby* .and the *Irtish,* its tributary, receive all the streams which flow from the lesser Altai Mountains, the *western* slopes supplying the *Irtish,* and the *northern* the *Oby:* these rivers, conjointly, drain a third part of the great Siberian low land.

Nearly all the *Siberian* rivers are frozen for many months during the year, and, when the ice and snow melt, the inclination of the plain not being sufficient to carry off the mass of waters, they overflow the lower portions of the plain, and form so many inland seas and lakes, which give rise to those immense wastes called *Tundra*.

The *northern* and *southern* ranges of the various tropical and other vegetatation are shown by the lines which traverse across the map, by observing the course of which we can trace the effect of climate upon the growth and cultivation of the various plants and trees, &c., from the equator to the N. Pole.

The regions of the *Monsoon winds* are traced, which arise from the position of the sun in different seasons. From April to October a *south -west* wind prevails, and from October to April a

north-east wind blows. The approach of these critical seasons, during which the rains are terrific and the lightning and thunder truly awful, is always preceded by furious tempests and whirl-winds, which prove a general disturbance of the atmosphere to have taken place. — The N. E. monsoons convey the rains to the *eastern* coasts of India, &c., when the *western* have their *dry* season, and, on the contrary, when the rains of the *S. western* monsoon set in, the *eastern* coasts have their *dry* season, and the countries of the *western* coasts their *wet* season: thus they are reversed. It should not be forgotten that these rains are *not* continuous, but, on the contrary, only last for a few hours during the day, when they descend like a deluge and then clear off; *no rain takes place during the nights,* which are clear and fine. The *Typhoon* region, which is shown to be in the Chinese seas, is also the locality of fearful hurricanes, which dash many of the vessels to pieces, and sink and damage others, while hundreds of Chinese during their continuance meet with a watery grave. Providentially, however, they only happen once in two or three years.

In the eastern extremity of the map, which is made to embrace Europe, is shown the extent to which the *various rains* prevail, the *summer rains* being most prevalent in part of Norway, Denmark, Holland, Eastern France, Central Germany, &c., as defined by the line; and the *autumnal rains,* which include the British Isles, Western France, and Southern Germany, the countries and islands adjacent to, and in, the Mediterranean Sea. The *winter rains* embrace the southern shores of the Mediterranean, part of Syria, &c., where seldom a drop falls in the *summer.*

AFRICA.

The continent of Africa has a *length* of 5,000 miles from the Cape of Good Hope, to its northern limits on the southern coasts of the Mediterranean. Its extreme *width,* from Cape Guardafüi on the E. coast, to Cape Verde on the the west, is about the same; *its whole surface* covers a space exceeding 12,000,000 of square miles, and, being divided by the equator, has *four parts* out of it in the tropical zone, and only *one fourth* in a moderately warm temperament. The mountains of the Moon, supposed by some to be equal to the Andes and to cross the continent, divide it into Southern and Northern Africa, the former consisting, as indeed all extended surfaces of the earth appear to be, of elevated terraces of *table land,* which, with the high land of Barca, and territory adjacent to the Atlas Mountains in the north, occupy a surface twice as great as the whole European continent, and exceed the space covered over by the gigantic mountain masses of Asia, extending over 280,000 miles, more than one sixth of its total area, and a space of 124,000 square miles greater than that occupied by the long-extended range of the American Cordilleras.

This *high land* of Africa is but little known to Europeans, who have explored only a small portion north of the Cape colony, the districts of Tripoli, Mauritania, Algeria, Nubia, &c., the valley of the Nile, the Niger River, and Darfur, in which latter kingdom Mr. Brown was detained for three years.—Neither native nor foreigner has ever been known to *cross* the continent from north to south of the desert, nor has any communication been effected in a contrary direction by the trading communities on the eastern and western coasts, although the interior of each has been penetrated to a considerable distance.

The *mountain system* of Africa must be, in many cases, inferred from the direction of the rivers. In Abyssinia they have probably a *westward* direction, as the waters of the true Nile flow from thence—it is also considered that elevated mountain land stretches *across the continent,* because the basin of the Congo River is detached from that which supplies Lake Tchad and its affluents, and *the Quorra R.,* the length of which is probably 2,200 miles, has its basin divided from that of Lake Tchad by a small ridge of mountains running in a northerly direction. The high land elevations seen by the Landers from the Quorra River to extend towards the White River are by some supposed to prove the existence of a chain of mountains running across the continent: but by others, however, the assumption is denied.

The country about *the deltas* (mouths) of the Niger, or Quorra, Biafra, Benin, Sierra Leone, &c., are the most destructive of European existence of any other portions of Africa, in consequence of the heavy periodical rains which descend upon the burning regions about the coasts and the country

adjacent; causing the vegetation to spring up as by a miracle, and thus form unwholesome swamps, the pestilential exhalations of which spread terror and death everywhere around. Some portions, however, of Northern Guinea, in the high table land of Soudan, are exceedingly fruitful, producing baobab or monkeys' bread in abundance, as also rice, maize, &c., the latter of which are also cultivated to a certain extent along the *western* coast from Senegambia to Northern Benzuela. *Coffee* is produced freely along the *south-east* coast of Guinea, as also far in the interior of the *east coast* from Abyssinia to Mozambique.

In *Abyssinia* there are some high insulated mountain masses, the greatest of which attains, in Abba Jareb, an elevation of 15,000 feet. — This alpine territory is well supplied with water through the streams of the Nile and its tributaries, which has the effect of rendering the country fruitful and productive to a degree; some of its plains enjoying perpetual spring.

