

Influence of climate in a commercial, social, sanitary, and humanizing point of view : being a paper read before the American Geographical and Statistical Society : accompanied by a map of the world showing the most important isothermal lines / by J. Disturnell.

Contributors

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INFLUENCE OF CLIMATE,

IN A

COMMERCIAL, SOCIAL, SANITARY, AND HUMANIZING POINT OF VIEW;

BEING A

PAPER READ BEFORE THE

American Geographical and Statistical Society.

BY

J. DISTURNELL,

MEMBER OF THE ABOVE SOCIETY, ETC.

ACCOMPANIED BY A

MAP OF THE WORLD,

SHOWING THE MOST IMPORTANT

ISOTHERMAL LINES.

NEW YORK:

PUBLISHED BY CHARLES SCRIBNER, No. 124 GRAND STREET.

1860.

IN THE COURT OF CHANCERY

IN MATTER OF THE ESTATE OF JAMES M. SMITH, DECEASED

ADMINISTRATOR

VS. THE UNITED STATES OF AMERICA

DEFENDANT

AND

ALFRED T. SMITH, JR.

PLAINTIFF

VS. THE UNITED STATES OF AMERICA

DEFENDANT

IN TESTIMONY WHEREOF, I have hereunto set my hand and the seal of the Court at New York, this 1st day of January, 1904.

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Entered, according to Act of Congress, in the year 1860, by

JOHN DISTURNELL,

In the Clerk's Office of the District Court of the United States for the Southern District of New York.

INTRODUCTORY REMARKS.

If an excuse is wanted for the Author of this Paper devoting his attention to the important and somewhat difficult subject of illustrating the INFLUENCE OF CLIMATE in its different aspects, but more particularly as regards the human race, he would state that his limited travel from the confines of the cold climate to the tropical region of America, first convinced him of its controlling and most powerful influence—as seen between the Coast of Labrador and the Gulf of Mexico.

The compilation of the TABLES OF IMPORTANT CITIES, &c., which were commenced some two years since, were further convincing proofs of the potent Influence of Climate on Man,—both as regards his habitation and pursuits—having thereby discovered that as large a population resided in the principal Cities of the World within four degrees of temperature, viz. : from 48 to 52 degrees of Fahrenheit, as was found to reside within the sixteen degrees of temperature on the two sides, all being embraced in the temperate climate, varying from 40° to 60° mean temperature during the year.

Other facts, showing the fixed habitation of the different species of the Animal and Vegetable Kingdom, between the Equator and the Arctic Circle, go to show the established laws of nature—as seen both when we ascend to higher latitudes as well as when we make the circuit of the Globe.

No further arguments are deemed necessary as an apology for this humble attempt to serve the interests of the public, by bringing this important subject to their notice at the present time, when the whole world seems to be making rapid strides towards advancement, both in a social and humane point of view.

“The *Order of the Universe* is manifested by all the Sciences, in all their branches, in the simplest facts of observation, relating to the globe on which we live and have our being. The *System of Meteorology*, or *Climate*, depends on the cosmical laws, and on the properties of air and water, and other substances. It is a stable mechanism of natural agents, by which the wants of the *Vegetable World* are everywhere more or less supplied. The *Animal World* is no less dependent on the vegetable than on the unorganized. And here the order of creation is extended throughout the regions of sensation and thought. The organs of sensation are exactly adapted to the world without; the mental faculties of sensibility and reason bear relations, equally distinct and constant, to the powers of the organs; and, with the other faculties, are both fitted to attain a knowledge of the material world, and give to *man* a wonderfully constructed moral world of his own. The peasant, in fact, is as competent as the philosopher, to see that the things in heaven and the things in earth wonderfully conspire to clothe the world in beauty, and to draw forth from it the food for the service of Man. The peasant is sometimes the more disposed to see, in these arrangements of things, the agency of the Wise Designer.”

J. D.

EXPLANATION OF THE MAP OF THE WORLD.

ISOTHERMAL LINES,—NORTHERN HEMISPHERE.

1. Extreme *Frigid Zone*, or greatest degree of cold, diverging from the *Magnetic Pole*, near 70° North Latitude on the American Continent.
 2. *Frigid Zone*, Southern Limit, 20° Fahrenheit.
 3. *Cold Zone*, or limit of permanent Frozen sub-soil, 30° Fahrenheit.
 4. *Temperate Climate*, Northern Limit, 40° Fahrenheit.
 5. Most favorable *Temperate Zone*, 50° Fahrenheit.
 6. *Temperate Climate*, Southern Limit, 60° Fahrenheit.
 7. *Tropical Zone*, or *Temperature* 70° Fahrenheit.
 8. *Equatorial Zone*, or *Temperature* 80° Fahrenheit.
 9. *Greatest Degree of Heat*, on or near the Equator, 83 Fahrenheit.
-

FRIGID ZONE,	Colored <i>Blue</i> .
COLD ZONE,	" <i>Purple</i> .
TEMPERATE ZONE,	" <i>Red</i> .
SUB-TROPICAL,	" <i>Sienna</i> .
TROPICAL,	" <i>Light Yellow</i> .
EQUATORIAL,	" <i>Yellow</i> .
GREATEST DEGREE OF HEAT,	" <i>Bright Red</i> .

NOTE.—The same Divisions being shown in the SOUTHERN HEMISPHERE.

INFLUENCE OF CLIMATE.

As PHYSICAL GEOGRAPHY, in all its aspects, has a great bearing upon the welfare of the human race, more so by far than seems comprehended by many of the Savans of the present day, I wish to call the attention of the members of this Society and other enlightened minds, to this most important subject—the INFLUENCE OF CLIMATE—hoping that it may be selected, at some future time, by a more competent person, and fully discussed so that its controlling influence may be explained for the benefit of the public at large.

The human race, as well as the inferior animals and the vegetable kingdom, are all alike more or less influenced by climate to a most wonderful extent,—therefore, to master this science and bring its secret influences to light, would be rendering a great service to the present and future generations.

By this test, the flow and laws of emigration, as well as the prevailing laws of commerce and sanitary regulations, are, to a great extent, influenced and controlled, as can easily be proved by well-established facts operating both in the Eastern and Western Hemispheres. This potent influence controls the track pursued by the numerous vessels and steamers crossing the Atlantic ocean from European to American ports, they nearly all pursuing a direct course, which carries them over about an uniform degree of temperature, as exists between Liverpool and New York, both in winter and summer. During the winter months, the Gulf of St. Lawrence and river are obstructed or closed with ice; while the heats of summer render Norfolk and more southern ports dangerous to the emigrant. Not so in either case with Portland, Boston, or New York, the latter being one of the most favored ports on the globe. Thus a great line of travel from Europe to America,—across the latter continent to the Pacific ocean, and thence to Japan and the Continent of Asia, on about the same mean annual temperature of 50° Fahrenheit, will always be a favorite project of intelligent American and European statesmen, until fully realized by the completion of a continuous railroad communication from the Atlantic to the Pacific ocean, most subservient to the interests of commerce and the promotion of health.

The difficulties arising from the topographical features of the country to be traversed, will be overcome and mastered by modern science, now having the powerful aid of steam and electricity;—these two mighty influences of civilization, being, no doubt, destined to span the globe in the northern hemisphere, where about fifteen thousand miles of land will have to be passed, leaving ten or twelve thousand miles of water.

The most favored or *Temperate Zone*, north of the Equator, affording a mean annual temperature of about 50° Fahrenheit, pursues an irregular course in its circuit round the globe, ranging from the 40th to the 55th degrees north latitude.—(*See Map of the World.*)—It attains its most northern limits crossing the Atlantic and Pacific oceans on the Eastern Continent, in Great Britain at about 53° north latitude, and on the Western Continent at Puget's Sound or Van Couver's Island, 50° north latitude. Its most southern limits are Japan on the east, in latitude about 40° north, and near the city of New York, on the west, between 40° and 41° north. The Isothermal line at the latter point being crowded southward by the cold winds descending from the Hudson Bay and the Arctic ocean, sweeping along the coast of Labrador, while the warm waters of the Gulf Stream crowds the Isothermal line northward in the North Atlantic ocean, and on the coast of Norway.

“If we follow the *Gulf Stream* across the ocean, in its northern course, we perceive how fully it fulfils the purpose for which it was designed. Sir Walter Scott tells us that the pools in the Orkneys are never frozen, the effects of the grand hot-water warming apparatus of a far distant shore being sensibly felt in these islands, which are situated in latitude nearly ten degrees further north than the ice-bound coast of Labrador. We all know that in Great Britain there is an extraordinary difference between the eastern and western coasts—so great indeed as to induce completely different systems of agriculture. The Emerald Isle owes her splendid grazing land to the soft west breezes born of the Gulf Stream which strikes full upon her shores; the western shores of England are robed in bright green pastures nourished with the warmth and moisture issuing from the same tropical source. The dairy produce of Great Britain has its root and issue in this steadfast hot-water river in the ocean, the limits of which modern science

has so accurately mapped; nay, the florid plump looks of our people, and the large size of our domestic animals, are but effects of that moist and genial atmosphere which finds its birthplace in the warm Gulf Stream."

The above irregular line of 50° Fahrenheit, varying 15 degrees in latitude, extends over about 15,000 miles of land, and 12,000 miles of water in passing round the world; crossing centrally Europe, Asia, and North America—that too where is found to be the most dense, intelligent, and active population.

The most favored *Southern Zone*, pursues a more regular course, varying from the 34th to the 44th degree of south latitude, crossing South America north of Valparaiso, and south of Buenos Ayres; thence across the South Atlantic Ocean to near the Cape of Good Hope, across the Indian Ocean, passing along the southern coast of Australia, through Van Diemen's Land, New Zealand, and the South Pacific Ocean. This line extends over only about 3,000 miles of land, and 22,000 miles of water, varying 10 degrees of latitude. On the portion of land thus crossed, are to be found the most healthy climate and fruitful soil on the face of the globe.

The climate and productions of a part of California and Oregon, on the Pacific seaboard, compares very favorably with the above favored regions. While the mean annual temperature of Northern California and New Zealand, the one in the northern and the other in the southern hemisphere, are nearly alike, the mean annual fall of rain in New Zealand, is about 40 inches. This abundance of moisture distributed through the year, together with its favorable climate, causes the vegetable growth and forests of this most favored island, to attain an immense size, as is described by intelligent travellers. So in California and portions of Oregon, a like favorable influence of climate and moisture, producing very similar results on the vegetable kingdom, rendering those regions peculiarly adapted for the residence of the human family—yielding an abundance with a healthy climate. Buenos Ayres, and other portions of South America, crossed by the above favored zone, have a climate esteemed one of the healthiest in the world.

In regard to the Continent of America, a most singular fact exists, that while the *Temperate Climate*, averaging from 40° to 60° Fahrenheit, extends along the Pacific coast from near Monterey, California, to Sitka in Russian America, a distance of about 1,600 miles, on the Atlantic coast it does not extend for only about 800 miles in a direct line from north to south. Quebec, Canada East, being the northern limit, and Norfolk, Virginia, being the southern limit. Here we find the

Isothermal line of 40 degrees mean temperature, depressed from 15 to 18 degrees lower, or more southward, than on the western coast of America or Europe. In another point of view, the population in North America, does not extend north of the line of 40° Fahrenheit to any extent. Newfoundland, Gaspe, the vicinity of Quebec, the north shore of Lake Huron, Sant Ste. Marie, and Lake Superior, form the northern limit of civilization for about half the distance across the continent. Settlements are found at Pembina, and the Selkirk settlement on the Red River of the North, in 50° north latitude; then again on Frazer's River in about the same latitude, and at Sitka, Russian America, in 57° north latitude. About the same mean temperature existing all along this extended line of 3 or 4,000 miles.

On the southern line of the Temperate Climate, crossing the American Continent, it may be said to run nearly parallel with the most southern snow limit, leaving the Atlantic near Norfolk, Virginia, in 36° 50' north latitude, passing Raleigh, North Carolina, Memphis, Tennessee, Little Rock, Arkansas, diverging southward to near El Paso, Mexico, 32° north latitude, as it crosses the mountain ranges, striking the Gila River, and rising to Los Angeles, and near Monterey, California, about 36° north latitude, as it approaches the Pacific Ocean. Along this line, which may be said to be the northern limit of yellow fever, on the seaboard, as a contagious disease, the spring season is in advance of the line of the mean temperature of 50° Fahrenheit, about six weeks, and in advance of the line of 40° Fahrenheit, at least two and a half months.

Table of Temperature

Running across the Continent of America, with a mean Temperature of near 40° Fahrenheit.

PLACES.	N. Lat.	Mean Temp. YEAR.	FOUR SEASONS.			
			Spring.	Sum'cr.	Autumn.	Winter.
SITKA, Russian Amer.	57°	41° Fahr.	40°	54°	43°	30°
Chesterfield House, Hudson Bay Ter...	51°	39° "				
Pembina, Min.,.....	49°	39° "				
Fort Ripley, Min.,....	46° 19'	40° "	40	65	43	10
Grand Portage, Min.,	47° 50'	40° "				
Copper Harb., Mich., (Fort Wilkins,).....	47° 30'	41° "	38	60	43	21
Saut Ste. Marie, Mich., (Fort Brady,).....	46° 30'	40° "	38	62	43	18
Fort Mackinac, Mich.,	45° 51'	40½° "	37	62	44	20
QUEBEC, C. E.,.....	47°	40° "	38	65	44	13
Houlton, Me.,.....	46°	40° "	39	63	43	16
Pictou, N. S.,.....	45° 34'	42° "	37	63	46	20
St. John, N. F.,.....	47° 33'	38° "	32	54	43	23
Variation,.....	11½ Lat.	4° Fahr.	8°	11°	3°	20°

Table of Temperature

Running across the Continent of America, with a Mean Temperature of near 60° Fahrenheit.

