

moon, but partly by that of the sun, and are highest when the sun and moon are on the same side of the earth.

3. The height to which the tide rises in any place depends much on the shape of the land against which the great tide wave strikes; the highest tides in the middle of the Pacific ocean being only 5 feet, while in some tunnel-shaped channels, as in the bay of Fundy and part of the British channel, they rise to the height of 40 feet, and even higher.

Questions.—1. What are tides? 2. What causes the tides? 3. On what does the height of the tides depend? Where are the highest tides?

CURRENTS.

1. Within the tropics the trade winds cause a current across the Pacific, Indian, and Atlantic oceans, generally from east to west, but modified in different parts of its course by the shape of the land, and by other currents acting in from the Polar seas.

2. After doubling the cape of Good Hope this current runs north to the Cape Verde islands, and then turns west, passes through the Caribbean sea, between Cuba and Yucatan, round the Mexican gulf, through the straits of Florida, and along the shores of the United States (where it is called the Gulf stream) to Newfoundland. At this point it is turned to the southeast by a polar current, and, passing the Azores and Canary isles, returns in a great measure into itself.

3. One branch of this current runs east into the Mediterranean; another south, along the shores of Brazil, and through the straits of Magellan into the Pacific; and others still are so modified by the polar currents as to form immense whirlpools, embracing large portions of the ocean.

4. Smaller whirlpools, caused by tides and currents meeting in narrow passages, are very dangerous, often drawing in ships and dashing them upon the rocks. The most celebrated of these are the Maestrom on the coast of Norway, and Charybdis in the straits between Sicily and Italy.

Questions.—1. In what direction does the great current of the sea run? 2. Can you describe its course after doubling the cape of Good Hope? 3. Can you describe the course of any of the branches of this current? 4. How are small whirlpools in the sea formed? What calamity do they sometimes occasion? Name the most celebrated of these dangerous whirlpools.

VEGETABLES.

1. The number, size, and luxuriance of vegetables are greatest in the torrid zone, and diminish as you go toward the poles.

2. Among the most remarkable vegetables of the torrid zone are the *sago palm*, which yields a juice so thick and nutritious that it is used for food; the *bread-fruit-tree* and *plantain*, which produce a fruit resembling bread; the *teak* of India, which is used for ship building, and surpasses even the oak in firmness and durability; the mighty *Baobab*, which grows on the banks of the Senegal, and attains a circumference of 30 and 70 feet; and the great *fan palm* of India, one leaf of which will cover ten or a dozen men. The torrid zone also yields the most fragrant spices and the most luscious fruits.

3. The lower latitudes of the temperate zones yield the vine, from the fruit of which wine is made; the *mulberry*, on the leaves of which the silk-worm feeds; the *olive*, which produces sweet oil; *wheat*, *barley*, and other nutritious grains; and *cotton*, which is now more extensively used for clothing than any other material.

4. In the higher latitudes of the temperate zones wheat grows with difficulty, but *oats*, *hemp*, and *flax* are raised in perfection; the pastures are rich and verdant with *grass*; the forests yield the *oak*, the *ash*, the *elm*, &c., and the *apple*, *pear*, *cherry*, *currant*, *gooseberry*, &c., are abundant.

5. In the frigid zones, and in some countries even as low as the parallel of 60°, nature assumes a gloomy and desolate aspect. The *pine* and *fir* at first rear their tall heads, and cover the hills with their constant mantle of dark green, but as you advance toward the north every species of vegetable which yields food to man entirely fails; and nothing appears but dwarf trees, bushes, and mosses.

Questions.—1. In what zone is vegetation most luxuriant? 2. Name some of the most noted vegetables of the torrid zone. What is said of the *sago palm*? 3. Name some of the most noted vegetables in the lower latitudes of the temperate zones? 4. In the higher latitudes of these zones? What is said of the vine? mulberry? olive? cotton? 5. Describe the vegetation of the frigid zones.

ANIMALS.

1. The torrid zone is as luxuriant in its animals as in its vegetables. The mighty *elephant* here dwells in the depth of ancient forests, while the *rhinoceros* and the *kippopotamus* roll their enormous bodies along the banks of the streams.

2. The most ferocious animals in this zone are the *lion*, the *tiger*, the *leopard*, the *panther*, the *ounce*, and the *hyena*, while in the great rivers *crocodiles* and *alligators* are ready to devour the unwary.

3. This burning zone generates swarms of *venomous reptiles* and *serpents* of enormous size, while *locusts*, *flies*, and *ants* move in such close and immense armies as to lay waste the earth, and drive nations before them.

4. The largest birds are the *ostrich*, the *cassowary*, and the *condor*; and small birds of brilliant and exquisitely beautiful plumage, but less melodious in their notes than the birds of the temperate zones, abound in the forests.

