

ZONES.

These four circles divide the earth into five zones: one torrid, two temperate, and two frigid.

The torrid zone, about 3,200 miles across, reaches from the tropic of Cancer north, to the tropic of Capricorn south. For some part of the year the sun is directly over the inhabitants of every part of this zone; the heat is intense. There is no winter here. The days and nights are nearly equal all the year round.

The north temperate zone, 3,000 miles in breadth, extends from the tropic of Cancer to the Arctic Circle. The sun is never directly overhead, and the heat is not so great as in the torrid zone. Nearly all Europe is in this zone.

The north frigid zone extends from the Arctic circle to the north pole, 1,600 miles. For a great part of the year the sun is hid from view: the cold is very great; snow and ice cover land and sea.

The south temperate zone, 3,000 miles across, extending from the tropic of Capricorn to the Antarctic circle, is for the most part similar in climate to the north temperate zone.

The south frigid zone is the remainder of the southern hemisphere. It corresponds in size and climate to the north frigid zone.

TEMPERATURE—(This lesson may be deferred.)

The equator is round the hottest part of the earth, as the sun is directly over it. The sun being the source of heat, climates become colder as they approach the poles, because the sun's rays do not fall *directly* outside the torrid zone, but in a *slanting* direction.

Temperature also depends on the *height* of a place above the sea level. A mountain three miles high brings us, even at the equator, to the regions of perpetual snow. The snow line gradually lowers till it meets the earth at the poles. In the latitude of Dublin a mountain scarcely a mile-and-a-half high, would have its summit crowned all the year with snow.

Currents in the ocean and currents in the air affect, in no slight degree, the climate of countries. Thus the hotter sea water of the torrid zone flows in a great current towards the west of Europe, and raises the temperature of these countries, by means of the heated air passing over them, and blowing in the prevailing direction westerly. Ireland is peculiarly favoured by the ocean current called the *Gulf Stream*.

In the torrid zone the east or trade wind blows all the year. The eastern sides of continents there are wet, the western dry. A south-west wind prevails in the north temperate zone, and a north-west wind in the south temperate, and consequently the west sides of continents and islands in these zones are wet.

The more equal temperature of the sea makes islands less variable as to heat and cold than large continents.

EUROPE.

Area $3\frac{3}{4}$ millions of square miles, $\frac{1}{11}$ of the land on the earth's surface.

Boundaries.—North by the Arctic Ocean, south by the Mediterranean and Black Seas, east by the Caspian Sea, Ural river and Ural mountains.

Europe has for its size the longest sea coast, 20,000 miles: much longer in proportion than the other continents. Only in East Russia are there any places more than 500 miles from the sea.

Seas.—White Sea, North Sea, Baltic Sea,—(very shallow, and as more fresh water enters it by rivers than is taken away by evaporation, it is not so salt as the ocean. In the Gulf of Bothnia the water is often used for domestic purposes. It is for this reason (its freshness) often frozen in the winter).—Irish Sea, English Channel, Mediterranean Sea (ten times the size of Great Britain. It receives a current from the Atlantic Ocean. It is saltier than the ocean, as the fresh water poured into it by rivers is less than the quantity evaporated. It is a deep sea), Black Sea (sends a current into the Mediterranean, as it receives

more fresh water than is evaporated. It is *fresher* than the ocean, and consequently often frozen in its northern parts during winter.

Gulfs.—Finland, Bothnia, and Riga in the Baltic, Cattegat and Skager Rack, Bay of Biscay, ("Biscay's Sleepless Bay," *Lord Byron* in allusion to the great swell of the Atlantic felt in it), Gulf of Genoa, Gulf of Corinth, (the town of Corinth near the gulf gave name to the fruit called currants.)

Straits.—Dover (chalk formation underneath), Gibraltar (inlet to the Mediterranean), Bonifacio, Messina, Dardanelles, Constantinople.

Peninsulas.—Spain and Portugal, (called the Iberian Peninsula), Italy, Turkey and Greece, Norway and Sweden, (called the Scandinavian Peninsula), Denmark.

Islands.—In the Atlantic the British Isles, in the Arctic Ocean, Spitzbergen and Nova Sembla; in the Baltic, Zealand, Funen, Gottland and Aland Isles; in the Mediterranean, Balearic Islands, Corsica (remarkable as the birth place of Napoleon I), Sardinia, Sicily, (formerly called the Granary of Europe.)

Mountains.—Alps, (highest point, Mont Blanc, 15,700 feet): Appennines in Italy; Balkan in Turkey; Dovrefield in Scandinavia; Caucasus, (highest point, Mount Elburz.) (1)

Capes.—North Capes, Nordkun (most northerly point of Europe), Nase, south of Norway, Land's End, west of England, Finisterre (end of the earth), Rosa, St. Vincent, Tarifa (most southerly point of Europe), Passaro in Sicily, Matapan in Greece.

Rivers.—Dvina into the Arctic Ocean; Neva, Dura, Vistula and Oder into the Baltic; Elbe and Rhine into the German Ocean; Seine, Loire, Garonne, Douro and Tagus into the Atlantic, (these all drain the north-west slope.) On the south-east slope, Ebro, Rhone, Po, into the Mediterranean; Danube and Dniester into the Black Sea; Don into the Sea of Azov; Volga into the Caspian Sea. (2)

Lakes.—The chief lakes of Europe are, near the Baltic, Ladoga, Onega, Wenner, Wetter, Malar. In the south, Geneva (Leman), Constance, Neuchatel in Switzerland; Maggiore, (greater), Como, Gardo in Italy.

Climate.—Europe, with the exception of a small portion, lies in the north temperate zone, and enjoys a climate free from the extremes of heat and cold. The western countries are warmer than the eastern, owing to the prevalence of westerly winds blowing from the equatorial regions, and felt in this latitude as coming from the west. There are three climates in Europe. The *southern* includes Spain, Portugal, South France, Italy, Turkey and Greece; these have a short winter and a long summer. The Middle countries have the four seasons distinct. The northern countries, in which the inhabitants have a short summer and a long winter.

Productions.—South; the sugar cane, cotton, orange, fig, vine, tobacco, rice, wheat, oak, chestnut.

Central; corn-fields and meadows, apples, pears, walnuts, and in some places the vine, oak, beech, fir.

Northern; wheat will not grow higher than the middle of Norway, and in the extreme north even the most hardy trees become stunted.

Minerals.—Iron, lead, copper, tin, gold and silver in small quantities, coal (abundantly in Great Britain and Belgium.)

Population 280,000,000, or one fourth of the human race. The most populous countries are Belgium and England.

Religions.—*Greek-Latins* in the south are chiefly Catholics. *Germans* in middle and west chiefly Protestants. Slavonians in the east and south chiefly Greek Church. (3)

(1) A line from the Elbe to the Dniester divides the mountain regions of Europe from the great plain to the north-east.

(2) The Volga and Danube discharge nearly as much water into the sea as all the other rivers of Europe.

(3) A portion of the people of Turkey are Mahomedans. The people of Ireland and Scotland are Celtic for the most part.