PLACES.	N. Lat.	Mean Tem. YEAR.	FOUR SEASONS.			
			Spring.	Sum'or.	Autumn.	Winter.
Monterey, Cal.,.....	36°36'	56° Fahr.	54°	59°	58°	50°
Sacramento, Cal.,.....	38°33'	59° "	59	73	61	46
Fort Conrad, N. M.,.....	33°34'	59° "	60	77	60	39
Fort Fillmore, near El Paso, N. M.,.....	32°13'	62° "	63	80	64	46
Fort Arbuckle,.....	34°27'	60° "	61	78	62	40
Fort Towson,.....	34°	61° "	62	79	61	43
Fort Gibson,.....	34°47'	60° "	61	79	61	41
Fort Smith, Ark.,.....	35°23'	60° "	61	78	60	41
Memphis, Tenn.,.....	35°08'	60° "	61	78	59	42
Huntsville, Ala.,.....	34°45'	59° "	59	75	59	42
Raleigh, N. C.,.....	35°47'	60° "				
Fort Monroe, near Norfolk, Vir.,.....	37°	59° "	57	77	61	40
Variation,.....	6° Lat.	6° Fahr.	9°	11°	6°	11°

The line of greatest heat, or *Equatorial Zone*, is more irregular than either of the more favored zones above alluded to, the latter varying in its circumference around the globe, from 8 degrees south latitude, to 12 degrees north latitude, affording a mean annual temperature of about 83° Fahrenheit. This line passes across South America near Panama, running along the south shore of the Caribbean sea, thence across the Atlantic Ocean, striking Africa on the Guinea coast, continuing eastward to the outlet of the Red Sea, where it attains its most northern latitude, thence across the southern portion of India, by Sumatra and Java, crossing the Pacific Ocean, first south then north of the equator. Its most southern latitude being in the vicinity of the island of Java. On this less favored zone, there is not to exceed five or six thousand miles of land, against 20,000 miles of water.

The western and middle parts of Africa, are the hottest on the earth; caused by the trade winds in passing over the rainless and sandy deserts of this immense continent; they become heated to an extreme degree before they arrive at the western coast near the Equator.

"There are two principal circumstances which determine *Physical Climate*; first, the power of the sun's immediate action, which increases towards the equator; secondly, the elevation of the earth's surface above the ocean.

"Thus toward the *Equator* we have the greatest comparative amount of heat and the warmest climates, because at some point or within the tropics, the mid-day sun is always vertical; his rays falling with but little obliquity upon the other points within those limits. The intervening portions of the earth receive the sun's rays at intermediate angles, causing the Temper-

ate Climates, which, however, vary greatly by the changes of seasons, and by these extended regions being the theatre of almost incessant conflict between the polar winds on the one hand, and those of the tropics on the other.

"In the *Tropics*, the temperature ranges within comparative narrow limits, owing to the days and nights being nearly equal; and the various phenomena of the atmosphere occur from one year to another, with a regular and uniform succession unknown in other parts of the world. Two seasons, the *dry* and the *rainy*, divide the year. The latter depends upon the presence of the sun; countries north of the Equator have their wet season when that luminary is in the northern half of the ecliptic, that is from April to October, while in the southern countries it is exactly the reverse.

"In the *Temperate Regions*, where the length of the day greatly varies, the temperature takes a wider range above and below the annual mean, and we have four seasons, which are unknown elsewhere. Their succession is the most regular between the 40th and 60th degrees of north latitude; but in this we speak of Europe only, for both in Asia and America a much shorter interval separates the heat of summer from the cold of winter.

"In the *Cold Regions*, from the 60th degree of latitude to the pole, only two seasons take place. A severe and protracted winter is succeeded immediately by the warmth of summer. The breaking up of the thick field of ice which is annually spread over the surface of the Arctic Ocean, commences in the month of June, and at this season dense fogs are very common, owing to the surface of the water being colder than the air lying over it. These at length disperse, and a short interval of fine weather ensues; but by the close of August, the approaches of winter are perceived; snow falls, fogs again arise, which disappear when the ice extends itself over the face of the ocean. Then fierce winter resumes its undisputed sway."

In connection with this deeply interesting subject, the effect of *ALTITUDE* ought to be duly considered, which, as stated by Prof. Henry, for every 1,000 feet causes a difference of 3 degrees Fahrenheit. Thus under the Equator, the Andes of South America, whose most remarkable passes and heights varying from 7,000 to 24,000 feet above the ocean, afford almost every degree of temperature and variety of climate.

The limit of perpetual snow in the Andes of South America, reaches the height of from 15 to 17,000 feet above the level of the sea. Corn, wheat, oats, potatoes, and other vegetables, together with many varieties of fruit, are here cultivated at an elevation of from 9 to 13,000 feet, while hardier plants thrive still higher.

MADRID, the capital of Spain, is the highest of the European capitals; 250,000 people dwell at the elevation of 2,000 feet on a naked desert plain, chilled by a biting breeze nine months of the year, and are baked

the remaining three. The highest permanent residence in Europe, is in the pass of Santa Maria—9,272 feet. In the Andes of South America, man dwells much more aloft than in Europe. Potosi, the highest city on the globe, is 13,350 feet above the sea, which is but a trifle below the peak of Mount Blanc, where mortal never stayed above two hours.

Quito, an important city, and the capital of the republic of Ecuador, situated in latitude, 13° south, with a population of about 60,000 souls, is elevated 9,543 feet above the ocean. This locality, and others similarly situated, although under or near the Equator, enjoys at a certain altitude all the benefits of a salubrious climate and fruitful soil, as is obtained by those enjoying the same mean temperature on the plain in a more northern or southern latitude, thus showing conclusively that *Man*, as well as the inferior animals, are alike benefited by a genial and bracing climate, where the severity of continued cold, or the scorching rays of a tropical sun are alike unknown.

Table of Heights of Cities and Mountains, &c.,

Above the Sea, situated in different parts of the World.

SOUTH AMERICA.

Andes of Quito, or Ecuador.

CITIES, &c.	Population.	Elevation in ft.
Popayan, New Granada,.....	20,000	5,800
Lora,.....	10,000	6,800
SANTA FE DE BOGATA,.....	50,000	8,650
Quito, Ecuador,.....	60,000	9,543
Plateau of Pasco,.....		10,000
Huancavelica,.....		11,500
Antisana,.....		13,454
Pass of Assunay (Line of perpetual snow),.....		15,300
Height obtained by Humboldt and Bonpland, in 1820,.....		19,400
Height obtained by Boussingault and Hall, in 1831,.....		19,700
Summit of Chimborazo,*.....		21,500

Andes of Peru and Bolivia.

Chuquisaca, Bolivia,.....	12,000	9,250
La Paz, Bolivia,.....	20,000	12,226
Lake Titicaca,.....		12,500
Potosi, Bolivia,.....	30,000	13,350
Aconmarca,.....		15,500
Line of perpetual snow,.....		16,000
Cotopaxi—volcano,.....		18,867
Highest flight of Condor,.....		21,000
Peak of Aconcagua, Chili, summit of the Andes of South America,†.....		23,910

NORTH AMERICA.

Cordilleras of the Andes, Mexico.

Jalapa,.....	10,000	4,000
Puebla,.....	60,000	
City of Mexico,‡.....	200,000	7,500
Zolaca,.....	12,000	8,500
Line of perpetual snow,.....		14,300
Summit of Orizaba,.....		17,000
Summit of Popocatepetl—volcano,.....		17,600

* Elevated 6,200 feet above perpetual snow line.

† Elevated 7,910 feet above the perpetual snow line.

‡ Mean annual temperature 69° Fahr. Variation during the year only 16 degrees.

NOTE.—The high *Table Lands* of Central America and Mexico, afford a most delightful climate at certain altitudes. In particular along the elevated plain, extending from the city of Mexico, 19° 26' N. Lat., to El Paso, 32° N. Lat., as follows:

CITIES, &c.	Elevation.	CITIES, &c.	Elevation.
MEXICO,.....	7,500 feet	San Luis Potosi,.....	6,090 feet.
San Juan,.....	6,490 "	Zacatecas,.....	8,040 "
Queretaro,.....	6,363 "	Durango,.....	6,848 "
Guanajuato,.....	6,836 "	Saltillo,.....	5,240 "
Villa de Leon,.....	6,133 "	Chihuahua,.....	4,638 "
Aguas Calientes,.....	6,261 "	El Paso,.....	3,812 "

Rocky Mountain Range.

CITIES, &c.	Population.	Elevation in ft.
Fort Fillmore, near El Paso,.....		3,937
Great Salt Lake City, Utah,.....	10,000	4,351
Fort Laramie, Nebraska,.....		4,519
Fort Hall, Oregon,.....		4,800
Fort Webster, New Mexico,.....		6,350
Santa Fe, New Mexico,.....	10,000	6,846
South Pass, Rocky Mountains,.....		7,085
Fort Massachusetts, New Mexico,.....		8,365
Cochecopa Pass, New Mexico,.....		10,000
Pike's Peak, Kansas,.....		12,000
Sierra Nevada, California, highest peak, <i>est.</i> ,.....		12,000
Fremont's Peak, Nebraska,.....		13,570
Mount Baker, Washington Ter.,.....		14,000
Mount Hooker, British America,.....		15,700
Mount Brown, British America,.....		16,000
Mount St. Elias, Russian America,.....		16,775

EUROPE.

The Alps.

Geneva, Switzerland,.....	30,000	1,500
Chamouny, Switzerland,.....	3,000	3,300
Lake Lucen, Switzerland,.....		6,220
Simplon Pass,.....		6,500
Mount Cenis Pass,.....		6,773
Convent of St. Gothard,.....		6,900
Lake Toma (Source of the Rhine),.....		7,500
Convent of St. Bernard,.....		8,600
Stelvio Pass,* (Line of perpetual snow),.....		9,200
Pass of Col de Geant,.....		11,000
Summit of Jungfrau,.....		13,716
Summit of Mont Blanc,†.....		15,700

ASIA.

Himalaya Mountains.

Cashmere, North Hindostan,.....	50,000	6,300
Darjeling,‡ North India,.....		7,500
Temple of Gangoutre,.....		10,200
Temple of Milum,.....		13,000
Source of the Ganges,.....		14,000
Lake Manasaroo,.....		15,000
Line of perpetual snow,.....		16,000
Mannerling Pass (crossed by Gerard),.....		18,600
Height obtained by Gerard in 1848,.....		19,400
Peak of Chamalari,.....		24,000
Peak of Dhawalagiri,.....		27,000
Peak of Kunchingga,.....		28,000

The latter summit, the highest in the world, is 12,000 above the line of perpetual snow, being higher by 8,600 feet than man ever reached on foot. The intrepid aeronaut *Green*, in 1838, rose to the great height of 27,000 feet.

* The highest permanent habitation in Europe.

† Elevated 4,500 feet above the snow line.

‡ A British sanitary station for the troops in India; situated in N. Lat. 27° 5'; E. Long. 88° 28', being about 818 miles north of Calcutta.

Geographical Distribution of Man, or Classification of the Human Race.

"MAN, the Lord of Creation, has the whole earth for his abode. The physical capabilities of his frame, fit him for every variety of climate, soil, and situation; and, being capable of deriving nourishment from all kinds of food, his habitations extend to the remotest confines of animated nature. Under the scorching rays of a tropical sun, the human body supports a heat which causes spirits of wine to boil, and in the polar regions, resists a cold which freezes mercury.

On this fact, Dr. Paley remarks: "The human animal is the only one which is naked, and the one which can clothe itself. This is one of the properties which renders him an animal of all climates, and of all seasons," (he having only failed to reach the highest peaks of the Eastern and Western Continents, and those extremes of the North and South Pole.) "He can adapt the warmth or lightness of his covering to the temperature of his habitation. Had he been born with a fleece upon his back, although he might have been comforted by its warmth in high latitudes, it would have oppressed him by its weight and heat as the species spread towards the Equator."

"Mankind has been arranged into *five* great families or classes, according to the form of the skull, and color of the skin; 1. The *Caucasian* or *white race*; 2, the *Mongolian* or *yellow class*; 3, the *Ethiopic* or *black race*; 4, the *Malay* or *tawny class*; 5, the *American* or *copper-colored race*. In the latter class are comprehended all the native American tribes and nations, excepting the Esquimaux, who inhabit the northern portions of Asia and North America.

"But, mankind may all be properly divided into *three* great classes, according to the nature and climate of the country which they inhabit, and with regard to their modes of life. 1. *Roving tribes of hunters and fishers*; 2, *Wandering pastoral tribes*; or 3, *Fixed nations*.

"The *first class* embraces all those tribes and small nations who subsist mainly by hunting and fishing, but rove about without any fixed habitation, such as the hardy Tartar tribes of Asia, and the Esquimaux of North America and Northern Asia, as well as other Indian tribes that are to be found both on the extremes of North and South America, where cold predominates.

"Under the *second class* are included those nations or tribes who have no settled residence, but live in movable tents, and with their flocks and herds, wander from place to place in the extensive and arid plains, which are common to Asia and some parts of Africa, lying mostly under the influence of an equatorial or tropical climate." Here are to be found the native black man, and the yellow and dark copper-colored race in the Old World, the latter only in the New World.

"The *third class* comprehends all those civilized nations that have permanent habitations, and dwell in cities towns, and villages. Such are the nations of Europe; the Chinese, the Japanese, and all European colonies; the people of the United States of America, and the European settlers in Mexico, and portions of

South America, whose land is divided among different owners, and rendered productive by agriculture."

This numerous and favored class of the human family, inhabit mostly the temperate climate, where the extremes of heat and cold are unknown, and where the four seasons divide the year into nearly equal parts.

Their ideas of *property* further distinguish these three grand classes of mankind. The property of the first consists entirely in their utensils and weapons, and the food they have just acquired. Herds and tents constitute mainly the property of the second class, some of whom hold slaves, such as the roving Arabs of Asia and Africa, and in the Barbary States. The third alone have property in land, and tenements, which are rendered valuable by tillage and permanent habitation.

Again, the people who live only by hunting and fishing, are mostly ignorant, unsociable, and cruel; the pastoral tribes are less ferocious or barbarous, though they have little civilization, and the nations engaged in agriculture and commerce, are enlightened and civilized; education and learning, or the knowledge of the arts and sciences, essentially contribute towards their advancement.

Isothermal Lines.

Humboldt was the first to trace on charts or maps, lines connecting all points, having the same mean annual temperature, or nearly. These lines are termed *Isothermal*, signifying equal heat. They may be divided into five climatic zones,—the *Hot*, *Warm*, *Temperate*, *Cold*, and *Frigid*.

1. The *Hot*, or *Equatorial Zone*, varies from 80° to 85° Fahrenheit, for most of the distance round the globe. Here are to be found the giraffe, the jaguar, the elephant, the boa constrictor, the rhinoceros, the alligator, monkeys, jackalls, the lion and the tiger, of the animal kingdom. The cocoa-nut, palm and pepper (climbing) plant; the coffee tree, caoutchouc, or India-rubber tree, aloes, baobab tree, pine-apple, wax palm, low tree, bananas, banyan tree, Palmyra palm, and sugar cane, of the vegetable kingdom.

2. The *Warm Zones*, averaging from 80° to 60° Fahrenheit, producing tropical productions of various kinds, both in the northern and southern latitudes, diverging from the Equator. Here are to be found the flamingo and other birds of rich plumage; the camel, the ostrich, and the antelope. The tea plant, rice plant, cotton plant, mahogany tree, orange tree, lemon tree, tobacco plant, figs, magnolia, vine and olive tree.