To Englishmen, however, *Cape colony* (at the extreme south) is the most important space in all Africa, the mountains and deserts of which differ very much in character from those of the north, the elevations being *less,* the Nieuveldt range, which is the loftiest, not exceeding 10,000 feet. The extreme south of the colony is occupied by the elevated group of the Snowy Mountains, the *koroos* or *valleys* of which separate Caffraria from Bechuana; they are 10,000 feet in height, and include the celebrated *Table Mountain* and its supporters, called respectively the *Devil's* and the *Lion's Head*. The *desert lands* of S. Africa receive abundance of moisture from the periodical rains, which cause the fibres and roots of the vegetable productions of those arid plains to spring up spontaneously. When the *dry season* approaches all is again parched and dried up.—The most extensive *rivers* of South Africa are the *Gariep* or *Orange River,* which is 1,060 miles in length, and the *Great Fish River,* which empty their waters into the Indian Ocean.

Northern Africa, with the exception of the eastern extremity, is occupied by the extensive range of the *Atlas* Mountains, whose tops, covered by perpetual snow, furnish the waters of many rivers and streams, which flow either into the Mediterranean Sea or the Atlantic Ocean, watering and fertilizing in their way the rich plains of Barbary (the country of the date palms), and Morocco, the country of which partakes in certain districts of the character of a table land and gradually recedes from the Atlas Mountains to the coast. Here *maize* and *dhoorah* (Guinea corn) are extensively cultivated; but the greater portion, lies a barren waste.

The Quorra, the next largest river of Africa, flows for some thousands of miles, from the country of Bambarra, into the Gulf of Guinea. It far exceeds the Nile in extent, being the recipient of many streams, but little inferior to it, and one (that of the Tchadda) exceeeding even the Quorra itself. Its delta, where, through its seveveral outlets, it empties itself into the Atlantic Ocean, occupies a space of swampy, marshy, death-pervading soil exceeding that of the whole area of Ireland. Numerous cities and towns are built upon its banks, where vegetation of all tropical kinds luxuriates. The people are, however, rude and uncultivated. Other rivers, as the Congo, the Senegambia, &c., are considerable streams.

Branches of the *Atlas* extend onward to Algiers (colonized by the French), and *Tunis*, where the Carthaginian monarchy once existed, and the celebrated city of Carthage formerly stood.

Egypt owes its prosperity to the celebrated river of the Nile, the blue waters of which flow onward a length of 3,000 miles. Were it not for this river, Egypt must be a desolation ; hence it has been named “The Gift.” In the *dry* season a parched arid plain bounds the horizon of the beholder—a few low, white barren mountains, and solitary hills rising here and there being all upon which to rest the wearied eye; but about the middle of June the waters begin to rise, and continue to do so until the palms and other trees of the valleys are half inundated. On their retreat, the alluvial deposition left behind fertilizes and invigorates the soil, thus producing an abundant harvest of every description of vegetation.

The *Great Desert of the Sahara* one of the most remarkable features of the African continent, demands special notice, if it be only to correct the errors entertained respecting it. Including its *Oases,* it covers an area of above 700,600 miles, nine or ten times the area of Germany, and three

times that of the Mediterranean Sea. This immense waste is not *one continuous sea of sand,* as had been supposed, but consists of several *detached* basins of sand or gravel, interspersed with low barren rocks, in the midst of which the number of *fertile oases* prevails to an *extent* which had been little anticipated, especially in its western portion. During the *rainy season,* from July to October, these oases are abundantly supplied with the waters of the elevated plain, which penetrate through the soil and centre in the hollows. Forests of palm and date trees, the resort of wild beasts, are then luxuriant; and ferns, acacias, and shrubs, putting forth their green leaves, point out a resting place for the exhausted traveller. It is only *partially* a sandy low land or central sea of sand; for much of it is *elevated considerably above the level of the sea*. Dr. Oudney determined the southern portion to be as much as 1,650 feet *above* the ocean; while the northern seems to be considerably depressed below it. The riches of the *desert* consist in the *rocksalt,* which pervades it, and thus gives evidence of its having formed once the *bottom* of an inland ocean : it is of the purest description, and is conveyed through the routes of the interior to the coast, and constitutes a large article of traffic with the people of the western coasts.

The *hot wind,* which acquires its heat from blowing over the immense sea of sand composing the Sahara, is of a terrible description, and very destructive of animal life, frequently drying up the waters contained in the skin bottles of the traveller, and suffocating alike both man and beast; it is hence called the *simoon* or *samiel,* signifying poison. The *harmattan* is a destroying wind, blowing *from the interior* of the desert out upon the countries of Senegambia and Guinea, extending its influence to a considerable distance from the coast into the Atlantic Ocean, as marked in the map. The dangers of travelling in the desert, however, are not restricted to the winds, which drive up the sand in clouds, and involve man and beast in one common ruin, but are also increased by the number of serpents, lions, panthers, and other wild animals which prowl amid the wastes.

The *monsoon winds* which prevail in the Indian Ocean reach the *eastern* shores of Africa, and fertilize the country to a considerable extent inland, from the narrow neck of the Persian Gulf to the Mozambique Channel.

The *hurricanes,* or *circular stormy winds* of the Pacific are felt on the extreme south-eastern coast, but their influence is almost lost when beyond the island of Madagascar.

AMERICA.

The continents of America are termed “The New World,” not because they were raised to the surface at a later period than the other continental portions of the earth, for it is supposed by geologists that America, like the Old World, was elevated during various epochs of the earth's history, periods of time, bearing dates coeval with the continents of Asia, Europe, and Africa.—The land of the far west received the name of the New World from the fact of its *not* having been discovered prior to the fifteenth century, when Cabot, who sailed from Bristol, first explored a portion of its northern coasts.—Columbus, a year later, discovered the continent of *South* America; and on his way to India in 1492, by sailing continually in a westerly direction, accidentally fell in with some of the West India Isles. This gave to him the priority of discovery in the western world, although not the first actually to visit either of its continents.

America, contrary to the great continent of the Old World, has its extension in a direction from *north* to *south,* or in a line with the meridians, and embraces within one third, the entire circumference of the earth. It is naturally divided into three parts, named respectively *North, Central, and South America:* in their configuration they appear to resemble two vast peninsulas connected by an isthmus, the whole of which is supported by the gigantic chain of the Andes.—The greatest length of the whole continent from Cape Horn to Beachy Point is between 9,000 and 10,000 miles; that of N. America, 3,500 miles; the *extreme breadth* of which is found along the parallel of 57° north latitude and is 3,250 miles. The *width of the southern continent,* from Capes Blanco and San Roque, the one on the western and the other on the eastern coast, is 3,200 miles ; its length about 4,250 miles.