5. Among the marine insects are the *corals*, which have stony cases that remain after the death of the animal, and gradually accumulating and adhering to each other, at length form large rocks and even islands. The Pacific ocean from New Holland to the Friendly islands abounds with corals, and ships are in constant danger of striking against rocks of this substance.

6. In the temperate zones are few monstrous or ferocious animals; but the *horse*, *ox*, *sheep*, *goat*, *hog*, *dog*, *cat*, and other valuable domestic animals are found in great perfection nearly to the parallel of 60°.

7. As we approach the 60th degree of latitude, the country, almost deserted by man, is covered with the *elk*, the *marten*, the *sable*, the *beaver*, the *ermine*, animals covered with a rich and beautiful fur, which is eagerly sought after by man for purposes of comfort and luxury, and hence these frozen countries have become the region of an extensive fur trade. The most useful domestic animal in this climate is the *reindeer*.

8. In the frigid zones the quadruped species again assume a fierce and formidable character. The *great white bear* roams over the fields of ice, and rushes boldly to the neck of man; the *walrus*, or *sea-horse*, rises amid the icebergs with his enormous tusks; and the mighty *whale* rolls through the sea, and mingles his frightful roarings with the sound of the tempest.

Questions.—1. Name some of the largest animals of the torrid zone? 2. The most ferocious? 3. What other troublesome animals in the torrid zone? 4. Which are the largest birds? 5. What is said of the corals? 6. What valuable animals are found in great perfection in the lower latitudes of the temperate zones? 7. What useful animals in the higher latitudes of the temperate zones? 8. Name some of the largest animals of the frigid zones.

METALS AND MINERALS.

1. *Gold*. Gold is usually found in a perfectly pure state at the foot of ranges of mountains, from which it is washed down by rivers. It is most abundant in South America, East Africa, West Africa, and the Asiatic isles.

2. *Silver*. The richest silver mines are those of Mexico and Bolivia. Since the discovery of America, nine tenths of all the silver in the world have come from these mines.

3. *Iron*. This useful metal is very generally diffused; but the most productive iron mines are those of Britain, France, Russia, Sweden, and Pennsylvania.

4. *Copper* is found in Norway, Sweden, Chili, Wisconsin, and other countries, but the most abundant supply is from the mines of Cornwall in England.

5. *Lead*. The most productive lead mines in the world are those of Great Britain; and of Missouri, Illinois, and the adjoining territories in the United States of America.

6. *Zinc* is comparatively a rare metal. The chief mines are those of Cornwall in England, and of Banca, a small island near Sumatra.

7. *Quicksilver* is obtained almost exclusively from the mines of Idria in Austria, of Almaden in Spain, and of Guanacaveica in Peru.

8. *Coal*, a source of greater wealth than gold, is found in inexhaustible quantities in many countries, but the most noted coal mines are near Newcastle in England.

9. *Salt* is made in large quantities in many countries by evaporation of sea water and of the water of salt springs. The most noted mines of rock salt in the world are those of Wieliczka in Austrian Poland.

Questions.—1. Where is found in greatest abundance, gold? 2. silver? 3. iron? 4. copper? 5. lead? 6. tin? 7. quicksilver? 8. coal? 9. salt?

EXTENT AND POPULATION.

The following table presents an estimate of the extent and population of the grand divisions of the world:

Grand Divisions.	Surface Miles.	Population.	Pop. to sq. m.
Europe	3,667,146	238,473,957	65
Asia	15,700,000	390,000,000	25
Africa	10,900,000	63,000,000	6
Oceania	4,000,000	20,000,000	5
North America	7,300,000	35,000,000	5
South America	7,117,000	15,240,000	2
Total (in round numbers)	49,000,000	764,000,000	15

Remark.

The population of the world is variously estimated by geographers from 500,000,000 to 1,000,000,000. Europe and America. It is known, contain about 290,000,000. The uncertainty relates to Asia, Africa, and Oceania.

Questions.—Which is the largest of the grand divisions of the world? Which next? Which the smallest? Which has the greatest population? Which next? What is the population of the world? What difference is there in the estimates of geographers? To what parts does the uncertainty relate?

RACES OF MEN.

1. Man, the lord of the animal creation, has a constitution which fits him for residence in every climate.

2. Naturalists commonly reckon five varieties of the human species, viz., 1. the Caucasian; 2. the Mongolian; 3. the Malay; 4. the Ethiopian; 5. the American.

3. The Caucasian race comprises nearly all the Europeans, the Turks, Arabs, Persians, and other Western Asiatics, and a large part of the Hindoos.