Central America, part of Mexico, the West Indies,

and the more southern portion of the United States in North America; part of Brazil, Paraguay and Bolivia in South America, and a great part of Africa are included in these lines, as well as Southern Asia and Northern Australia.

3. The *Temperate Zones* extend from 60° to 40° Fahrenheit, including a large portion of North America, most of Europe and Central Asia, *north* of the Equator; part of South America, New Zealand, Van Diemen's Land, and Southern Australia, *south* of the Equator.

The Isothermal line of 60°, traverses North America, starting from the shores of the Pacific Ocean in California, near 35° north latitude, crosses the Rocky Mountains near El Paso, and reaches Cape Hatteras in about 36° north latitude, extends across the Atlantic Ocean, and reaches Europe on the coast of Portugal in about 40° north latitude, falls to near Gibraltar, rises in the Mediterranean as it approaches Italy, crosses Greece and the south of Turkey in Europe; enters Asia, cuts the south of the Caspian Sea near Astrabad, sinks in the interior of Asia, rises as it approaches Japan, passing through the island of Kiusiu, on which stands Nagasaki.

The line of 40° Fahrenheit, cuts the west of North America, near Sitka in Russian America, north latitude 57°, descends to north latitude 46° as it approaches Lake Superior, passes near Quebec, crosses the Gulf of St. Lawrence, and the southern part of New Foundland, strikes the Atlantic Ocean, rising suddenly to 67° north latitude, being above the Arctic Circle, as it approaches the coast of Norway, the climate here being favorably influenced by the Gulf Stream; it declines to near St. Petersburg and Moscow in Russia, and sinks in Asia to 47° north latitude.

Here are to be found within twenty degrees of temperature, the American bison, or buffalo, the elk, the moose, the horse, the ox, the mule, the goat, sheep, and deer; on the Eastern Continent the camel and other useful animals; also, corn, tobacco, flax, hemp, wheat, oats, hops, potatoes, and hay; the apple tree, pear tree, peach tree, chestnut tree, the maple tree, black and white walnut, white and yellow pines, firs, spruce, hemlock, and the oak of different species.

Within this temperate zone, *Man* has in modern ages attained the highest degree of culture, and the fullest development of his powers; here the civilized and industrious nations are located. It may in fact be called the *Governing Zone of the Universe*. The mean annual temperature of 50° Fahrenheit, may be considered the culminating point, that being about the average temperature of Philadelphia, New York, and

Boston on the Western Continent, as well as London, Liverpool, Dublin, Paris, Brussels, Vienna, and other great cities on the Eastern Continent. (See *Table of Important Cities, &c.*)

The Assiniboine or Red River county of North America, including the shores of Lake Winipeg, elevated about 850 feet above the ocean, as well as the great valley of the Saskatchewan, lying south-west of Hudson Bay; also, the north-western portion of Minnesota and Nebraska, drained by the Missouri River, and Washington territory, drained by the Columbia River, are all said to possess a favorable climate every way suited for the habitation of man and the inferior animals. This immense region, no doubt receives its favorable climatic influence from currents of air passing from the North Pacific Ocean, inland across the Russian and the British possessions.

The red man of the forest, and the buffalo, here exist, and range in great numbers, while the air is filled with birds of different species, and the waters abound in fish of delicious flavor; the whole country being capable of sustaining an immense amount of animal life. Coal, iron ore, gold, and other precious metals, are also said to exist in abundance, offering great inducements to the hardy pioneer to emigrate to this favored region.

Mr. BALLANTYNE in his very interesting work on the *Hudson Bay Territory*, after a residence there of six years, remarks:—"The climate of Red River, (between North latitude 49° and 50°,) is salubrious and agreeable. Winter commences about the month of November, and spring generally begins in April. Although the winter is very long and extremely cold, yet, from its being always *dry* frost, it is much more agreeable than people accustomed to the damp thawy weather of Great Britain might suppose. Winter is here the liveliest season of the year, affording the most enjoyment.

"During the summer months, there are often very severe thunder-storms, frequently accompanied with tremendous showers of hail, which do great mischief to the crops and houses. Generally speaking, however, the weather is serene and calm, particularly in autumn, and during the delicious season peculiar to America, called the Indian summer, which precedes the commencement of winter."

From the above authentic account, it seems that the year is about equally divided, giving six months for the production of all kinds of vegetation, and six months of frost and winter, not differing materially from the climate found in different parts of the State of New York, above the "Highlands," or in the New England States.

4. The *Cold Zone*, between 40° and 20° Fahrenheit, includes the countries around Hudson Bay, Labrador, most of Greenland, Spitzbergen, part of North Russia, and the greater portion of Siberia, being sparsely settled by hardy tribes of the human family. Here the fur-bearing animals are found in great numbers, together with the rein-deer, musk ox, white bear, wolves, foxes, hares, the walrus and seals.

"Through a great part of this region, the soil at varying depths remains perpetually frozen throughout the year, even in latitudes in Asia, nearly as low as that of London; but to a certain varying extent, the surface is thawed by the powerful temperature of the brief Siberian summer, so that most of the cereals ripen, and harvests of wheat, barley, and rye, are gathered above subterranean sheets of eternal frost and ice." The Norway fir and birch tree being succeeded by the mosses and lichens, which terminate vegetation toward the North and South Poles.

5. The *Frigid Zone*, bounded by the Isothermal of 20° mean annual temperature, falling to zero, or even below that point. It includes most all the regions included in the Arctic and Antarctic circle,* except part of Spitzbergen, and North Cape, Norway, which are favored by the Gulf Stream, conveying the warm waters of the Mexican Gulf into the Northern Atlantic Ocean, its influence being felt even as far as 78° North latitude. The animal life found in these inhospitable regions, consists of the polar bear, rein-deer, wolves, foxes, dogs, and hares; various species of seals and whales, and likewise the auks of the north, and the penguins of the south Polar Seas.

Capt. Ross, of the B. R. N., alike a discoverer in the northern and southern Polar Seas in 1818, discovered the Arctic Highlands, north-west of Baffin's Bay. He says: "The vegetable productions are heath, moss, and coarse grass, which afford shelter to hares and other game. The natives are Esquimaux, who, until visited by Capt. Ross's exploring party, supposed themselves to be the only people in the world."

At Barrow's Strait and Smith's Sound, the latter being in about 80° North latitude, the thermometer ranges from 40 degrees Fahrenheit during the months of July, to 40 degrees below zero in January, averaging during the year, a mean temperature of about zero.

The more northern Arctic climate, discovered by Dr. Kane and his adventurous followers, is yet to be made known in its full extent, affording an incentive to new discoveries within the Arctic Circle. If this more

favorable climate is found to exist, may not a passage be effected by sailing north-east from Spitzbergen, and north of Nova Zembla across the open Polar Sea, and enter the North Pacific Ocean through Behring Strait. It being a well established fact, that the current of the Gulf Stream, sets as far north as the above named islands, and that the waters of the Polar Sea flow southward through Behring Strait, into the North Pacific Ocean.

While this remains the greatest problem to be solved, in regard to geographical discoveries, let me urge upon the members of the American Geographical and Statistical Society, the incalculable importance of discovering the secret *Influence of Climate* in all its bearings—both in a scientific and social point of view,—thus advancing one of the great objects of the early friends of this association, they conceiving that the advancement of geographical and statistical knowledge in all its branches, would confer a blessing on the American public, who, above all other people, are favored with a free and enlightened government—useful and exact knowledge alone being wanted and applied, to make them, as a nation, truly great and happy.

Table of Temperature

Running across Europe, Asia and America, with a mean Temperature of near 30° Fahrenheit.

PLACES.	N. Lat.	Mean Tem. YEAR.	FOUR SEASONS.			
			Spring.	Sum'er.	Autumn.	Winter.
Archangel, Russia,....	64° 34'	33° Fahr.	31°	57°	35°	9°
Velchi-Onstong,.....	60° 45'	32° "	29	60	34	7
Catharinenberg,.....	56° 50'	33° "	33	60	33	5
Tomsk,	56° 30'	29° "	29	61	28	0
Barnaul,	53° 20'	31° "	31	63	31	0
Irkutsk,	52° 17'	32° "	35	61	32	0
Okak, Labrador,.....	57° 30'	28° "	25	49	33	4
York Factory,.....	57°	26° "	19	54	33	2
Norway House,.....	54°	28° "	26	59	29	3
Cumberland House,...	53° 57'	30° "	32	60	32	2
Fort Chepewyan,.....	58° 43'	27° "	22	58	31	3
Fort Simpson,.....	61° 51'	25° "	26	59	27	10
Variation,.....	22° Lat.	8° Fahr.	16°	14°	8°	19°

The coldest places on record, according to "BLODGET'S CLIMATOLOGY," are Fort Hope, Repulse Bay, North America, and Jakutzk, East Siberia, in Asia, as follows:

PLACES.	N. Lat.	Mean Tem. YEAR.	FOUR SEASONS.			
			Spring.	Sum'er.	Autumn.	Winter.
Fort Hope,.....	62° 32'	10° Fahr.	4°	59°	13°	25°
Jakutzk,	62° 01'	12° "	14	58	12	36
Variation,.....	½° Lat.	2° Fahr.	18°	1°	1°	11°

* The Arctic and Antarctic Circles are in latitude 66° 32', both in the Northern and Southern Hemispheres; being 23° 28' from the North and South Poles. The parallels at 23° 28', on each side of the equator, are called *Tropics*.

In order to show the favorable influence of the *Gulf Stream*, is subjoined the following *Table of Temperature* in high latitudes :

PLACES.	N. Lat.	Mean Tem. YEAR.	FOUR SEASONS.			
			Spring.	Sum'er.	Autumn.	Winter.
Stromness, Orkney Islands,	58° 57'	46° Fahr.	43°	54°	47°	39°
Unst, Shetland Islands,	60° 45'	44° "	43	52	44	38
Thornahaven, Faroe Islands,	62°	45° "	42	54	46	39
Reykjavik, Iceland,	64°	39° "	37	52	38	29
Variation,	5° Lat.	7° Fahr.	6°	2°	9°	10°

INFLUENCE OF CLIMATE ON MAN.

"The distribution of *Man* on the surface of the globe, and that of the other organized beings, are not founded on the same principle. The law which presides over the distribution of the human race, is different from that which governs the distribution of plants and animals. In the latter, the degree of perfection of the types is in proportion to the intensity of solar heat. A law of a physical order. In man, the degree of perfection of the types is in proportion to the degree of intellectual and moral improvement. A law of a moral order.

"Man's purest and most perfect type, is found in the centre of the temperate climates; and, since he has to acquire the full possession and mastery of his faculties by toil, and by the exercise of his energies, no other climate could so well minister to his progress in this work. It is easy to understand this. An excessive heat enfeebles man, inviting to repose and inaction. In the tropical regions, the power of life in nature is carried to its highest degree; thus, with the tropical man, the life of the body overmasters that of the mind. A nature too rich, too prodigal of her gifts, does not compel man to snatch from her his daily bread by his daily toil. Nothing invites him to that struggle of intelligence against nature, which raises the forces of man to so high a pitch, but which would seem here to be hopeless.

"In the temperate climates all is activity, movement. The alternations of heat and cold, the changes of the seasons, a fresher and more bracing air, incite man to a constant struggle, to forethought, to the vigorous employment of all his faculties. A more economical nature yields nothing, except to the sweat of his brow; every gift on her part is a recompense for effort on his. Less mighty, less gigantic, even while challenging man to the conflict, she leaves him the hope of victory, and if she does not show herself prodigal, she grants to his active and intelligent labor more than his necessities require; she gives him ease and leisure, which permit him to cultivate all the lofty faculties of his higher nature.

"In the frozen regions, man also contends with nature, but it is with a niggardly and severe nature. With difficulty, by force of toil, he succeeds in procuring for himself a miserable support, which saves him from dying of hunger and hardship during the rigorous and protracted winters of that climate. No higher culture is possible under such unfavorable conditions.

"Thus, if the tropics have the wealth of nature, the temperate regions are the most perfectly organized for the development of man. Here have been produced the master minds which have left the impress of their genius upon all human institutions; men of the highest intellectual and moral power, whether as historians, philosophers, poets, statesmen, warriors, astronomers, theologians, artists, engineers, or discoverers. In this region has been displayed the noblest of human achievements, the glories of ancient Greece and Rome; the triumphs of modern civilization and science in England, France, Germany, and Italy."

The centre of the intellectual parallels is indicated on the map by an irregular line running round the globe; here industry and commerce exists, and the zone may be considered as chiefly comprised within Isotherms of ten degrees on either side of the mean temperature of London and New York, (say from 40° to 60° Fahrenheit.)

The zone of the intellectual parallels undoubtedly widens with the progress of civilization, which originating in the more favored localities of the earth's surface, is diffused by the enterprises of peaceful commerce, emigration, or by the force of arms.

Influence of Climate on Health and Longevity.

"The healthfulness of a climate is a consideration of the utmost importance; and the careful study of the varieties of latitude and climate, and the local natural history of the different countries, seems almost to determine the character of its people. In those climates where life is most precarious, the inexperience of youth scarcely gives place to mature reflection, before the infirmities of age are already present. On the contrary, in the most healthful climates, which are usually those where the human race attains its highest development, a much longer interval occurs between the ignorance of youth and the futurity of age.

"According to Mon. Jom  s, of the Institute of France, the average annual mortality of the nations of the torrid zone, may be stated at one in 27 individuals, while the average mortality of the temperate zones is only one in 59 persons, by which it appears that the chances of life in temperate climates are considerably more than twice greater than under the blazing sun of the tropics.

"The climates most favorable to the prolongation of life, are those of the north-western portion of the temperate zone of Europe, where the temperature is comparatively cold, but modified in winter by the in-

fluence of the Gulf Stream. The climate of the British Isles, especially of Scotland, appears to ensure the longest period to human existence."

Oregon and Washington Territory, situated on the north-west coast of the Pacific Ocean, has also a climate well suited to the white race. The more western sections in particular, extending from Cape Mendocino, in Northern California, to Puget's Sound and Van Couver's Island, to north latitude 49°, resembling in many respects the climate of England.

Subjoined is a Table, showing the comparative annual mortality per 1,000, among the British troops stationed in different parts of the world.