The total area of land occupied by both continents, including the West Indies, and other islands along the coast, is 14,050,000, miles. Owing to its form, the extent of coast in North America is very great, being, like Northern Europe, more indented than the southern. The *eastern* coasts also are much more indented than the western, giving to North-Eastern America especially decided commercial advantages over the central portion of the continent.

The lands of America, having the principal mountain ranges running along their *western* coasts, against which they seem driven up, are on that side steep and elevated, while *east* of the mountains the slopes are easy and gradual. *Two thirds* of the land are occupied by *plains,* leaving *one third* for the high lands or *plateaus,* and the *mountains*.

The *plains* of America form one of its most distinguishing characteristics. When first discovered, one uninterrupted forest spread over the whole of its surface, from the Gulf of St, Lawrence to that of Mexico, in an easterly as well as in a westerly direction, covering an area of more than a million of square miles. Much of this still remains, forming *savannahs,* upon which forests of trees and tall grass, rank with intense heat and moisture, spontaneously flourish, blended with flowers: these are in the dry seasons boundless as the ocean, with only the low tuft of a tree upon which to rest the eye, and extend for thousands of miles south of the Michigan Lake, and to the right of the Mississippi River; below these *savannahs* or *prairies* exist the *woodlands,* 300 miles broad and 1,000 in length, also the remnant of the great forest which once covered the whole of the northern states. This remnant of a primeval forest is still continued in the Canadas, where millions of acres are covered with pine and other northern trees. The vegetation produced in these savannahs or prairies during the wet seasons by the overflowing of the magnificent streams and lakes with which this country abounds, provides pasturage for thousands of buffaloes, and herds of the musk-ox, wapites, wild horses, goats, antelopes, &c.

Plains and vast forests, with *savannahs,* are also found in *Central America,* in *Panama,* and *Guatimala;* in the former there exists a plain running in a direction with the coast for nearly 300 miles, when the ground, hitherto but little above the level of the sea, becomes gradually elevated until it reaches, in the Cordilleras of Nicaragua, an altitude of 8,000 or 9,000 feet, which is covered by an immense forest of trees. *Savannahs* of rank vegetation also mark the higher lands of Guatimala, while the swampy outlets of the rivers are filled with jungles formed out of gigantic reeds, 90 or 100 feet high, and forests of mangroves.

Southern America, the least cultivated of the whole, has its centre occupied by an *immense plain,* divided only by the forest lands of the Amazons, a tract of the most prolific vegetation. Its northern extremity, being situated in the torrid zone, is for one half the year clothed with *trees* and *grasses,* and the other like a *sandy desert;* its southern portion is covered with almost perpetual snow, while towards the tropics it is mingled with dense and thick forests. In *Patagonia* for 800 miles is a desert of *shingle,* and to this succeed the *pampas* of Buenos Ayres, bordered on the north by palm-trees, while its southern territory, towards the Terra del Fuego, is almost constantly covered with *ice*. These *pampas* are, among other things, remarkable for the large troops of dogs with which they abound.

During the *rainy* season in these localities the streams swell, and torrents of water from the mountains pour down their slopes and inundate the plains for thousands of miles, when they appear as a great inland sea. It is then that the various animals which herd here, especially the thousands of horses, die by, hundreds, being either drowned in the waters or killed by the blows of the crocodile or the charges of the electric eel, while the wary jaguar, hiding in the long grass, which has speedily sprung up on the retirement of the waters, feeds securely upon his flesh. The *dry* season is, however, more fatal still, when the soil is constantly exposed to the rays of the never- clouded vertical sun; then vegetation crumbles into dust, and the earth cracks and rends into open fissures with the noise of an earthquake, hot dust fills the air, and the last remnant of vegetation (the leaves of the fan palm) droops and withers, the crocodile and boa become torpid, and lie buried in the dried mud,

while troops of wild horses and other animals roam about distractedly in quest of food and water, and die by hundreds of thousands in a season.

The *llanos or plains* of the Orinico occupy 153,060 square miles, and are remarkably level. Here also in the *wet* season thousands of animals perish, being drowned in the waters which in the lower portions of the soil rise to the height of twelve or thirteen feet, while in the *dry* season, nearly as many die from want of vegetation.

The *mountain elevations of the New World* are the *longest* on the surface of the earth, and extend to upwards of 10,000 miles, nearly double the length of the Himalaya. In N. America the Rocky Mountains are sufficiently inland to allow of another range between them and the western coast; but in the south, where they take the name of the *Andes,* they are, as has been before observed, jammed in direct upon the extremity of the land, and are everywhere rent and split.

In N. America the *Rocky Mountains* terminate in the vicinity of the Frozen Ocean. After latitude 50º the elevation is not considerable, decreasing from 4,000 to 2,000 feet within 3º of lat. Between N. lat. 42º and *53º* several peaks rise far above the snow line, as M. Hooker and M. Brown. The *sea alps of California,* west of the Rocky Mountains, are supposed to equal them in height; but this is not certain. The *Black Hills* which diverge from the Rocky M. have an average height of 1,650 feet. —West of the *southern Alps* of the north-west coast is M. St. Elias, 17,860 feet in height, and, consequently, the greatest elevation of N. America. The *Alleghanies* are chains which run on in a southern and northern direction from the United States, through the Canadas, to Labrador, under the names of the *Green* and *Mealy* Mountains, having their greatest altitude at *M. Washington,* north-west of Cape Cod, which is 6,620 feet.