4. The Mongolians embrace the Chinese, Japanese, and the inhabitants of eastern and southeastern Asia generally, except the Malays.

5. The Malays are almost confined to the isles of the Pacific, and the peninsula of Malacca.

6. The Ethiopian race includes the Negroes, Caffres, and Hottentots of Africa, and the Papuans or Negroes of Australasia.

7. The American race comprises the Indians of North and South America.

8. The Caucasians are *white*; the Mongolians, *olive yellow*; the Malays, *dark brown*; the Ethiopians, *black*; and the American Indians, *red*, or *copper-colored*.

9. The Caucasians are the most civilized and enlightened of these races, and have generally ruled the rest whenever brought in contact with them.

10. The numbers belonging to the different races are thus estimated by Hassel:

Caucasians	436,625,000, or 46.5 per cent.
Mongolians	389,375,700, " 41.5 "
Malays	32,500,000, " 3.5 "
Ethiopians	69,633,300, " 7.5 "
Americans	10,287,000, " 1.0 "

Questions.—1. What advantage has man in his constitution over most other animals? 2. How many varieties of the human species? 3. What nations belong to the Caucasian race? 4. to the Mongolian? 5. to the Malay? 6. to the Ethiopian? 7. to the American? 8. What are the colors of these different races? 9. Which are the most civilized? 10. Which is the most numerous? Which next? Which is the smallest in number? What percent. are the Caucasians? What percent. the American race?

STATES OF SOCIETY.

1. With respect to their social state, men may be divided into four classes, viz., savage, barbarous, half-civilized, and civilized.

2. In the *savage* state, men subsist by hunting, fishing, and the spontaneous productions of the earth; and hence are usually thinly scattered over a wide country, rude, ignorant, and destitute of most of the comforts of life.

3. In the *barbarous* state, subsistence is derived chiefly from pasturage and rude agriculture; and men in this state usually live in tents, and wander from place to place with their flocks and herds. In some cases subsistence is obtained by systematic piracy and robbery.

4. Among the *half-civilized* nations, agriculture and some of the finer manufactures are carried on with great care and to a very high degree of perfection, but foreign commerce is almost unknown.

5. In the *civilized* state, science, the arts, and all the various institutions and arrangements of society, are in a highly improved form.

6. The American Indians, and a great part of the negroes in Africa and Australasia, are savages.

7. The Arabs, Tartars, and Malays in Asia, and the Moors of Northern Africa, are in the barbarous state.

8. The Chinese, Japanese, Hindoos, Persians, and Turks are half-civilized nations.

9. Europeans, and their descendants generally, are regarded as civilized, but the degrees of civilization are very different in different countries.

Questions.—1. Into what classes are men usually divided as to their social state? 2. What is characteristic of the savage state? 3. of the barbarous state? 4. of the half-civilized state? 5. of the civilized state? 6. What nations are savages? 7. barbarians? 8. half-civilized? 9. civilized?

RELIGIONS.

1. Hassel estimates the numbers attached to the different religions as follows:

Pagans	561,820,260	Mohammedans	120,105,000
Christians	232,462,700	Jews	3,300,000
Total	794,422,000		

2. The same author thus classes the different denominations of Christians:

Roman Catholics	134,732,000	Nonophytes	3,865,000
Greek Church	56,911,000	Armenians	1,799,000
Protestants	55,791,700	Nestorians, &c.	367,000

3. Christianity is the religion of Europe and of European settlements in every part of the world. Mohammedanism prevails in the northern part of Africa and the western parts

of Asia. any other principal cities populated all parts of

4. Rome premacy and the every part separated parts of the other parts prevails in

Questions How many Who, and Pagans?

1. OF AN British P. Montreal, Quebec, Halifax,

United New York, Philadelphia, Baltimore, New Orleans, Boston, Cincinnati, Brooklyn, Albany, Charleston, Washington, Providence, Louisville, Pittsburgh, Lowell, Rochester, Richmond, Troy,

Baltimore, Newark, St. Louis, Portland, Salem, New Haven,

Mexico, Puebla, Guadalupe,

Guatemala, West India, Havana, St. John (P.R.), Kingston (Jamaica), Venezuela, Caracas, Maracibo, New Granada, Bogota, Poyais, Cartagena,

Equatorial, Quito, Guayaquil, Peru and Lima, Arequipa, Le Par, Cuzco, Cochabamba,

Chili, St. Jago, Valparaiso, Buenos Aires, Mendoza, Brazil, Rio Janeiro, St. Salvador, Pernambuco,

of Africa, St. Peter's, Moscow, Warsaw, Riga, Odessa, Sweden and Stockholm, Gottenburg, Bergen, Christiania,

Questions in Africa? in many cities in Europe? there are many How many How many?