Australia (Southern Hem.),...	14	St. Helena, (Southern Hem.),...	35
Cape of Good Hope, do.....	15	Madras (Northern Hem.),.....	52
Malta (Northern Hemisphere),	19	Bombay do.....	55
Canada do.....	20	Ceylon, do.....	57
Gibraltar, do.....	22	Bengal, do.....	63
Ionian Isles, do.....	28	Jamaica, do.....	143
Mauritius, (Southern Hem.),...	30	Bahamas, do.....	200
Bermudas (Northern Hem.),...	33	Sierra Leone, do.....	483

"Africa, so far as known, comprises the most healthy and the most deadly climates on the globe, the former at its southern extremity, near the Cape of Good Hope and Natal, (see meteorological table,) and the latter on the west coast, where Sierra Leone has been termed the white man's grave. The average fall of rain at Sierra Leone is 180 inches, and the mean temperature 81° Fahrenheit. The rainy season extends from June to September; after the rain, dense masses of vapor termed the "smokes" envelop the land for days together, and are often driven to a considerable distance seaward."

West India Islands.—"The space between the Equator and the parallel of 38° north, including the shores of the Caribbean Sea, the Gulf of Mexico, and part of the Atlantic shore of the United States, with all the West India Islands, is the true domain of the yellow fever in North America. But although all the islands are included within the pestilential limits, they present a great variety in their comparative liability to, and exemption from, particular forms of disease, owing mainly to altitude and currents of wind."

Human Temperature within the Tropics.—Dr. Davy has communicated to the Royal Society, the results of his observations on the temperature of man during a period of three years and a half, chiefly at Barbadoes, where the mean annual temperature of the atmosphere, he states, is 80° Fahrenheit, and the range of temperature throughout the year from about 10° to 18° in the open air. The observations were made three times a day, the temperature of the body being noted, with that of the external air, the pulse and the number of respirations per minute; all of which are duly set forth in elaborate tables. Dr. D. finds that the average temperature of man within the tropics is a little higher, nearly one degree, than in a temperate climate, such as England; that, within the tropics, as in cooler regions, the temperature of the body is almost constantly fluctuating;

that the order of fluctuating is different from that in a cooler climate, the minimum degree being early in the morning, after a night's rest, and not at night; that all exertion, whether of body or mind, except it be very gentle, has a heightening effect on the temperature, while passive exercise, especially carriage exercise, has a lowering tendency; that heavy clothing, especially if tight and close, tends to raise the temperature unduly, particularly under active exercise, and that close, ill-ventilated rooms, especially when crowded, have in a marked manner the same tendency.

METEOROLOGICAL TABLES.

As *Moisture*, descending in the shape of dew, rain, or snow, has a great influence on the health and comfort of man, as well as the inferior animals, it should not be overlooked in connection with the subject of climate.

"Between the tropics the rains follow the sun; when he is north of the Equator, the rains prevail in the northern tropic; and when he is south of that line in the southern; hence, one half of the year is extremely wet, and the other half extremely dry; the change taking place near the Equinoxes; here rank vegetation exists and diseases are engendered.

"In the Temperate Climate, although a much smaller quantity of rain falls during the year, than within the tropics, yet the larger amount of rain falls in countries in the vicinity of the sea, than in those situated inland, and more rain is known to fall in mountainous than in level districts; the cause of this is, that the vapor coming in contact with the cold surface of the summits of the mountains is condensed, and falls in the form of rain or snow."

Rain is seldom or never seen in some portions of the earth's surface; at Lima and other portions of South America, the valleys are watered with a strong dew, while in the rainless deserts of Central Asia and Africa, little or no moisture falls during the whole year.

The mean quantity of rain which has been ascertained to fall at several places in various parts of the Eastern Continent, is stated in the following table, from which it will be seen that the quantity becomes in general less with the increase of the latitude:

PLACES.	N. Latitude.	In. of Rain.
Calcutta,	22° 39'	81.
Rome,	41° 53'	39.
Paris,	48° 49'	21.
London,	51° 30'	24.
Liverpool,	53° 25'	34.
Glasgow,	55° 51'	21.
Edinburgh,	55° 57'	24.
St. Petersburg,	60°	16.

NOTE.—While in London the average number of rainy days in the year are 152, the average in St. Petersburg, is but 90 days.

Monthly Summary of Meteorological Phenomena,

Observed in the Society's Gardens, D'URBAN, Port Natal, South Africa.

	Self-registering Therm.				Rain in Inches.	Number of Rainy Days.	Evapora- tion in inches.
	Min. in Shade.		Max. in Shade.				
	Highest	Lowest.	Highest	Lowest.			
1856:							
July,	58°	43°	82°	66°	.187	2	6.000
August,	61	47	84	65 5'	2.694	7	5.946
September,	64	49	10 8'	66	3.461	9	5.099
October,	67	54	88	69	25.007	10	5.375
November,	68	56	93	68	7.520	8	4.776
December,	70	58	93	78	3.405	6	5.995
1857:							
January,	74	60	94	77	7.295	7	4.868
February,	70	56	87	80	3.056	8	4.327
March,	71	58	91	73	6.130	8	4.069
April,	69	52	88	73	2.740	6	3.341
May,	64	52	92	75	1.250	3	3.904
June,	60	44	83	71	2.650	2	3.145
Mean Temp.,...	66°	52°	83°	72°	65.395	76	

	Thunder Storms.	Light- ning.	Violent Gales of Wind.	Prevailing Winds.		
				P. A. M.	S. P. M.	P. P. M.
1856:						
July,	1	—	5	s w & e	s w & e	s w & e
August,	—	—	3	s & n w	s & n e	s & n w
September,	2	1	3	s w & n e	n e	n w
October,	6	1	6	s & n e	s & n e	s & n w
November,	2	3	6	s & n e	s & n e	s w & n e
December,	4	3	4	s & n e	s & n e	s w & n e
1857:						
January,	5	1	2	s w & n e	s w & n e	n & s w
February,	2	2	6	s w & n e	s & n e	n
March,	3	2	2	s w	n e	n
April,	—	1	1	s w	s w	s w
May,	4	1	—	w	n e	w
June,	3	1	1	w	n	w
	32	16	37			

Mean Temperature on Grass, 64° highest, 50° lowest.

Mean Annual Temperature, 62° Fahr.

The climate of Natal is represented as delightful; being alike exempt from the extremes of heat and cold, it realizes as nearly as any land, the idea of "eternal spring." From May till September, but little rain usually falls, and during this period the atmosphere is cold, clean, and bracing, and the sunshine almost uninterrupted. During this period, the thermometer at D'Urban, the port town, situated in South latitude 30° East longitude 31°, ranges from forty to eighty degrees Fahrenheit.

The mean temperature at *Cape Town*, S. lat. 33°55', E. long. 18°32', is in summer 58°, in winter, 76° Fahrenheit. The greater number of diseases are unknown at the Cape, and in South Africa; the most common are consumption and apoplexy.

Mean Fall of Rain and Snow

At various Places in the United States.

PLACES.	Spring.	Summer.	Autumn.	Winter.	Year.
	Inches.	Inches.	Inches.	Inches.	Total In.
Houlton, Me.	7.62	11.92	9.95	7.40	36.97
Portsmouth, New H.,...	9.03	9.21	8.25	8.38	35.57
Burlington, Vt.	7.41	10.83	9.82	6.02	34.11
Montreal, Can.	11.54	11.18	16.60	7.26	47.28
Boston, Mass.	10.85	11.17	12.57	9.89	44.48
New York,	11.69	11.64	9.93	10.39	43.65
Utica, N. Y.	9.26	12.83	9.76	8.72	40.57
Rochester, N. Y.	6.82	8.86	9.38	5.38	30.41
Plattsburgh, N. Y.	8.36	10.03	10.05	4.95	33.39
Pittsburg, Pa.	9.38	9.87	8.23	7.48	34.96
Cincinnati,	12.14	13.70	9.90	11.15	46.89
Detroit, Mich.	8.51	9.29	7.41	4.66	30.07
Saut. St. Marie,	5.44	9.97	10.76	5.18	31.35
Milwaukee,	6.60	9.70	6.80	4.20	27.20
Green Bay, Wis.,	9.00	14.45	7.84	3.36	34.65
Portage City,	5.58	11.46	7.63	2.82	27.49
Athens, Ill.	12.20	13.30	9.20	7.10	41.80
Beloit, Ill.	13.16	18.12	10.44	6.43	48.15
Muscatine, Iowa,	11.19	15.08	10.34	6.72	44.33
St. Paul, Min.	6.61	10.92	5.98	2.00	25.51

The above Table shows the following singular fact: that while there is but two inches of rain or snow condensed into water, falling during the winter months in St. Paul, Minnesota, there is upwards of ten inches falling in the city of New York and its vicinity.

Table of Places

Which coincide with ST. PAUL, Min. in Mean Temperature.

Spring.	Summer.	Autumn.	Winter.
Mean, 45° Fahr.	Mean, 70° Fahr.	Mean, 45° Fahr.	Mean, 16° Fahr.
St. Paul.	St. Paul.	St. Paul.	St. Paul.
Boston, Mass.	New York.	Portland, Me.	Houlton, Me.
Albany, N. Y.	Trenton, N. J.	Montreal, Can.	Montreal.
Detroit, Mich.	Pittsburg, Pa.	Plattsburgh, N. Y.	Mackinac.
Chicago, Ill.	Chicago, Ill.	Toronto, C. West.	Saut. St. Marie.
Portage City, Wis.	Pembina, Min.	Green Bay, Wis.	Superior, Wis.

YEARLY MEAN TEMPERATURE OF ABOUT 45° FAHR.

St. PAUL, 44° 50' N. Lat.	Green Bay, Wis., 44° 30' N. Lat.
Buffalo, N. Y., 42° 53' N. Lat.	Toronto, C. W., 43° 40' N. Lat.
Sackett's Harbor, N. Y., 43° 57' N. Lat.	Oswego, N. Y., 43° 20' N. Lat.
Portsmouth, N. H., 43° 04' N. Lat.	Burlington, Vt., 44° N. Lat.
	Portland, Me., 43° 39' N. Lat.

ST. PAUL, has thus a temperature in spring, equal to Chicago, two and a half degrees south; in summer, equal to the city of New York, four degrees south, and during the whole year, equal to portions of Central New York two degrees south of the former place—bringing forth early vegetation in advance of Northern Illinois, and in New York above the Highlands, 41° 30' North latitude. This remarkable fact can only be accounted for on the presumption that Minnesota receives its favorable climatic influence as regards health and growth of vegetation from secret laws of nature yet to be discovered.

Meteorology of Cincinnati, Ohio.

MONTHS.	THERMOMETER.			Rain in inches.
	Maximum.	Minimum.	Mean Temp.	
1857:				
November,.....	71°	12°	39° Fahr.	5.36
December,.....	69	25	42 "	3.82
1858:				
January,.....	61	28	42 "	2.56
February,.....	63	1	30 "	1.74
March,.....	78	6	44 "	1.05
April,.....	87	35	57 "	4.34
May,.....	87	44	64 "	8.32
June,.....	94	56	76 "	5.69
July,.....	93	70	84 "	3.01
August,.....	90	60	78 "	7.97
September,.....	89	52	70 "	.85
October,.....	86	41	59 "	4.66

The maximum, 94°; minimum, 1°; monthly range, 93° Fahr.
 Mean for the year (1857-8), 57° Fahr. Rain, 49.37 inches.
 Average for a series of years, 54° " " 42. "

NOTE.—The average depth of rain and melted snow for the State of Ohio, is not more than 40 inches.

Cincinnati and its vicinity, on both sides of the Ohio river, has about the same mean temperature as San Francisco, California. The grape here flourishes to perfection, where are annually produced large quantities of wine of superior quality.

The average fall of rain and snow in the State of New York, during ten years preceding 1846, according to the Report of the Regents of the University, was 34.14 inches. The greatest fall in any one year, during that period, was 37.04 inches, and the least 32.10 inches. This may be said to be about the average amount of moisture, or rain and snow falling in the New England, Northern, and Middle States of the Union, east of the Alleghany range of Mountains.

Climate of San Francisco, California.

The following memoranda are compiled from the observations of Dr. H. S. GIBBONS, of San Francisco:

The mean of the extremes of Temperature for the year 1855, was 57° 57', which appears to be nearly the mean temperature of the climate, as the following figures for five years will show:

Mean temperature of 1851,	56° 573
Do. 1852,	56° 537
Do. 1853,	58° 125
Do. 1854,	57° 209
Do. 1855,	57° 570
Do. for the five years,	57° 203

The extreme heat of the year 1855 was 90°, the only time that, in the course of five years, it has risen to that height, except on two days of September, 1852. In some years the extreme heat is not above 84°, and it

is only on a few days that it is so great. In 1855, for example, the mercury rose to 80°, or above, only on six days; in 1851, only on nine days; in 1852, on fourteen days; in 1853, on eleven days; in 1854, on twelve days.

The greatest degree of cold in 1855 was 29°, and the mercury was at or below the freezing point on six days. It was below 40° on ten days. In some winters there is no freezing weather, and the tenderest plants bloom in the garden all the year. The lowest temperature in a period of five years was 25°, in January, 1854. In 1853, the mercury did not fall below 40°.

The warmest morning in the year 1855 was 64°, and the warmest in five years 66°; but only one or two mornings in the year approach that figure.

The range of the thermometer in 1855 was 61°; in 1851, 54°; in 1852, 63°; in 1853, 48°; in 1854, 62°.

Rain, during the five years, fell as follows:

In 1851, on 53 days, 15.12 inches.
In 1852, on 60 days, 25.60 "
In 1853, on 44 days, 19.03 "
In 1854, on 54 days, 22.12 "
In 1855, on 66 days, 27.80 "

Comparing one rainy season with another, however, a greater difference appears, since the winter of 1850-'51 furnished but 7.31 inches; that of 1851-'52, 18 inches; that of 1852-'53, 33.46 inches; that of 1853-'54, 22.93 inches; that of 1854-'55, 24.10 inches. The "rainy season" may be reckoned from about the middle of November to the beginning of April.

Meteorological Observations at Rivas, Nicaragua, 1850-'51.

Date of Observation.	Av. Ther.	Highest.	Lowest.	Range.
1850:				
September,.....	78° 12'	88°	71°	17°
October,.....	77° 0'	86	70	16
November,.....	78° 42'	86	74	12
December,.....	77° 11'	84	72	12
1851:				
January,.....	76° 40'	87	69	18
February,.....	76° 0'	84	70	14
March,.....	77° 0'	84	72	12
April,.....	78° 83'	88	72	16
May,.....	78° 29'	91	68	23
June,.....	77° 12'	88	71	17
July,.....	76° 98'	86	71	15
August,.....	76° 20'	86	71	15
Total Mean,.....	77° 42'	86° 45'	71° 15'	15° 30'

Here it will be observed that the maximum range was in the month of May, and was 23° Fahrenheit. The mean range for the year, however, was only 15° 30'. The heat, it will be perceived, at no time of the year is as great as it is during July and August, in the city of New York.