The *table land of Mexico,* 7,500 feet above the level of the sea, may, with the Rocky Mountains, be considered a continuation of the high land of S. America. In the main mass, called the *Sierra Madre,* and commencing just north of Mexico, are situated the most celebrated silver mines of the known world. Here also are the celebrated volcanic mountain Popocatepetl, 17,720 feet high ; and Istacihuatl, 15,705 feet; De Perote, 13,416 feet ; and Citlatepetl**,** 17,374 feet above the level of the sea. From here we see the range continued in one of the most mixed and shattered conditions possible, and with the exception of Java Is., forms the most volcanic portion of the world. It occupies the whole of the western coast of Central America, embracing 1,200 miles.-In *Guatimala,* the land, which from Mexico forms a connected plateau cut by numerous valleys, reaches Honduras, near Balize, an altitude of 4,000 feet. South of the city of Guatimala, 5,000 feet above the level of the sea, is the *volcano of Agua,* which, although covered with verdure. to its very summit, yet frequently ejects torrents of boiling water and masses of stone. Its elevation is 15,000 feet, which seems to be the highest point of Central America, in which there are no less than *nineteen* active volcanoes.

The *Cordilleras of the Andes,* as the S. American mountains are termed, commence with *three* chains at *Pastos,* at lat. 3º they are continued in *two* chains, with highly elevated table lands between them, to S. lat. 5º where a third range branches off; and they are again continued in two ridges, until at the knot of Potosi they break off into one, and continue to the very extremity of the continent.—It is in South America that the greatest elevations of the New World are found, namely: —M. Sorata, 21,286 feet; M. Illimanni, 21,149 feet; M. Chimborazo, 21,460 feet; and M. Aconcagua, 23,200 feet. The Brazilian ranges of mountains, which support the immense table lands of that country, reach in M. Itambe an elevation of 18,626 feet, and the *Parime,* farther north, an elevation of 7,155 feet in the Peak of Cerro Duida.

In the *West Indian Isles* the greatest elevation is found in Jamaica, in M. Coldridge, which is 8,185 feet; Cibao, in St. Domingo, is 8,000 feet; and, in Cuba Island, M. Cobre attains 7,200 feet. Nearly the whole of the smaller islands are *volcanic;* that of St. Vincent still emitting its sulphurous fires.

The *table lands* of America are remarkable for their *great elevation*—those of Asia for their vast extent. The enormous *plateau of Mexico is* the most celebrated of N. America, exhibiting in its

greatest width 360 miles ; while its height at the city of Mexico, its most elevated point, is 9,000 feet above the level of the sea, where, above the table land may be observed the high towering peaks of the most elevated active volcanoes of the Mexican, range, which are at once grand and imposing. With regard to vegetation, it is destitute and barren, in consequence of the porous nature of the rocks, which does not allow the moisture to be retained near the surface ; it is, however, traversed by numerous valleys or cavities, termed *barancas,* not more than 1,000 feet above the sea, and generally a brook or river runs through them, which causes abundant vegetation ; here forests of oak, and pine trees, &c., are met with, as well as tropical productions in general.—The most coveted treasures of Mexico, however, are the *mines,* which produce on an average a million and a half pounds of silver annually.

The *high land* of America extends along California, where it appears at an elevation of 1,000 feet above the level of the sea; and further north is the great *sandy plain* and the *gold regions* of the Sacramento.

In *Central America* there are plateaus of elevated land reaching from 3,000 to 8,000 feet in height, many of them having flourishing towns and villages erected upon them at an elevation of from 2,000 to 7,000 feet above the level of the sea. These *plateaus* are principally situated on the table lands formed by the junctions or *knots* of the various mountains between 0º and 15º north and south latitude on the western coast, where they most frequently occur.

The most celebrated table lands in Southern America are those of *Quito,* the *Tibet* of the New World, and *Bolivia,* which are elevated to the height of 10,000 feet above the sea level, teeming with inhabitants, who possess not only the comforts but the luxuries of life. Here, at Quito, are churches and universities, splendid cities, and populous towns, with vegetation for their support issuing from a soil clothed with perpetual spring : while surrounding it, and hemming it in, are the loftiest and most magnificent mountains and volcanoes of the whole American continent, having their tops buried in perpetual snow. Around the volcano of Antisana the plateau reaches an elevation of 13,473 feet, and here the atmosphere is so thin and rare that the wild cattle when hunted, bleed from the nose and mouth as they endeavour to escape from the pursuit of the dogs

The *table land of Bolivia,* a longitudinal valley, bounded on the west by the coast, and on the east by the elevated Cordillera, is a remarkable portion of the earth. It is nearly 13,000 feet above the sea, and extends over 16,000 square miles, with the fourth of it covered by an extensive lake, 12,795 feet beyond the level of the ocean, studded with islands. Here is situated *Potosi,* 13,300 feet above the ocean, lying at the base of the silver mountain, from the mines of which, although above 16,000 feet high, abundance of ore is still obtained, one entire mass existing for a space of eighteen miles, glittering with all the various metallic tints. More celebrated still are the mines of *Pasco,* in the same locality, which, after about 200 years, seem to be inexhaustible. It is estimated that about 1,275 millions sterling, sufficient to mould a ball 89 feet across, have been transported to Europe since the possession of South America by the Spaniards. It is well, however, to bear in mind that these immense treasures have not been obtained without a sacrifice of human life far beyond the value of the *precious* metals—it is computed that whole provinces have been depopulated by the working of the mines, a task imposed upon the natives by the merciless Spaniard, who have been signally expelled the country, and now possess only an island or two, as fragments of their once great possessions.

The *Passes* over the mountains of South America through which communication is carried on by the inhabitants, are, like those of the Himalaya, of extreme height, none S. of the 15º of S. lat. being less than 14,000 feet above the level of the sea.

