

ined for want of suitable food and skilful general management! If the master's eye grazes the ox, assuredly it should not long be diverted from the fold if he would avoid that "one bad sheep" which every flockmaster knows too well to take many a good one to recover. It has lately been held important to our national prosperity to attempt the acclimatization of the Alpaca to increase the supply of wool. The question is to be determined yields us an illustration, even the *Ichu* grass—its favorite herbage in Peru—was found indigenous on the vast grazing lands of the Australian continent, and the Alpaca brings the animal to earlier maturity in South America; and so the animal and vegetable are in adaptation. While we wish the object good success, still, as British farmers are faithful of the old tradition, we should seek to top the tottering wool sack with larger supplies of British wool; thus modifying our systems in conformity with the probabilities of future production and the requirements of the community at large. Considering the almost universal dependence of man on one important tribe of plants—those to the cultivated grasses—and also the use of grasses as fodder for cattle, hardly second to that of corn for human food, it is one of the most interesting of all subjects to follow its distribution, which is determined not merely by climate, but depends on the civilization, industry, and traffic of the people; and often local events.

Within the northern Polar circle agriculture found only in a few places. Only in Europe, and Lapland, does the Polar limit reach an unusually high latitude (70 degrees). Beyond this, cod fish, and here and there potatoes, supply the place of grain. The grains which extend furthest to the north in Europe are barley and oats. These, which in the milder climates are used for bread, afford to the inhabitants of the northern parts of Norway and Sweden, of a part of Siberia, and Scotland, their chief vegetable nourishment. Rye is the next which becomes associated with these. This is the principal grain of the northern temperate zone. Siberian buckwheat is cultivated. In the zone where rye prevails wheat is generally found, rye being here chiefly cultivated for the manufacture of beer, and oats for horses. To these follows a zone in Europe and Western Asia, where rye disappears, and wheat almost exclusively furnishes bread. The middle or south of France, England, part of Scotland, part of Hungary, the Crimea, and Caucasus, and of America, also the lands of middle Asia, where agriculture is followed, belong to this zone. In the eastern parts of the temperate zone of the old continent—in China and Japan our northern kinds of grain are very unfrequent, and rice is found to predominate. In North America wheat and rye grow, as in Europe, but more sparingly. Asia is the native country of rice, and America of maize. Both

these grains are found in nearly equal quantity in Africa. Besides rice and maize, there are in the torrid zone several kinds of grain, as well as other plants, which supply the inhabitants with food. In the islands of the South Sea grain of every kind disappears, its place being supplied by the bread fruit tree and pisang plantains. In the tropical parts of New Holland there is no agriculture, the inhabitants living on the produce of sago and various palms. In the high lands of South America, there is a distribution similar to that of the degrees of latitude. Maize grows to the height of 7,200 feet above the level of the sea, but only predominates between 3,000 to 6,000 feet of elevation. Below 3,000 feet is associated with the pisang (plantain) and yams, batatas, and the bread-fruit; while from 6,000 to 9,260 feet the European grain abounds—wheat in the lower regions, rye and barley in the higher. Potatoes alone are cultivated from 9,000 to 12,000 feet. To the south of the tropic of Capricorn, wherever agriculture is practised, considerable resemblance with the northern temperate zone may be observed. In the southern parts of Brazil, in Buenos Ayres, in Chili, at the Cape of Good Hope, and in the temperate zone of New Holland, wheat predominates; barley, however, and rye make their appearance in the southernmost parts of these countries, and in Van Diemen's Land. In New Zealand wheat is grown to advantage. The natives did subsist chiefly on the *Acrastichum furcatum*. Hence it appears that, in respect of the predominating kinds of grain, the earth may be divided into five grand divisions or kingdoms—the kingdom of rice, of maize, of wheat, of rye, and, lastly, of barley and oats. The first three are the most extensive, the maize has the greatest range of temperature, but rice may be said to support the greatest number of the human race. "Nor," says Johnson, "is a knowledge of the capabilities of a country for producing plants less important with reference to its population. Comparing Naples with Norway, for example, we find that the effect of climate is such as to render the harvest five times more productive in the former than the latter, while in consequence the population is twenty-five times more dense, in proportion to its area, in Naples than in Norway."

It is a remarkable circumstance that the native country of wheat, oats, barley, and rye should be entirely unknown. Though oats and barley were found apparently wild on the banks of the Euphrates, it is doubtful whether they were not the remains of cultivation. "It is an observable fact," continues Johnston, "that those plants of the grass tribe, the seeds of which furnish food for man, follow him like domestic animals. The reason is, that none of the corn plants can bear seeds that will yield a large quantity of flour without a good supply of phosphate of magnesia and ammonia. Hence these plants grow only in a soil which contains these