The Rain which fell during the same period, is as follows:

	Inches.		Inches.
September, 1850,.....	15.240	April, 1851,.....	0.430
October, ".....	17.860	May, ".....	9.145
November, ".....	1.395	June, ".....	14.210
December, ".....	3.210	July, ".....	22.640
January, 1851,.....	0.380	August, ".....	11.810
February, ".....	0.000		
March, ".....	1.410	Total Inches,.....	97.730

Cities and Military Stations in the United States,

Having a Mean Annual Temperature between 40° and 48° Fahr.

STATIONS, &c.	Altitude.	Latitude.	Longitude.	Mean Tem.
	Feet.			
Portland, Me., <i>Fort Preble</i> ,.....	20	43° 39'	70° 20'	45° Fahr.
Portsmouth, N. H., <i>Fort Constitution</i> ,.....	40	43° 04'	70° 49'	46 "
Burlington, Vt.,.....	200			45 "
Whitehall, N. Y.,.....	150			46 "
Plattsburgh Barracks, N. Y.,.....	150	44° 41'	73° 25'	44 "
Ogdensburg, N. Y.,.....	225	44° 41'	75° 32'	44 "
Oswego, N. Y., <i>Fort Ontario</i> ,.....	250	43° 20'	76° 40'	46 "
Buffalo Barracks, N. Y.,.....	600	42° 53'	78° 58'	46 "
Erie, Penn.,.....	600	42° 08'	80° 10'	47 "
Detroit, Mich.,.....	600	42° 20'	82° 58'	47 "
Fort Mackinac, Mich.,.....	728	45° 51'	84° 33'	40 "
Sault Ste. Marie, <i>Fort Brady</i> ,.....	600	46° 30'	84° 43'	40 "
Copper Harbor, <i>Fort Wilkins</i> ,.....	620	47° 30'	88°	41 "
Milwaukee, Wis.,.....	600	43° 04'	87° 57'	46 "
Green Bay, Wis., <i>Fort Howard</i> ,.....	620	44° 30'	88° 05'	44 "
Superior City, Wis.,.....	600	46° 38'	92° 03'	41 "
Fort Snelling, near St. Paul, Min.,.....	820	44° 53'	93° 10'	45 "
Fort Gaines, Min.,.....	1,130	46° 19'	94° 19'	40 "
Fort Union, Nebraska,.....	2,022	48°	104°	
Fort Benton, Nebraska,.....	2,663	47° 50'	110° 36'	48 "
Fort Colville, Wash. Ter.,.....				

The section of country in the United States, having a mean annual temperature between 40° and 48° Fahrenheit, lying mostly between the 42° 30' and 47° north latitude, embraces the States of Maine, New Hampshire, and Vermont, the northern part of New York, Michigan, and Wisconsin, the whole of Minnesota and Dakota, and the northern portion of Nebraska and Washington territories. Canada, New Brunswick, and Nova Scotia are also included in this division. On the Pacific side of the Continent, the above lines extend from the 49th to 57th degrees of north latitude.

The products of the forest, and minerals of different kinds, form the greatest articles of export. Hay, wheat, rye, oats, and potatoes, together with other vegetables, are raised in abundance; also, horses, cattle, and sheep, the climate being generally healthy and invigorating. Here abounds the white pine, white oak, and sugar maple, together with other valuable trees unknown in more southern climes; also, many kinds of delicious berries, among which are the cranberry, whortleberry, and red raspberry, the latter following in the tracks of the pioneer, who clears the land from forests, and opens the country to cultivation.

Within the Isothermal lines of 40° and 50° Fahrenheit, are to be found nearly all the maritime states of modern times; also, the most productive fisheries. Here ship-building, steam works, machine shops, and factories of different kinds give profitable employment to thousands of free and educated laborers.

Stations &c., in the United States,

Having a Mean Annual Temperature between 48° and 52° Fahr.

STATIONS, &c.	Altitude.	Latitude.	Longitude.	Mean Tem.
	Feet.			
Boston, Mass., <i>Fort Independence</i> ,.....	50	42° 20'	71°	49° Fahr.
Providence, R. I.,.....				
Newport, R. I., <i>Fort Wolcott</i> ,.....	20	41° 30'	71° 20'	50 "
New London, Conn., <i>Fort Trumbull</i> ,.....	23	41° 21'	72° 06'	49½ "
New Haven, Conn.,.....				
New York, <i>Fort Columbus</i> ,.....	23	40° 42'	74° 01'	51 "
West Point, N. Y.,.....	167	41° 23'	74°	50 "
Watervliet Arsenal, near Albany, Trenton, N. J.,.....	50	42° 43'	73° 43'	48 "
Philadelphia, <i>Girard College</i> ,.....	30	39° 57'	75° 13'	52 "
Pittsburg, Penn.,.....	704	40° 32'	80° 02'	50 "
Chicago, Illinois,.....	590	41° 52'	87° 35'	48 "
Iowa City, Iowa,.....				
Fort Des Moines, Iowa,.....	780	41° 32'	93° 38'	49 "
Fort Leavenworth, Kansas,.....	896	39° 21'	94° 44'	52 "
Council Bluffs, Nebraska,.....	1,250	41° 30'	95° 48'	49 "
Fort Laramie, Nebraska,.....	4,519	42° 12'	104° 47'	50 "
Santa Fe, New Mexico,.....	6,846	35° 41'	106° 02'	50 "
Fort Humboldt, Cal.,.....	50	40° 46'	124° 09'	52 "
Fort Vancouver, Oregon,.....	50	45° 40'	122° 30'	52 "
Astoria, Oregon,.....	50	46° 11'	123° 48'	52 "
Fort Steilacoom, W. Ter.,.....	300	47° 10'	122° 25'	50 "

The section of country having a mean annual temperature between 48° and 52° Fahrenheit, the most favored climate, lying mostly between 40° and 42° 30' north latitude, embraces Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Pennsylvania, Ohio, Indiana, Illinois, and Iowa; the southern parts of Michigan, Wisconsin, and Nebraska, and the north part of Kansas; also, Oregon and Washington Territory, and the northern part of California; all belonging to the free States and Territories.

In this favored zone are found the most nutritious grasses, cereals, and vegetables of different kinds; corn, wheat, hay, and potatoes being produced in great abundance; fruit of various species also here arrive to their greatest perfection. Butter and cheese are produced in large quantities in this section, where domestic animals are found to thrive and multiply, producing the best meats for the use of man; large quantities being exported to less favored climes. Here is to be found the largest cities and most dense population, where agriculture and the arts are alike encouraged and prosecuted with success. Many of the most valuable and useful minerals also abound in this section of coun-

try, where are to be found extensive works of internal improvement, it being alive with industry, and more densely settled than any other portion of the Union, as will be seen by well-authenticated tables of population.

Stations, &c., in the United States,

Having a Mean Annual Temperature between 52° and 60° Fahr.

STATIONS, &c.	Altitude.	Latitude.	Longitude.	Mean Tem.
	Feet.			
Wilmington, Del.,	20			53° Fahr.
Fort McHenry, near Baltimore, Md.,	36	39° 17'	76° 35'	54 " "
Washington City, National Observatory,	60	38° 53'	77° 2'	56 "
Richmond, Va., <i>Bellona Arsenal</i> ,	120	37° 20'	77° 25'	59 "
Fort Monroe, near Norfolk, Va.,	10	37°	76° 18'	59 "
Cincinnati, Ohio,	550	39° 07'	84° 30'	53 "
Louisville, Ky.,	500	38° 03'		54 "
Memphis, Tenn.,	400	35° 08'	88°	60 "
St. Louis Arsenal, Mo.,	450	38° 40'	90° 05'	54½ "
Fort Smith, Mo.,	460	35° 23'	94° 29'	60 "
Albuquerque, New Mexico,	5,032	35° 06'	106° 38'	56 "
Great Salt Lake City, Utah,	4,351	40° 46'	112° 06'	53 "
Monterey, Cal.,	140	36° 36'	121° 52'	56 "
Sacramento, Cal.,	150	38° 33'	121° 20'	59 "
Benicia Barracks, Cal.,	100	38° 03'	122° 08'	58 "
San Francisco, Cal.,	150	37° 48'	122° 26'	55 "

The section of country having a mean annual temperature between 52° and 60° Fahrenheit, lying mostly between 37° and 40° north latitude, embraces the States of Delaware, Maryland, Virginia, Kentucky, Tennessee, and Missouri, most of Kansas, New Mexico, and Utah, and the central part of California. The eastern part of this region, extending from the Atlantic Ocean to the Alleghany range of mountains, is well watered by numerous streams flowing mostly into Chesapeake Bay. Centrally lies the wide Mississippi Valley, traversed by navigable streams of great size, flowing southward into the Gulf of Mexico. The Rocky Mountains and Sierra Nevada range form the water-shed of the great American Basin, lying within the confines of Utah. Still further westward lies the gold region of California; also, the valleys of the Sacramento and San Joaquin, where is found a good soil and healthy climate.

This portion of the United States, produces wheat, corn, and tobacco, in abundance; also, rich and valuable minerals, coal, iron, &c. Slavery still exists in the eastern portion of this section, extending from the Atlantic Ocean to the western confines of Missouri; but, no doubt, it must soon give way to the force of public opinion, and the true interests of the white population. All of this favored region, extending from the Atlantic to the Pacific Ocean, is well adapted to the white race, where the mechanic arts and free labor of every kind should be encouraged and fostered.

Stations, &c., in the United States,

Having a Mean Annual Temperature between 60° and 70° Fahr.

STATIONS, &c.	Altitude.	Latitude.	Longitude.	Mean Tem.
	Feet.			
Fort Macon, N. C.,	20	34° 41'	76° 40'	62° Fahr.
Fort Johnston, N. C.,	20	34°	78° 05'	65 "
Fort Moultrie, near Charleston, S. C.,	25	32° 45'	79° 51'	66½ "
Augusta Arsenal, Geo.,	500	33° 28'	81° 53'	64 "
Oglethorpe Barracks, Geo.,	40	32° 05'	81° 07'	67 "
St. Augustine, Fla., <i>Fort Marion</i> ,	25	29° 48'	81° 35'	69 "
Fort King, Fla.,	50	29° 10'	82° 10'	70 "
Cedar Keys, Fla.,	35	29° 07'	83° 03'	69½ "
Pensacola, Fla., <i>Fort Barrancas</i> ,	20	30° 18'	87° 27'	69 "
Fort Morgan, Ala.,	20	30° 14'	88°	67 "
New Orleans, La.,	10	29° 57'	90°	70 "
Baton Rouge, La.,	40	30° 26'	91° 18'	68 "
Fort Towson, Ind. Ter.,	300	34°	95° 33'	61 "
Galveston, Texas,	10	29° 18'	94° 46'	69 "
San Antonio, Texas,	600	29° 25'	98° 25'	69 "
Austin, Texas,	200	30° 20'	97° 46'	66 "
Corpus Christi, Texas,	20	27° 47'	97° 27'	70 "
Fort Duncan, Eagle Pass,	800	28° 42'	100° 30'	70 "
Fort Fillmore, New Mexico,	3,937	32° 13'	106° 42'	62 "
San Diego, Cal.,	650	32° 42'	117° 14'	62 "

The section of country having a mean annual temperature between 60° and 70° Fahrenheit, embraces the States of North Carolina, South Carolina, Georgia, Florida, Alabama, Louisiana, Mississippi, Arkansas, Texas, Arizona, and the southern parts of New Mexico and California. Cotton, rice, and sugar, are the staple articles of this part of the Union, the former article being produced in great abundance and of a superior quality. This southern portion of the United States is alike favored by a fruitful soil and rich mineral productions. It skirts the Gulf of Mexico from Florida to the southern confines of Texas, and thence extends westward to the Pacific Ocean; affording, as the Rocky Mountains are approached a variable climate, the country being in many places sensibly affected by altitude.

Fevers of a malignant type, unknown in more northern climates, here annually appear in unfavorable localities, while the heat for most part of the year unfits the white man for labor or close application of any kind, whereby the body or mind are exercised. Here African slavery exists, almost as a matter of necessity, the seasons being too warm for the unaccustomed white race, during the greater part of the year. The sugar cane, yellow or pitch pine, and live oak flourish in many parts of this section of country, the latter more particularly along the seaboard.

ZONES OF VEGETATION.

These are more in number and more fixed than those which mark the types of the human race, or the Animal Kingdom, and are as follows :

1. *The Equatorial Zone of Palms and Bananas*, extends on both sides of the Equator of temperature to about 15 degrees of latitude. Its temperature ranges from the maximum heat to 76° Fahrenheit. This may also be distinguished as the region of the spices and aromatic plants; it includes Sumatra, Java, and the Molucca group of islands, and the northern part of South America. The region of medicinal barks is that of the elevated regions of South America, from twelve hundred to five thousand feet above the level of the sea.

2. *The Tropical Zone of Figs and Tree-Ferns*, from latitude 15° to the tropics, having a mean annual temperature of 76°. In the Old Continent, the date-palm flourishes; in Western Africa is the peculiar genus *adansonia*, the baobab, or monkey bread, the largest known tree in the world. In both the Indian peninsulas and Siam, monster fig trees, aromatic lilies, and woods of aromatic barks, as the cinnamon and cassia, abound. In the island of Cuba, Southern Mexico, and Central America, the sugar cane, coffee plant, pineapple, dye-woods of different kinds, mahogany tree, and orange tree are found in abundance.

3. *The Sub-Tropical Zone of Myrtles and Laurels*, from the tropics to latitude 34°, having a mean annual temperature of 70°. This region is distinguished in the New World, by various species of conifers, live oak, and walnuts; the magnolias, chiefly large trees, with large leaves and highly odorous flowers, in the southern part of the United States. On the Old Continent, the slender date-palm soars aloft, and the tender-leaved acacias flourish.

4. *The Warm Temperate Zone of Evergreen Trees*, from latitude 34° to 45°, on the Old Continent, mean annual temperature 60°. In this region of evergreen woods, the dwarf-palm is here and there met with, the hyacinth, and narcissus; northward, the myrtle, interlaced on the Alpine barrier, with the vine and the flame-colored bignonias. In the New World this region is marked by a great variety of pines, firs, oaks, and the vine.

5. *The Temperate Zone of America*, in north latitude 40° to 42°, temperature 50° to 52° Fahrenheit, produces the chestnut tree, the walnut tree, the white oak, the beech tree, the cherry tree, the peach tree, the apple tree, the pear tree, the plum tree, and other fruit-bearing species, together with nutritious grasses.