America possesses the most magnificent rivers of the earth; these, with her enormous lakes, constitute her greatest natural features, and give her facilities for commercial intercourse unequalled by any other portion of the globe. The *rivers* of America pour out their waters into the *Atlantic,* the *Pacific,* and the *Arctic Oceans*—the *Missouri- Mississippi,* or *Mississippi*, the greatest of the N. American rivers, is 4,000 miles in length, and is navigable for the great distance of 2,240 miles ; its

greatest width is 80 miles. It pursues its course through the elevated mountain ridges, flowing down like a cataract, and peacefully winds its way through them to the level plains below, the immense prairie and the dense forest: fed by some of the greatest rivers which empty their waters into its streams, as the *Missouri,* the *Arkansas,* the *Red River,* and the *Ohio Rivers,* it reaches the Gulf of Mexico, where it deposits its waters and its *mud* into the sea by several mouths, which form a *delta* of unwholesome marsh, the abode of numerous crocodiles.—Among the great streams which flow into this gulf besides the Mississippi are the Rivers *Colorado* and *Del Norte,* which are also of great magnitude.

The *Mackenzie* and the *St. Lawrence* have their sources in the same locality as the Mississippi, the table land of the Great Lakes, and the regions of the Rocky and Alleghany M. The *Mackenzie,* whose source cannot very accurately be defined, after rolling on through l6º degrees of latitude 2,150 miles, empties itself into the Arctic Sea. The *Iroquois,* or *St. Lawrence,* as it is first named when past Montreal, forms at Quebec an immense estuary 100 miles wide, and unites with the Atlantic Ocean. These rivers, like those of Siberia, in the Old World, are, from their high latitudes, frozen for hundreds of miles : and the northern portion remaining so, long after the southern has thawed, occasion the great overflows to which these regions are so liable.

The *Orinoco,* which has many connecting streams equal to some of the principal European rivers, after flowing for 120 miles, by a lateral branch, the *Guaviare*, joins the River *Negro*, and thus connects itself with the gigantic *Amazons*, and has its termination in the same meridional direction as its source. The *Hudson*, the *Delaware,* and the *Susquehanna,* all of which terminate in bays, are very considerable rivers, as also the *Potamac*, which falls into Chesapeake Bay.—Many rivers are necessarily omitted in this notice, because, although in any other country they would be esteemed important from their size, yet here, in this land of great rivers, they are not so.

The *lakes* of North America, to which those of Europe and Asia bear no comparison, although Lake Aral covers a space of 3,372 miles, may be compared to large inland seas : they both *receive* and *distribute* their waters, and occupy an area of 94,000 square miles. The principal are *Lakes Superior, Michigan, Huron, St. Clai*r, *Erie, Ontario*, and *St. Lawrence*. These with the smaller lakes, contain more than one half of the fresh waters the earth. . The lakes of *South* America are inconsiderable: the chief is Xarayos, in Bolivia.

The greatest streams of the South American continent are the *Maranon,* the *La Plata*, and the *Orinoco,* the *Tocantius*, *Paranahyba,* &c. ; besides these there are the *Magdalena,* which empties itself into the Caribbean Sea, after draining 72,000 square miles ; the *Essequibo,* which has a drainage of 61,650, the *Maranon,* which is also called the *Solimoes*, and the *Amazon*, is 3,900 miles in length; and not less than twenty gigantic streams effect a junction with its waters, as it flows on in its majestic course. The annual floods of this river are so great that, were it not for the large amount thrown off by evaporation, for thousands of miles the hollow plains would be over-flowed with water from eight to twelve feet high.—It is here, among the streams that branch off from the main river, that those immense plains of vegetation termed *Silvas* are found, covered with primeval forests of trees, differing in height and species ; the intermediate spaces being filled with tall grasses and herbaceous foliage make the whole one vegetable solid, through which the foot of man cannot penetrate. In the trees of these immense forests troops of monkeys and other animals are found, which locate there in hundreds and thousands; the jaguar and other wild beasts roam in the forests below : and the alligator, the electric eel, and the boa bury themselves in the swamps or the muddy banks of all the principal rivers and tributary streams.

The River *de la Plata* is 2,700 miles long, and is never less than 170 miles wide from about 200 miles from its mouth. The waters of this stream are as remarkable for their saltness, as for their muddiness, which, like the Yellow River of China, stains the ocean many miles from its mouth. The *Paraguay,* a river subject to the most violent floods, which destroy by hundreds the various animals they overtake, is an unwholesome stream, frequently affecting the atmosphere for miles by its noisome and pestilential exhalations ; it overflows an area of 36,000 square miles.

In the map are shown by *dotted lines* the limit of the Arctic *ice drifts,* which extend to 40º north latitude, and the line of *mosses* and *berries*, which is found to be more north. That of *perpetual ground frost* is shown to be somewhat beyond the one which points out the *polar limit* of the growth of *corn* and other *grains*, below which is the line of *tropical* grains. There is also the equatorial limit of the *fall of snow* which may be seen to approach the equator within 35º N. Lat.

The *various rains* of the American continent are also shown. In N. America, in the United States the *summer rains* prevail. *Central* N. America has the *winter rain,* while the extreme western coasts are deluged with *almost constant precipitation*. The Gulf of Mexico and the West Indian Isles receive a large amount of rain from July to December, from the rainy winds called *vendavales* ; whilst in north latitude 5º to 1º, in the S. American continent, the coasts are deluged by the rains which prevail in the zone of the *variables,* where the *open ocean* is the constant rains and terrific thunderstorms, accompanied by lightning. The coast of Brazil, within the tropics, receives more rain than the coast of La Plata and Patagonia, where the *light summer rains* prevail. On the opposite coasts of Chili, down to Cape Horn, there is a *constant* descent of *rain or snow*, which *extends* even to the ocean: at the Cape itself nothing can exceed the violent storms and winds which continually prevail. On the Mexican coast and that of Chili, where the high range of the Cordilleras stops the course of the clouds and breaks them into deposition on their eastern slopes, there is *no rain for thirty or forty years,* and sometimes a century has elapsed without a single shower. So little prepared are the inhabitants of those regions for a storm, that many of their houses, built with frail materials, are washed away when they occur,

The line of direction of the *hurricanes* is shown in the Caribbean Sea and Gulf of Mexico, where they are most terrific and destructive. The *pamperos* of the coast of La Plata are also delineated; they are violent gales, attended by thunder and lightning ; their duration, however, is short, although their effects are terrific.