6. *The Cold Temperate Zone of European Trees*,

between 44° and 56° north latitude, mean annual temperature 48° to 46°. This region, which comprises the northern part of the United States, Upper Canada, and the lake district in the New World, and is bounded in the Old Continent by the Pyrenees, Alps and Caucasus, consists of vast forests of different species of pine, maple, and oak; in Central Europe there are extensive woods of chestnut, beech, and elm. Here we find, in the hop and the clematis, representations of the tropical climbers, and the balsam trees further denote the transition from the warmer climes.

7. *The Sub-Arctic Zone of Conifers*, from 56° to the Polar Circle, on the European Continent, mean annual temperature of 40°. This region consists of widely extended masses of forests, including pines, firs, hemlock, spruce, birch, aspen, and beech; by brooks and on damp ground the willow and alder are found. In the New World, in this latitude is found a stunted and dwarfed vegetation.

8. *The Arctic Zone of Mosses and Lichens*, from the Polar Circle to latitude 72°, on the European Continent, mean annual temperature 30°. This cold region is characterized by the abundance of hardy plants, the mosses, lichens, crow-foots and gentians; also, the chick-weed tribe, sedges and fir.

9. *The more Polar Zone of Alpine Plants and Red Snow*, beyond latitude 72°, is the region of everlasting snow and ice, in which all vegetable life terminates. Here the thermometer shows a mean annual temperature of zero, and even below.

The *Feathered Tribe*, are also to a great extent fixed in their climate, as well as vegetation, if we except those of a migratory class that flock to the north in spring and return south in autumn.

"The Torrid Zone possesses a great variety of the most beautiful birds, including the humming bird of America, the cockatoos, the bird of paradise, and several others of the parrot genus. Of birds which cannot fly, the ostrich inhabits the hot and sandy parts of Africa, Arabia, and South America; the Cassowary, Java, Sumatra, and New Holland. The albatross is seen skimming the surface of the ocean as we approach the 40th parallel; the sea swallow and other tropical birds keep within the Torrid Zone. The condor, which frequently soars to an elevation of four miles, never forsakes the chain of the Cordilleras, of Peru, and Mexico; and the great eagle does not quit the ridges of the Alps and other high mountain peaks. The Temperate Zone, during the winter months, are mostly forsaken by the feathered tribe, if we except the snow bird, the partridge, and some few others of a like class. The Frozen Zones have their own kinds of birds, among which are the owls (in Lapland,) ducks, and other aquatic birds. The jer-falcons of Norway and Iceland, perfect models

of symmetry and strength, and the most characteristic and vigorous of all the birds of prey, are quite unknown, not only within the tropics, but even in the temperate latitudes, excepting upon the summits of very lofty mountains, where the climate is cold; and even there they want the dash and vigor of the hawks of the north."

Taking in view the six grand Divisions of the World, viz., Europe, Asia, Africa, North America, South America, and Oceanica, we find them thus respectively divided in regard to Area and Population:

Eastern Continent, or Old World.

	Area in sq. Miles.	Population.
Europe,	3,750,000	270,000,000
Asia,	17,500,000	618,000,000
Africa,	11,750,000	80,000,000

Western Continent, or New World.

North America,	8,000,000	42,000,000
South America,	6,500,000	18,000,000

Oceanica, or the Maritime World.

Australia,	3,000,000	1,500,000
New Zealand, Polynesia, &c.,	1,000,000	1,500,000
Grand Total (Estimated),	51,500,000	1,031,000,000

About two-thirds of Europe may be said to possess a favorable climate, averaging a mean annual temperature of from 40 to 60 degrees Fahrenheit; in this respect being the most favored portion of the globe. "Presenting an extent of surface amounting to a little more than a fifth part that of Asia or America, and inferior in native fertility of soil to a great portion of these regions, this Continent and its Islands shows that surface more crowded with men, improved by cultivation, enriched by productive industry, and extensive commerce, embellished with mighty cities and splendid works of art, illumined with the reflections of genius, and invested with preponderance in the scale of political importance. In other regions we contemplate, amid the great physical features of the scene,

A world of wonders, where creation seems
No more the works of nature, but her dreams.

In Europe we behold a yet more elevating spectacle,—spirit asserting its supremacy over body,—and man, the lord of nature, pursuing most gloriously the high destiny originally assigned him 'to replenish the earth, and to subdue it.' In other regions, it is matter we wonder at; in Europe, it is mind we admire. Here, to a great extent, Humanity has her chosen seat, and from hence have emanated her noblest gifts."

One half of Asia is favored by a temperate climate, being alive with inhabitants of almost every language and type; not so with Africa in regard to climate, if we except its southern extremity in the vicinity of the Cape of Good Hope and Natal. This in a great measure accounts for the ignorance and degradation existing at the present day in the latter great division of the earth, it being almost entirely given up to heats too excessive for mental and moral culture.

About one half of North America also possesses a favorable climate, embracing most of the United States, Canada, New Brunswick, Nova Scotia, and the more elevated portions of Mexico, &c. One-third of South America, including Chili and the table lands of Peru, the southern portion of Brazil, Uruguay, and the Argentine Republic; also, a portion of the countries lying under or near the Equator, elevated from 5,000 to 9,000 feet above the ocean.

Oceanica possesses a favorable climate on its southern limits, including a part of Australia, the whole of Van Diemen's Land, and New Zealand; the latter large island being, like Japan, a most favored portion of the globe. The smaller islands lying near the Equator, including the Feejee Islands, the Society Islands, and numerous other groups are hot, being mostly inhabited by a degraded race.

From the above unerring test in regard to the controlling influence of Climate, it may be seen that moral and intellectual culture in connection with industry and the arts and sciences, thrive only where exists a healthy and favorable temperature. An eminent divine, in his lecture on the above subject, remarks:

"History bears out this theory when it sums up what the nations of the extreme North and South have done for civilization. Were they stricken from the earth it would feel it no more than the steamship does the wave which sends a shower of spray over its bows, without checking the revolution of the wheels. Here in the temperate zone we find Courts of Justice, institutions of learning, and all the great helps of human progress. The wisdom of that plan which has put the great multitude of intellectual beings in this clime is fully apparent. In the light of this theory the road of progress open to our country is evident. Oceans on each side invite us out to the lands beyond. Neither heat nor cold paralyzes and stupefies our mental energies. Here we are planted, and who shall scan the horoscope of our destinies? Slavery, which is defended no longer as a necessity of climate, but as a national and philanthropic institution, will yet be acknowledged to be an exotic in the American climate. God has shown his care for us, and that he intends to build up no race of *dilettanti*, but a nation of active, earnest men, who will carry civilization around the globe."

In conclusion, it may be said, that one-third of the earth's surface is given up to *heat*, too intense for the advancement of useful knowledge, while rank vegetation, and animals of an inferior order abound, except on the rainless sandy deserts of Asia and Africa, where life seems almost to be extinct, so far as any thing useful is concerned.

About one-third is also given up to *cold*, too intense for like advancement. *Man*, being compelled to toil incessantly in order to gain food and clothing sufficient to sustain life; the sub-soil for the most part being continually frozen throughout the year. Vegetation here disappears, or is stunted and almost useless for domestic purposes, while the animal life is mainly confined to the fur-bearing species and birds of a migratory character.

It is only within the remaining third of the earth's surface, or the *Temperate Climates*, that the human race thrives and advances in moral and intellectual culture,—here agriculture and the mechanic arts are

found to flourish, giving healthy and remunerative employment to millions of the more favored portion of the human family. The seasons are about equally divided, averaging three months for spring, summer, autumn, and winter. Snow falls annually during the winter months in this region, and the thermometer falls to zero occasionally, where the mean temperature of 50° Fahrenheit prevails.

Here there is no occasion for slavery, or the rule of despots who still flourish and hold sway over a great portion of Europe and Asia—thus keeping millions in ignorance, while the God of Nature has adapted a climate and soil capable of high mental and social advancement—thereby fitting him to govern himself; that, too, without the aid of kings, emperors, or popes, all of whom are the growth of a selfish and unnatural state of society, where debasement and ignorance abound with the multitude, and a false education governs the ruling or aristocratic part of the community,—that too to the injury of the common country and the world at large.

IMPORTANT CITIES AND LOCALITIES

IN THE TEMPERATE CLIMATE.

Having a Mean Annual Temperature between 40° and 48° Fahr.					Having a Mean Annual Temperature between 48° and 52° Fahr.					Having a Mean Annual Temperature between 52° and 60° Fahr.				
Cities, &c.	Population.	Latitude.	Longitude.	Mean Temp.	Cities, &c.	Population.	Latitude.	Longitude.	Mean Temp.	Cities, &c.	Population.	Latitude.	Longitude.	Mean Temp.
1. Edinburgh,	160,302	55° 57' N.	3° 11' W.	46½° Fahr.	1. LONDON, Greenwich Ob-	2,357,765	51° 31' N.	0° 0' W.	50½° Fahr.	1. Bordeaux,	120,000	45° N.	0° 34' W.	57° Fahr.
2. Glasgow,	330,000	55° 51' "	4° 17' "	47 "	2. Liverpool,	376,065	53° 24' "	3° W.	50 "	2. MADRID, (Alt., 2,000 ft.)	260,000	40° 25' "	3° 42' "	58 "
3. Belfast,	100,000	54° 39' "	5° 55' "	48 "	3. Dublin,	254,850	53° 23' "	6° 20' "	50 "	3. LISBON,	280,000	38° 43' "	9° 08' "	59 "
4. Bergen, Norway,	25,000	60° "	8° 20' E.	41 "	4. PARIS,	1,153,262	49° "	2° 20' E.	51 "	4. Gibraltar,	20,000	36° "	5° 21' "	60 "
5. Bremen,	55,000	53° "	8° 49' "	48 "	5. BRUSSELS,	117,464	50° 51' "	4° 21' "	50½ "	5. MARSEILLES,	180,000	43° 17' "	5° 22' E.	58 "
6. CHRISTIANIA,	30,000	60° "	10° 45' "	42 "	6. THE HAGUE,	66,000	52° "	4° 19' "	50 "	6. TUNIS,	140,000	45° 05' "	7° 40' "	53 "
7. Leipzig,	66,519	51° 13' "	12° 22' "	46 "	7. AMSTERDAM,	211,349	52° 29' "	4° 53' "	49 "	7. MILAN,	162,000	45° 28' "	8° 11' "	55 "
8. COPENHAGEN,	129,232	55° 40' "	12° 34' "	46 "	8. FRANKFORT,	57,350	50° "	8° 41' "	50 "	8. FLORENCE,	110,000	43° 46' "	11° 16' "	58 "
9. Breslau,	112,000	51° 07' "	17° 03' "	42 "	9. HAMBURG,	175,000	53° 32' "	10° "	48 "	9. ROME,	172,000	41° 35' "	12° 07' "	59 "
10. STOCKHOLM,	84,160	59° "	18° "	42 "	10. BERLIN,	400,000	52° 30' "	13° 23' "	48 "	10. VENICE,	126,000	45° 25' "	12° 20' "	55 "
11. Warsaw,	167,000	52° 13' "	21° "	44 "	11. DRESDEN,	90,000	51° "	13° 43' "	49 "	11. NAPLES,	400,000	40° 52' "	14° 15' "	60 "
12. St. PETERSBURG,	500,000	60° "	30° 19' "	39 "	12. PRAGUE,	68,695	50° "	14° "	50 "	12. ATHENS,	160,000	37° 55' "	23° 44' "	60 "
13. Moscow,	360,000	55° "	38° "	40 "	13. VIENNA,	483,095	48° 13' "	16° 23' "	51 "	13. CONSTANTINOPLE,	600,000	41° "	29° "	60 "
14. Irkutsk, near L. Baikal,	100,000	52° 17' "	104° 16' "	38 "	14. Odessa,	79,877	46° 28' "	30° 43' "	50 "	14. Astrabad,	60,000	36° 51' "	54° "	59 "
15. Khatchia, Russia,	50,000	48° "	106° "	40 "	15. Astrachan (Caspian Sea),	45,700	46° 27' "	48° "	51 "	15. TOSKANA, Persia,	65,000	35° 42' "	52° 20' "	61 "
16. Maimatchin, China,	50,000	48° "	106° "	40 "	16. PEKIN,	1,500,000	40° "	116° 29' "	52 "	16. NANKIN, China,	600,000	32° "	119° "	60 "
17. Petropavlovsk,	10,000	52° 30' "	145° "	40 "	17. Hakodadi, Japan,	50,000	42° "	140° "	51 "	17. Shanghai, China,	150,000	31° 05' "	120° 50' "	60 "
18. Sitka, Russian Amer.,	3,000	57° "	135° "	40 "	18. Victoria, (Vancouver's Is.)	5,000	48° 30' "	123° "	50 "	18. YEDDO, Japan,	1,500,000	35° "	139° "	56 "
19. Pembina, Min.,	4,000	49° "	100° "	40 "	19. Olympia, W. Ter.,	5,000	47° "	122° 30' "	51 "	19. Nagasaki, Japan,	100,000	33° "	130° "	60 "
20. St. Paul, Min.,	15,000	44° 53' "	93° 04' "	45 "	20. Santa Fe, New Mexico,	10,000	35° 41' "	106° "	50½ "	20. San Francisco, Cal.,	60,000	37° 47' "	122° 26' "	57 "
21. Superior City, (Lake Superior) Alt. 600 ft.	1,000	46° 38' "	92° 03' "	41 "	21. Fort Laramie, Neb., Alt., 4,519 feet,	5,000	42° 12' "	104° 47' "	50 "	21. Sacramento, Cal.,	40,000	38° 33' "	121° 20' "	59 "
22. Saint Ste. Marie,	1,000	46° 30' "	84° 43' "	40 "	22. Omaha City, Neb. (Missouri Riv.) Alt., 1,250 ft.	100,000	41° 53' "	87° 35' "	48 "	22. Salt Lake City, Utah,	10,000	40° 46' "	112° "	53 "
23. Mackinac, (Lake Mich.)	1,000	45° 54' "	84° 30' "	40 "	23. Chicago, Ill.,	50,000	41° 30' "	81° 47' "	50 "	23. St. Louis, Mo., (Mississ. River, Alt. 450 feet.)	100,000	38° 27' "	90° 15' "	54 "
24. Detroit, Mich.,	65,000	42° 53' "	78° 55' "	47 "	24. Cleveland, Ohio,	80,000	40° 32' "	80° "	50½ "	24. Memphis, Tenn.,	15,000	35° 08' "	88° "	60 "
25. Buffalo, N.Y., (Lake Erie, Altitude, 565 feet.)	74,214	43° 40' "	79° 22' "	45 "	25. Philadelphia,	409,358	39° 57' "	75° 13' "	52 "	25. Louisville, Ken.,	55,000	38° 03' "	85° 30' "	54 "
26. Toronto, C. W., (Lake Ontario, Alt., 235 feet.)	50,000	43° 40' "	79° 22' "	45 "	26. New York,	629,064	40° 42' "	74° "	51 "	26. Cincinnati, (Ohio River, Altitude, 500 feet.)	160,000	39° 05' "	84° 27' "	54 "
27. Montreal, C. E.,	70,000	45° 30' "	73° 35' "	45 "	27. Brooklyn,	205,250	40° 41' "	74° "	51 "	27. WASHINGTON, D. C.,	50,000	38° 53' "	77° "	56 "
28. Quebec, C. E.,	50,000	47° "	71° "	41 "	28. Albany, N. Y.,	57,000	42° 37' "	73° 43' "	48 "	28. Baltimore, Md.,	170,000	39° 17' "	76° 36' "	56 "
29. Portland, Me.,	30,000	43° 29' "	70° 20' "	45 "	29. Providence, R. I.,	50,000	41° 49' "	71° 24' "	50 "	29. Richmond, Va.,	50,000	37° 27' "	77° 27' "	56 "
30. Halifax, N. S.,	30,000	44° 39' "	63° 37' "	43 "	30. Boston, Mass.,	150,000	42° 21' "	71° "	49 "	30. Norfolk, Va.,	15,000	36° 50' "	76° 18' "	59 "
North Atlantic Ocean,		67° "	10° "	40 "	Atlantic Ocean,		55° "	10° "	50 "	Atlantic Ocean,		40° "	30° "	60 "
Total Inhabitants,	2,819,418				Total Inhabitants,	9,233,984				Total Inhabitants,	5,850,000			

IMPORTANT CITIES IN ASIA AND AMERICA.

TROPICAL CLIMATE.

Cities.	Population.	Latitude.	Longitude.	Mean Temp.	Cities.	Population.	Latitude.	Longitude.	Mean Temp.	ISLANDS OF THE SEA.	Latitude.	Longitude.	Mean Temp.
1. SMOYNA,	150,000	38° 29' N.	27° E.	65° Fahr.	10. KINGSTON, Jamaica,	40,000			78° Fahr.	17. Honolulu, Sandwich Is., Pacific Ocean,	21° 16' N.	157° 59' W.	75° Fahr.
2. CAIRO,	300,000	30° 09' "	31° 15' "	72 "	11. New Orleans,	140,000	30° N.	90° W.	67 "	18. Nassau, Bahamas, Atlantic Ocean,	25° 16' "	77° 48' "	78 "
3. BOMBAY,	250,000	19° "	73° "	80 "	12. Mobile, Ala.,	24,000	30° 41' "	88° "	66 "	19. Bermuda,	32° 20' "	64° 50' "	67 "
4. CALCUTTA,	400,000	22° 23' "	88° 17' "	78 "	13. Galveston, Texas,	8,000	29° 17' "	94° 50' "	68 "	20. Azores,	38° "	27° "	45 to 86 "
5. CARLOS,	600,000	23° 06' "	113° 15' "	69 "	14. Vera Cruz,	12,000	19° 11' "	96° "	77 "	21. Funchal, Madeira, Atlantic Ocean,	33° 28' "	16° 54' "	65 "
6. Rio JANEIRO,	220,000	22° 54' S.	43° W.	73 "	15. Acapulco,	6,000	16° 50' "	99° 49' "	75 "	22. Canary Islands, Atlantic Ocean,	28° 13' "	15° 24' "	72 "
7. LIMA, Peru,	55,000	12° "	77° "	73 "	16. GUATEMALA, Cen. Amer.,	40,000	14° 36' "	19° 13' "		23. Cape Verde Islands, Atlantic Ocean,	16° "	23° "	74 "
8. PANAMA,	10,000	8° 56' N.	79° 31' "	80 "	Total Population,	2,455,000				24. Ascension Island, Atlantic Ocean,	7° 55' S.	14° 23' "	80 "
9. HAVANA, Cuba,	200,000	23° 09' "	82° 22' "	75 "						25. St. Helena,	16° "	5° 44' "	72 "

NOTES

Relating to Cities and Countries situated in Southern Latitudes.

TEHERAN, the capital city of Persia, is situated 70 miles south of the Caspian Sea, and 210 miles north of Ispahan, the former capital, Lat. $35^{\circ} 42'$ North; Long. $52^{\circ} 20'$ East. The stationary population is estimated at 20,000, but during the residence of the court in winter, it is 60,000 and upwards. The city is about five miles in circuit, and enclosed by an earthen wall flanked with towers, a glacis, and a dry trench. In summer it is so unhealthy that the Shah and the upper classes leave it to encamp or reside on the plains of Sultania, about 150 miles north-westward.

CAIRO, or as it is often called, *Grand Cairo*, the chief city of modern Egypt, is situated on the right or east bank of the Nile, 12 miles above the commencement of the Delta, in N. Lat. $30^{\circ} 2'$, E. Long. $31^{\circ} 15'$; 110 miles from Alexandria by the land route across the Delta, and about 174 miles by water. The main body of the city is distant about two miles from the river, and is situated at the entrance of that immense plain, composed of alluvial soil, which here suddenly spreads out from the Nile, and comprehends the whole of Lower Egypt. The population of Cairo is composed of a great many different races; the most numerous are the Arabs who constitute the body of the people. Some have estimated the whole number of souls at 600,000, asserting that in one season, 300,000 have been swept off by the plague. The present population is variously estimated to be from 200,000 to 300,000. The mean annual temperature is 72° Fahr. Though the diseases of Cairo are common to all Lower Egypt, they are, perhaps, aggravated by local circumstances. The most unhealthy season is the latter part of April and the whole of May, when the Khamsin winds blow. One out of every six among the inhabitants is either blind, or has some complaint in the eyes; but of all the diseases to which Cairo is subject, the plague is undoubtedly the most terrible. It generally rages in Egypt once in every four or five years, and continues only during the winter season, when it has been known to sweep off 1,500 souls a-day from the population of Cairo alone. It is remarkable, however, that the Europeans who reside on the very banks of the canal, are less subject to it than the natives. It would appear that the pestilential atmosphere possesses a considerable specific gravity, as it is not found to ascend so high as the tops of the houses; where the Europeans freely appear, and survey in serenity the havoc of death in the streets below.

The climates of Egypt and Arabia, lying on both sides of the Red Sea, are described by modern travellers as very changeable, whatever might have been their ancient reputation when filled with magnificent cities and massive works of art, indicating a good climate and a high state of civilization. "The fact is, Egypt has four distinct seasons; and as its aspect undergoes periodical and striking changes with the seasons, the description given of it by the traveller entirely depends on the season during which he visits it. The first season is that of the inundation of the Nile, which extends from July to the winter solstice. During this season the air is moist, and the mornings and evenings are foggy. The second season begins in the middle of December, and lasts till March. Though the nights are cold, this may be called the Egyptian Spring; the days are hot, and the vegetation is rapid and luxurious. The third season begins in March, and lasts till the end of May. It has been called the endemic-season, from the prevalence of endemic diseases during its continuance. The fourth season extends from June till the period of the swelling of the Nile, and is in the highest degree pleasant and refreshing. The beauty of the night in Egypt has been the theme of every traveller's eulogy; the sky is represented as cloudless and the brightness of the moon very intense. It is a curious meteorological fact, that the abundance of the dew deposited in the night is always in proportion to the clearness of the atmosphere. The difference between the great heat of summer, and the greatest cold is about 30 degrees Fahrenheit. The thermometer commonly ranges in summer from 90° to 92° ; in winter from 58° to 60° . The mean temperature of Lower

Egypt is between 70° and 72° . In Upper Egypt, where the lands, by their elevation are protected from the inundation of the Nile, the climate and soil are represented as being both healthful and highly invigorating. Wheat, barley, beans, and maize are here produced in large quantities and of a superior quality. The horse, the camel, and other domestic animals, also thrive in this region as well as in portions of Arabia and Nubia."

BOMBAY, the principal British settlement on the western coast of India; situated in $18^{\circ} 56'$ N. Lat., and $72^{\circ} 57'$ E. Long., commands an extensive commerce with the west coast of India, and with the countries situated in the Persian and Arabian Gulfs. Bombay is not a healthy place; it is damp and relaxing, and liver complaints it is said, are more frequent and fatal here than in any other part of India. The mean maximum at 4 P.M. throughout the year is $82^{\circ} 4'$ Fahr.; the mean minimum $81^{\circ} 5'$, showing a more equable temperature than that of Bengal. The rains last about four months, continuing, with little interruption, from about the end of May to the beginning of October. Heavy mists rise up at sunset from the lower grounds; and the stranger is often kept for whole nights awake by the croaking of the bull-frogs beneath his window. Reptiles of almost every denomination swarm in Bombay, and the insect tribe is very numerous. [*English Gazetteer.*]

CALCUTTA, situated in the midst of a flat marshy country, and exposed to tropical heats, can never enjoy a salubrious atmosphere. At its first establishment as an European Colony, the climate was almost equally destructive with that of Batavia; and though now greatly ameliorated, by clearing away the trees and jungle in the vicinity, draining some of the most offensive marshes, and filling up many of the tanks in the streets, it still proves a severe trial to European constitutions. Many fall a sacrifice to its first attacks, and more have received the seeds of a slow but certain destruction. "A sallow and livid complexion," says Dr. Tennant, "is so universal, that when you behold a face of the roseate hue, you can pronounce that its owner is newly arrived, nearly with as much certainty as if you heard that part of his history from his own mouth." Diseases, however are not so prevalent in Calcutta as formerly; this is owing more, perhaps, to greater temperance in the use of spirituous liquors, and the superior construction of the houses, than to any material improvement in the atmosphere, the inhabitants are also better acquainted with the means of counteracting the effects of a bad climate; and the nature and treatment of the peculiar disorders of the country have been more precisely ascertained. The rainy season at Calcutta, generally begins about the middle of June and terminates in the middle of October. The annual mean temp. is $78^{\circ} 13'$; the annual mean of the barometer is 29.764; the average fall of rain for three years was 59.83 inches. The most pleasant part of the year, is from October to March. By the middle of April, on the failure of the N. W. gales, the heat has become excessive, often exceeding 100° . By excluding the outward air, the temperature may be kept at from 80° to 85° , but "close and grave like"; and to go to an open window or door, "is literally like approaching the mouth of one of the blast furnaces in Colebrookdale."—[*Heber.*]

CHINA.—A country extending from north to south, twenty-three degrees of latitude, as China, must necessarily experience great variety of climate. Its temperature is generally lower than that of European countries under the same latitude; but it is in excesses of the summer and winter temperature that the climate is most remarkable. The southern provinces, from their proximity to the equator, experience heats stronger than those of Bengal, but moderated by periodical winds; while the northern provinces, owing partly to their distance from the equator, and partly to the lofty mountains of Tartary, are often extremely cold. The mean heat of Canton, in N. lat. $22^{\circ} 10'$ is about 70° Fahr.; but the temperature is frequently below the freezing point in January. No part of China is said to be particularly

unhealthy, a circumstance which may be owing, in some measure, to the high state of cultivation in which the country has long existed.

ITALY, extending between the 38th and 46th parallels of N. lat., is exposed to a considerable degree of heat in summer and cold in winter; but the influence of the seas which wash its peninsular shores, and the mountains which surround or intersect it, counteract the effect of latitude, and produce a temperature excluding every extreme, rendering all its seasons, in the main, delightful. However, as the action of these causes is unequal, the climate, though genial and temperate, varies considerably. The mean annual temperature at Milan is 53°; at Florence, 59°; at Rome, 60°; at Naples, 62° Fahr. "The regions in the vale of the Po, extending 260 miles in length, and upwards of 100 miles in breadth, and bounded by the Alps and Apennines on all sides but the east, where it lies open to the Adriatic, has been represented as, perhaps, the most fertile and most delicious territory in the known world. It is fertilized by mountain rills and Alpine streams, and cooled in summer by occasional gales; this region is, however, sometimes invaded by blasts which chill its climate and give its winter some features of trans-Alpine severity, slight indeed, as if merely to call the attention of the natives to that eternal repository of snow which rises constantly before them, but sufficient to check the growth of such plants as, like the orange and almond, shrink from frost, or pine away under its most mitigated aspect. The Papal and Tuscan States are protected from the north by an additional range of mountains, so that Central Italy becomes less objectionable to the action of frost, and is, indeed more liable to be injured by the heats of summer than by wintry cold. Its productions accordingly improve in strength and flavor; its wines are more generous than those of Milan and Mantua, and its fields are graced with oranges. In the delicious plains of Campagna, situated south of Rome, nature appears robed in such beauty, and pours forth all her treasures in such bounteous profusion, that it seems almost a terrestrial paradise, and has called forth the united powers and descriptive talents of the traveller, the historian, the poet, and painter, to depict its beauties. The plains of Apulia, which lie beyond the Apennines, with the coasts of Abruzzo and Calabria, in Naples, differs from the above section of country in increasing warmth only, and in productions more characteristic of a southern latitude, such as the aloe and the majestic palm. These distinctions of climate, however, are confined principally to the plains; as the mountains which surround them vary according to their elevation, and at the same time enclose valleys which in the south enjoy the cool temperature of Milan or Turin, and in the north glow with the harvests of Campagna. The chief inconvenience of the Italian climate is what is denominated in the Levant the *malaria*, a pernicious distemper of the air arising from the many marshes and stagnant lakes in the centre of the country; and in addition to the fiery eruptions of Etna and Vesuvius, it is exposed to the terrific effects of frequent earthquakes, and the enervating sirocco of hot wind which blows from the opposite coast of Africa."

At the present day we see Northern and Central Italy panting for freedom, which no doubt is owing in a great measure to her bracing and healthy climate, thereby producing a race of men capable of self-government, and advancement in all the arts and sciences which in early times distinguished the Roman people; now Italy only wants the fostering care of a liberal and united government in order to raise to the first rank among the family of nations.

BRAZIL.—The maritime boundary of the Brazilian Empire is the Atlantic, from the mouth of the Oyapock, or Wyapoco, in about 4° N. Lat., to the mouth of the Chui, or Chuy, in S. Lat. 33° 50'; a space of thirty-eight degrees of a great circle, or 2,280 geographical miles, equal to 2,620 British miles.