THE BRITISH ISLES.

The *British Isles,* with the numerous islets and rocks which skirt their coasts, formed at one time part of the European continent; but they have since been separated from the main land either by subterranean force or volcanic agency, assisted, too, by the continual washings of the Atlantic Ocean, by which its coasts have been severely indented, as, indeed, all the northern coasts of *Europe* and *America* have been. Geologists, in their examination of the Dover cliffs and those of the opposite French coast, determine them to be of the same formation; hence, the conclusion that at some very remote period they were connected. In general all the highest parts of the British mountains are of the *granite formation,* and there can be but little doubt that a great portion of the British Isles *existed as dry land above the ocean,* at a period when a great portion of the continent of Europe *was submerged* beneath its waters.

The whole space occupied by the British Isles, comprising Great Britain and Ireland, is between 1,100,000 and 1,200,000 square miles.—England, separated from Scotland or Northern Britain, is in form a triangle, the base of which might be a line supposed to be drawn through its southern portion, cutting the Land's End and the South Foreland. Its *coasts,* which vary considerably**,** exhibit on the *east* none of those deeply-indented bays and creeks which penetrate far inland the shores of the *west,* which, on the contrary, present a rocky and bold headland to the ocean's waves, in opposition to the generally *level, sandy,* and *shingly* portions of the *east*. The southern coasts have several noble (although limited) ports and bays attached to them, which afford fine harbours for ships. The greatest elevated land of England and Wales is in N Wales, where the *Snowdon, Plynlimmon,* &c., are found; and in the N.W. where, in Cumberland, it reaches an elevation of 3,166 feet in the *Snow Fell* M., the highest point of the *Pennine chain,* which runs S., and forms the sources of those numerous streams which, after flowing through the York plains, empty themselves into the Humber and Trent Rivers, Here is the locality of the beautiful *lakes of Windermere,* &c. On

the *eastern* coast we observe the *moors* of York, which environ the interior land, forming, as indeed the *wolds of York and Lincoln do,* slightly elevated *table lands*.

West of the Pennine chain of mountains is the *Cheshire plain* or *low land,* which is only disturbed by a few slight elevations, in which the affluent streams of the *Trent* have their rise. Here also is the source of that splendid English river, the Severn, in olden time the boundary between England and Wales. With one of its stream, the *Tern,* it almost forms a connecting link with the *Trent,* thus affording a facility of inland navigation over one half of England. Near the beautiful valley of the *Severn* run the *Cotswold Hills,* which are continued in low eminences to the *central table lands* of Leicester, famous for their pasturage. *East* of these central heights are the *fenny districts,* marshy lands abounding with lakes and pools of water, once, however, fine meadows, watered by numerous streams. On the low coasts of these districts is the *Wash,* in ancient times penetrating so far inland as to form Norfolk, and probably Suffolk, into a peninsula; it is the outlet of the *Welland,* the *Ness,* and the *Ouse* rivers, which take their rise in or near the *central table land*. The latter river waters the most extensive and fertile plains possibly in the kingdom,—the Vale of York, which has a superficial extent of at least 12,000 square miles.

The *eastern coast,* especially about 52° to the North Foreland, is *jagged* and broken, penetrating for miles into the interior of Kent, Essex, and Suffolk, and forming estuaries, where also are a number of small rivers which branch off from the Thames, and which also abound on the coast from the Thames to Lowestoft Ness, receiving their moisture from the mountains which form the Anglican heights. The *Thames,* the largest and most important of all British streams, has its rise in Gloucestershire, and, after flowing on in a winding direction for about 200 miles, empties its waters into the estuary of the Nore, and from thence into the German Ocean. In its course it separates the level pasturage lands of Essex from the more elevated of Kent and Sussex, where the *North* and *South Downs* are situated, which enclose the celebrated *Wealds,* part of which form *extensive forests,* and other portions *desert wastes:* the downs or hills afford fine pasturage for the thousands of sheep which graze upon their declivities. *West* of the downs is the celebrated *Salisbury Plain,* south east of which is the *New Forest*, memorable for the cruelty of the Conqueror. Separated from the Southampton coast is the Isle of Wight, remarkable for its salubrious air; and there, as well as on this portion of the coast generally, the sea has been making advances, which are still[imperceptibly progressing. Between the River Eye and the downs, where they receive the name of the *Dorset Heights*, run a long range of hills, branching out in all directions, the highest of which are in Dorset. On the coast of the Bristol Channel are several elevated tracts, which form as it were the northern boundary of the large level tract of land which extends into Devon, where it is again elevated by the hills which enclose the *Dartmoor Forest,* west of which, on the Cornwall coast, which pushes itself out into the sea like a peninsula, are the *Cornish Heights,* a range of hills passing through the centre of the county.

Wales, distinguished for its bold and rugged mountain scenery, is diversified with wide and extended valleys, which are found to prevail more in the southern than in the northern districts. There are many fine streams intersecting the valleys, which are fed by the waters coming down from the elevated *Cambrian* group of mountains.

Northern Britain, or *Scotland,* the unconquerable part of *ancient* Britain, is remarkable for its contrast of *low lands* and *high lands,* the latter of which attain an elevation of 3,000 feet; the former *famous for its cattle*, which graze in the valleys along the *firths,* which penetrate into the very heart of the country; the latter, important from its mineral treasures, which consist of *iron, copper,* and *lead* ores, *granite,* and other *stone,* &c. Here, at Falkirk, are the Carron Works, the most extensive in Europe, where upwards of 2,200 people are employed.—The *Hebrides* are so little removed from the main land as to seem almost to form part of it, and are, for the most part, rugged and precipitous in the interior, although not entirely destitute of level plains. Here are the celebrated basaltic Fingal's Cave, and other natural caverns. Scotland is, however, still more celebrated for the

education of the lower classes of the people, which were, until within these few years past, the best instructed of any nation in the civilized world.

Ireland, ever-green Ireland—the ancient seat of religion and of literature— the school of the west when the other nations of Europe were sunk in barbarism—lies to the west of Britain and has its coasts *deeply indented*, in great measure through the continual washings of the Atlantic, thus many fine bays, gulfs, estuaries, and harbours, have been formed, which, communicating with the extensive lakes of the interior, bring every part of the island within fifty miles of the coast. The *central* portion is one continuous *plain,* crossing the island from east to west.—Its mountains are extensive and elevated, while the *level plains* are broken up by the immense *peat bogs* which occupy a large portion of the country. The south is elevated above the central land by the long and lofty ranges of the *Knockmeledown* and the *Galtes*, &c., while the north presents a bold and rugged barren series of rocky cliffs, including the celebrated basaltic formation, of the Giant's Causeway.—The total area of Ireland is about 31,875 square miles.

The *rivers of* the British Isles, although they have been already partially touched upon, require a further notice. The *Thames,* the principal one of England, has its rise among the Gloucestershire hills, and flows on in a winding direction north-east to Oxford, then bends south, and, dividing the S.-eastern from the eastern counties, receives at Sheerness the waters of the Medway, and forms one of the finest harbours on the globe. On its bank is the capital of the kingdom, *London,* which may be regarded as the chief commercial city of the earth. The *Severn,* whose length is 200 miles, is a fine stream, having its origin in the Welsh mountains of Plynlimnon. By *canals* its navigation is rendered important, as they connect it with the Thames, the Trent, the Mersey, and the *Humber,* the latter of which is formed by the junction of the *Ouse,* the *Aire,* and the *Trent,* and is next to the Thames the principal outlet of the waters which descend from the eastern portion of the island, as also the chief medium of commercial traffic for the inland trade. The *Trent,* which has its rise in the Staffordshire hills, receives the waters of the counties of Derby and Leicester through the *Derwent* and the *Soare,* and those of the southern plains of York, are conveyed by the various streams which rise in the Pennine chain of mountains, the river then widens, and, after flowing in a winding direction for many miles, discharges itself into the Humber, and from thence into the German Ocean. The noblest rivers of *Scotland* are the *Clyde,* the *Tweed,* and the *Tay*. Here also the *lakes* or *lochs* are very numerous, and of considerable extent, while for picturesque scenery they are remarkably beautiful. *Ireland* has a magnificent river in the *Shannon,* navigable for ships of the greatest tonnage even as far as Limerick, and for the last fifteen miles of its course ten miles broad and from twenty to thirty fathoms deep. The *Liffey,* near the mouth of which the city of *Dublin* is built, is also a fine stream, as is also the *Boyne*. The *principal lakes* are the *Neagh*, whose waters are petrifying; *Erdinus,* studded with beautiful islands ; and *Corrib*, &c. Lake Killarney is, although less than many of the others, yet most celebrated, on account of the beauty and grandeur of its scenery.

The *amount of rain* falling in the British Isles varies, and is shown by the lines on the map.—More rain is observed to fall in the *mountain* districts than on the *level lands,* for the lines of 25 inches and 30 inches embrace nearly all the *eastern* plains, while the western coast, the more mountainous portion, receives from *thirty* inches to *thirty-five* inches *annually*. *Wales, Devon,* and *Cornwall,* and the extreme *southern* coast, with the Isle of Wight, receive full 5 inches more than other portions of the western coast, which is in all cases more watered than the eastern, in which, however, a region exists, as marked in the map, where there are 152 rainy days in 365.—The north-west part of Scotland and the Hebrides, from their exposed position to the winds of the Atlantic, are particularly remarkable for the quantity of rain deposited upon their coasts; as also is the south-west portion of Ireland and Cornwall.

Ireland receives a larger proportion of moisture from the Atlantic than England. Its *eastern* coast, as is shown on the map, receives an excessive amount of precipitation over and above any other

portion of the British Isles, for there are on an average 208 *rainy days* annually out of the 365.—The British Isles are in what is termed the region of the *antumn rains,* that is, a district in which *more rain falls* in the three months of *autumn* than in the other nine months of the year put together.

The lines determining the limits of the successful growth of the various *trees*, &c., are also shown, in which the influence of the northern and more mountainous climate of the British Isles may be observed in staying the upward progress of those productions which thrive in the southern and more level portions of the soil.

OCEANICA.

Before the elevation of Northern Siberia above the ocean, and while a great proportion of Southern Asia was submerged beneath the waters of the great Pacific, the islands of the E. I. Archipelago, with many of those which constitute the Polynesian group, formed one entire southern continent. Volcanic agency, however, subsequently split it into innumerable fragments, which, with the exception of the islands adjacent to India, lie scattered far and wide in the great Pacific Ocean. Australia, with its attendant, Van Diemen's Land, and New Guinea, with some of the isles of the E. I. Archipelago, are then the fragments of the once southern continent, while others are evidently the elevated peaks of a newly-rising one. Some of these islands contain many thousands of square miles, as Australia, New Guinea, Van Diemen's Land, &c., while others exist either as *pelagic,* or as *coralline*, islands, which are still undergoing the process of elevation. It may be as well to observe here that, while the depression of the vast southern continent was going on, the lowland of Siberia underwent a gradual elevation, arid the waters of the then existing great basins of Asia were driven forward into the circumjacent seas.

Oceanica or Austral-Asia, as it is sometimes called, embraces the extreme western islands of the Malayan Archipelago, Australia, Van Diemen's Land, New Zealand, and the innumerable groups and islets which stud the waters of the Pacific from 105° E. to 105° W. long.

The most important islands of this division of the globe are Australia, V. Diemen's Land, and N. Zealand, where flourishing colonies have been formed, composed chiefly of British subjects. The latter island, although infinitely inferior in point of size to Australia, is yet far superior in point of climate, fertility, and natural beauty.