In such an extensive country as Brazil, both the climate and soil must necessarily vary greatly, according to the latitude and locality. The climate may, however, be generally characterized as mild and regular. In the vicinity of the Amazon, and in the northern parts, great tropical heats prevail; but these are tempered by the excessive humidity of the atmosphere, and the copious dews. The great alluvial plains in the North-west

and West, being inundated for several months in the year, are exceedingly unhealthy.

The following is a summary of the thermal observations made in the capital and the four northern cities of Brazil:—

CITIES.	YEARLY AVERAGE.				
	S. Lat.	W. Long.	Mean tem.	Maximum.	Minimum.
Rio de Janeiro,	22°	42° 50'	73½° Fa.	80°	67°
Bahia,	13°	38° 32'	80 "	86°	74°
Pernambuco,	8° 06'	35° 01'	80 "	86°	70°
Maranhão,	2° 31'	44° 16'	81 "	86°	76°
Para,	1° 21'	48° 28'	84 "	93°	75°

In the southern provinces the climate is more mild and temperate, and frequently even cold, sometimes falling below 40° Fahrenheit. This takes place, especially in ascending towards the sources of the great rivers, where the elevation of the land modifies the temperature; and within the lofty plains which spread out into the interior, fertile valleys occur which are both salubrious and temperate, and in which all the fruits of Europe grow to maturity, along with the native productions of America. The mean temperature of the central table land of Brazil is from 8 to 10 degrees lower than that of the low districts on the coast. The west wind, passing over vast marshy forests, is frequently found to be unhealthy in the interior parts; these unhealthy blasts, however, are corrected by the influence of the atmospheric plants which abound in the woods, and which fill the air with a fragrance perceived at several leagues from shore when the wind blows from the land. Over all Brazil, December, January, and February are the hottest months; June, July, and August, the coolest. The rains commence in March, and continue until May, with intervals. During part of June and July a cessation of wet weather frequently takes place, and is called *veronica*, the short summer. The rains resume in August, and continue, with short intervals, until September. During the hot months there is almost constant dry weather; and under the influence of the parching blasts vegetation languishes, and on the higher and more exposed parts appear burnt up and withered. In the northern provinces of Ceara, Pernambuco and Parahyba, between 4 and 10 degrees south latitude, sometimes no rain falls for one or two years together, when the consequences are most disastrous. The sea-breeze, which ushers in the rainy season, refreshes the atmosphere, and reanimates vegetation. The south-east trade-winds sweep the whole coast, and arrive tolerably cooled down by their passage from the burning coast of Africa, on the opposite side of the Atlantic. This tendency to East winds receives, however, very regular modifications from the sun's progress in the ecliptic: a monsoon setting down the coast from September to April, and in the contrary direction the other half of the year. The heaviness of the rains can only be imagined by those who have been in such latitudes.

CARACAS, or CARACCAS, Venezuela, situated in N. Lat. 10° 30', W. Long. 67° 4', being 12 miles inland from its port, La Guayra, and elevated nearly 3,000 feet above the level of the Caribbean Sea, is freed, in consequence of its elevation, from the excessive heats of the tropical regions. Though delightfully cool in the mornings and evenings, the heat of noon is very great. Rain is abundant during April, May, and June. The climate of Caracas has been called a perpetual spring. "What, indeed," says Humboldt, "can we imagine more delightful than a temperature which, during the day, keeps between 16° and 28° of Reaumur; and at night between 12° and 14°; and which is equally favorable for the cultivation of the plantain, the orange tree, the coffee plant, the apricot, the apple, and corn? It is to be regretted, however, that this climate is generally inconstant and variable. The inhabitants complain of having several seasons in the course of the same day, and of the rapid transition from one season to another." The population of Caracas is now estimated at about 40,000, but before the great earthquake in 1812, it had risen to 50,000. In that catastrophe it is estimated that nearly 12,000 of the inhabitants perished.

COUNTRIES SITUATED IN THE SOUTHERN TEMPERATE HEMISPHERE.

CHILI, South America, situated between the 25th and 43d degrees of South latitude, extending along the Pacific coast, enjoys one of the most favored climates. It is represented as delightful and salubrious for most portions of the year. The four seasons occur here as regularly as in Europe, though in reversed order, being in the Southern Hemisphere. From the commencement of Spring, in September, to the middle of autumn, in March, in the northern portion of Chili, the sky is always serene, it being rare that rain falls during that period. The rains begin in the middle of April, and continue with greater or less intervals, till the end of August. In portions of the country, the comparative want of rain is compensated by very copious dews. The transitions from heat to cold, and *vice versa* are moderate; and their extremes are equally unknown. The air is so much cooled by sea-breezes on the one hand, and by the winds from the snowy Andes on the other, that the thermometer in the shade seldom exceeds 36° Fahr. In winter it rarely sinks below the freezing point, but a perceptible cold is generally felt till noon. Snow, except on the Andes, is very uncommon. Thunder is also unknown on the sea-coast. The winds, in Chili, are considered by the inhabitants as nearly infallible indications of the weather, and serve as barometers. The South winds, coming directly from the antarctic pole, are cold, and attended with fair weather; the north winds, on the contrary, are hot and humid. The nights are magnificent, from the clearness of the atmosphere, and the brilliancy of the heavenly bodies.

AUSTRALIA, or NEW HOLLAND, lies between the 10th and 40th degrees, South longitude. Of this immense region, one-half of the area lies within the torrid zone; the other half is within the temperate zone. Little is yet known of the torrid portion. The mean temperature at *Sydney* on the east coast, is about 65° Fahrenheit. In Southern Australia, during winter, the extreme ranges in 1857 were between 42° and 60° Fahrenheit. "The winter is not rigorous, but is remarkable for violent tempests of wind; the epochs of the seasons are exactly opposed to those of Europe. The climate of New South Wales and Victoria, on the south-eastern extremity of Australia, and Van Diemen's Land, as we see it in the present day, is very different from what it was before those colonies were brought within the pale of civilization. The destruction of thick herbaceous underwood and thick interwoven forest, must have necessarily rendered the climate drier, and thus naturally contributed towards the increase of the mean annual temperature. The climate of New South Wales is salubrious, although the heat of summer is often excessive. The fertility and salubrity are proved by the healthiness of the English and other European settlers. No epidemic disease, and seldom any endemic of grave character prevails. The mean annual temperature of *Port Philip*, situated on the South coast of Australia, is 61°; mean for summer, 69°; mean for winter, 53° averaging through the year from 36° to 90° Fahrenheit."

Van Diemen's Land and *New Zealand* have a healthy, temperate, but humid climate; the small extent of the other islands, and their frequent and abundant rains, procure for them the healthy temperature of the ocean.—[*English Gazetteer*.]

NORTH AND SOUTH AMERICA.

The Continent of America possesses every variety of climate, and a temperature varying with the distance from the equator; but it differs generally from the Eastern Hemisphere by a greater predominance of cold. It is calculated that the heat is at least 10 degrees less upon an average on the American continent than under the same parallels in Europe and Africa. Thus while Great Britain enjoys temperate seasons and mild air. Labrador, though lying in the same parallel of latitude, is extremely cold and almost uninhabitable except by the Esquimaux.—Even the torrid zone in America knows none of those burning heats which are experienced in

Africa. In the plains and steppes of Venezuela—the hottest region of this continent—the heat seldom exceeds 98° in the shade.

In America cultivation is extended, on the eastern coast, to the parallel of 52° north; in Asia it has reached 56° 30'; but in Europe it has been carried as high as 70° north. By the levelling of forests and the draining of marshes, the sun is let in upon the soil, and the climate rendered warmer, drier, and more salubrious; and it is well known that in North America the influence of these operations of human industry has already so far prevailed that the winters are much shorter and milder, and the quantity of snow that falls considerably less. Some parts, too, of the Western States and Canadas bordering on the great lakes, once esteemed exceedingly unhealthy, have, since the clearing away of the forests, become remarkable for salubrity.

The western or Pacific coast of North America, however, up to the parallel of 50°, approaches much nearer in temperature to the climate of Europe than the eastern. In the valley of the Colombia, and Puget's Sound it exceeds that of corresponding latitudes on the Atlantic coast by an amount equivalent to 7° or 8° of latitude. The temperate portions of North America, on the Atlantic, and central portions of the continent, may be considered as extending from 47° to 37° north; from the latter parallel to that of 36° south, the climate is hot, and the vegetation tropical; beyond S. lat. 46°, in South America, the climate becomes cold, and the atmosphere rendered disagreeable by severe storms of rain, hail, and sleet, extending southward to Cape Horn.

The climate of South America is generally superior to that of the northern part of the continent in most of the districts north of the 50th parallel of southern latitude; but to the south of that line, the cold increases more rapidly than it does as we approach the pole in the Arctic regions. Among other causes which favorably and powerfully influence the temperature in South America and Central America must be reckoned the extraordinary elevation of the surface in many places.

This portion of the American continent, lying partly under or near the equator, presents a number of remarkable plateaux, or elevated plains, whose boundaries and extent are defined by mountain ridges. Of these the Peruvian plateau, which embraces all the high land of Lower Peru, Bolivia, and the upper Rio de la Plata provinces, and stretches from the 6th to the 20th southern parallel, has an altitude varying from 3,000 to 8,500 feet. The Ecuador plateau, embracing all the highest valleys in Assuay, Iundinamarca, and Boyaca, has an elevation varying from 5,000 to 13,000 feet; in the highest of which is situated Potosi. The plateaus of Guayana, Venezuela, and New Granada, stretching from the Atlantic to the Pacific Ocean north of the equator have an altitude varying from 2,500 to 9,000 feet. The plain in which stands Santa Fe de Bogota, the capital of New Granada, being one of the most elevated portions. The great plateau of Anahuac or Mexico, extending from Guatemala, in Central America, to Chihuahua on the northern confines of Mexico, running from the 12th to the 32d degree north latitude, has an elevation of from 3,000 to 8,500 feet above the ocean level.

"The three zones of temperature which originate in America," says Malte Brun, "from the enormous difference of level between the various regions, cannot by any means be compared with the zones which result from a difference of latitude, going north or south. The agreeable, the salutary vicissitudes of the seasons are wanting in those regions that are here distinguished by the denominations of *frigid*, *temperate*, *hot* or *torrid*. In the *frigid* zone, (caused by altitude,) it is not the intensity but the continuance of the cold—the absence of all vivid heat—the constant humidity of a foggy atmosphere—that arrest the growth of the great vegetable productions, and, in man, perpetuate those diseases that arise from checked perspiration. The hot zone of America does not experience excessive heat, but it is a continuance of the heat, together with exhalations from a marshy soil, and the miasmata of an immense mass of vegetable putrefaction, added to the effects of an extreme humidity, which produces fevers of a more or less destructive nature, and spreads through the whole animal and vegetable world the agitation of an exuberant but deranged

vital principle. The temperate zone, by possessing only a moderate and constant warmth like that of a hot-house, excludes from its limits the animals and vegetables which delight in the extremes of heat and cold, and produces its own peculiar plants, which can neither grow above its limits, nor descend below them. Its temperature, which does not brace the constitution of its constant inhabitants, acts like spring on the diseases of the hot regions, and like summer on those of the frozen regions; accordingly a mere journey from the Andes to the bed of the Sea, or *vice versa*, proves an important medical agent, which is sufficient to produce the most astonishing changes in the human body. But, living constantly in either one or the other of these zones must enervate both the mind and body by its monotonous tranquility. Summer, Spring and Winter are here seated in three distinct thrones, which they seldom quit, and are constantly surrounded by the attributes of their power.*

ASIA, extending from the polar circle, (78° N. latitude,) to the neighborhood of the equator, like North America, must necessarily exhibit a great variety of temperature in its different regions; in no part, however, is the climate so intolerably hot as in the tropical desert of the African continent.* It may be said, generally, that in the south-western part, even including Arabia, which is within the tropic, it is temperate; but in the south-eastern great heat prevails, while throughout the northern half of this continent, excessive cold predominates. Central Asia, including the northern part of Persia, Afghanistan, China, and the Islands of Japan, has a favorable and temperate climate, every way suited to sustain a dense population, where the arts and sciences might be cultivated and thrive if properly encouraged. Afghanistan and the surrounding region is an elevated table-land. Its predominant character is irregularity of surface, presenting a grand combination of lofty mountains, elevated uplands, rugged, deep and narrow valleys, and extensive plains; and nature, here as in Switzerland, presents the most striking contrasts—the icy climate of the poles alternating with the heat of the tropics. “The warm and cold districts,” says Baber, describing Cabul, “are close upon each other. You may, in a single day, go to a place where snow never falls, and, in the

space of two or three astronomical hours, reach a place where it always lies.” In the countries of Asia lying to the south of the 35th parallel, that is, the southern part of Asiatic Turkey, Arabia, the south of Persia, the two peninsulas of India and the neighboring islands, and the south of China, there are only two seasons known. From April to November the sun is nearly perpendicular, and a constant rain deluges one country, while another is parched by unyielding drought. During the rest of the year the sky is usually serene. Vegetation is uncommonly luxuriant in this zone, which engenders fevers and other fatal diseases.

“That portion of this continent,” says Malte Brun, “which extends to the south of the tropic of cancer, is small in comparison with the remainder: hence there is no mass of warm air to re-act on the temperate and cold, so that the action of the cold mass receives no counterbalance. If we examine the map of Asia, we shall see the form of that continent extending in breadth from China to Behring Straits, at which part the climate is no longer warm. The air in these countries, naturally cold, is rendered still more so by the influence of the frozen Polar Sea; the great Pacific Ocean is not adequate to counterbalance its effects, being itself cooled by the number of icebergs which enter it through Behring Straits. These icebergs are often stopped between the Aleutian islands and Cape Lapatka, and occasion the cold fogs with which that part of the sea is covered. They are afterwards carried, by the general current of the ocean, from east to west, that is, from America to Asia, where they accumulate in the Gulfs of Eastern Siberia. Hence, the cold coast of Eastern Europe, is caused by similar influences as operate on the eastern coast of North America. This unchangeableness of physical circumstances—those climates which no industry can sensibly ameliorate, those invariable returns of the seasons—that certain repetition of the same mode of cultivation, and consequently of the same mode of living—must have a controlling influence on the moral character of the Asiatics, as well as in modifying their nervous and muscular system, as in toning their imagination to the unvaried return of the same sensations.” Siberia, from natural cause, may thus be said to be the great prison-house of the world since nature chains the very lands and seas in the firm embrace of cold and unchangeable seasons—while other portions of Asia are subject to the same potent influence, being mitigated by different degrees of heat and moisture.

* An instance of desert temperatures in the Oasis of Mourzouk, Sahara, is referred to by Humboldt, where Captain Lyon experienced “for whole months, the thermometer of Reaumur between 38° and 43°,” (117° to 123° Fahrenheit).



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