Australia, from E. to W., extends over 2,400 miles, while in a N. and S. direction it stretches on for 1,700 miles, its total area is 3,000,000 square miles. A range of mountains of various heights and formations extends for 1,500 miles over its surface, and, being extremely rugged and precipitous, presents an insuperable barrier to a ready communication with the interior of the continent. Kosciusko, the name of the most lofty of the Australian alps (as also brilliant in the pages of Polish history), is 1,500 feet high; and from its snowy summit an extended view of all the surrounding country can be obtained. The choicest portions of the land (those which form the colonial possession of England) lie near the S. Eastern coasts, which still teem with richly-wooded forests, although vast tracts of land have been cleared by the settlers. The western coast is far inferior to the eastern. The only soil worth cultivating lying in the vicinity of the river, where it is generally rich and productive. Beyond the mountains here, as on the eastern coast, the soil is dry and barren, and the want of moisture most severely felt. The interior of the continent it is conceived contains a vast natural tank or reservoir of water, this, however, is only mere conjecture, founded upon the nature of the soil and the sources of the rivers which flow through the northern portions of the continent.

It is more than probable, from the journeys which have been made into the interior, that the whole consists of an immense low-land of unpropitious soil, in part exhibiting the appearance of a barren, sandy desert, the resort of troops of emus, &c., while large portions are covered with swampy forests and dense jungle, the habitat of the tiger, the hyena, and the vast troops of wild dogs so peculiar to Australia.

The *rivers* of Australia are few. No large stream conveys its waters to the ocean, and most of the small streams, which are generally too shallow even for moderately sized boats, are either lost in

the marshes or absorbed by the soil long before they reach the coasts from the interior. The *Murmurbidgee,* the *Macquarrie,* and the *Lachlon* are the most extensive. The Macquarrie, which is about 600 miles in length, is of the most importance, being navigable for a considerable distance up the country, in the interior of which it loses itself amid the swampy soil. The *Swan* River on the opposite coast is an inconsiderable stream, discharging its water into the Indian Ocean. The British settlement on its banks has never been one of the most flourishing, and it is not improbable but that it will ultimately be abandoned.

Van Diemen's Land is in form a triangle, whose base rests upon the waters which flow through Bass's Straits; its total area is 27,000 square miles, which consists alternately of hill and dale, every portion of which is adapted either for pasture or cultivation, although from the extreme wetness and coldness of the climate but to a very limited extent. Its coasts are rugged and indented, which, with the estuaries or lagoons of the rivers, afford excellent shelter for the shipping; commerce, however, cannot be carried on to any great extent through its rivers, the streams of which, like those of Australia, are not navigable to any considerable distance from the coasts. It has a mountainous elevation cutting it into two equal portions, which in many parts reaches 5,000 feet. *Table Mt.,* which over-hangs Hobart Town, is covered almost always with perpetual snow, and yet its elevation is somewhat less than 4,000 feet. The various *plains* and *valleys* are, however, far different to the dry and sandy plains of Australia, for they are well watered, through the large lakes and numerous rivers, along the banks of which the soil is remarkably fertile and productive.

New Guinea approaches Australia in size, being 1,000 miles long, and above 400 in width; it is volcanic, and the mountains on the western portion attain the elevation of 16,000 feet, and are for a great portion of the year capped with snow.

New Zealand, the western boundary of the supposed once existing southern continent is divided into three portions, of which the northern is remarkably fertile and beautiful, the mountain slopes being covered with luxurious forests, while the undulating lands are well supplied with moisture, numerous lakes and rivers flowing through the soil upon which various ferns abound, producing at the same time abundance of timber and food for the support of the natives. These islands are highly volcanic, and the northern elevations are covered with perpetual snow. The coasts are broken and rugged, affording excellent harbours for the shipping, and the climate, although in the same lat. as the southern parts of Australia, is far more mild and temperate than any portion of that continent; hence it is likely to become a flourishing and prosperous colonial possession of Great Britain, its antipode in the northern hemisphere.

The groups of islands which stud the waters of the Pacific, as the Caroline, the Sandwich, the Navigator's, the Friendly Is., &c., are of different formations; the *mountainous* or *volcanic*, which attain elevations varying from 2,000 to 15,000 feet; the *hilly* or *coral* isles which, although not so grand in their scenery as the mountainous, are yet more fertile; and the *low* coralline islands, which are among the smallest; and are elevated but a little above the level of the surrounding ocean, being covered with graceful palms and cocoanut trees, furnishing the natives, not only with food, but with almost all the comforts necessary for their existence.

Otaheite or *Tahiti,* the largest of the Society group, is a remarkably beautiful island; its mountains are 7,000 feet heigh, and its plains are constantly covered with palm-trees, bananas, and baobab or bread-fruit trees ; the people, which are a fine race, have been Christianized by the Protestant missionaries of England, but of late years the French have unjustly possessed themselves of the island, the Queen only retaining a nominal authority. The *Sandwich Islands* are a detached group, far in the N.E., memorable for the tragical death of Captain Cook—in character they are bold and striking, the mountains reach the height of 16,000 feet above the ocean's level; the largest of them, Hawaii, covers a surface of 4,000 square miles, and contains the volcano of Mowna Roa, environing an immense crater, covering an area of five miles. The climate is insalubrious and debilitating, the only variation in the seasons being produced by the *rains* which fall heavily on the coasts from December to March.

The whole of the Oceanic Islands are free from any noxious reptiles, but lizards are found, although not to any extent—the peculiarity of the Australian animals lies in their being pouched in the abdomen, as the kangaroo, &c. The people of Polynesia are of the Malayan genera, but in many respects bear a resemblance to the American race, which renders it doubtful whether these islands were peopled from the Asiatic or the American continent ; it has been said that the currents of the Pacific blowing from E. to W. the islanders could not possibly navigate that ocean to any great extent eastward, because of the rude construction of their vessels. Early tradition and a recent case —that of a Japanese junk, which drifted the entire distance of the Sandwich Isles go to prove that it was at least possible, and that the original inhabitants of these vast islandic groups were of Asiatic, and not of American origin.

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