

The Wheat Crop.

Wheat is essentially the bread-corn of the northern temperate zone, and claims the first place in our consideration of the "farm crops" of our own country. This place, indeed, has been assigned to it since the earliest records of our agriculture; for although, in earlier times peas, beans, barley, oats, and rye entered more largely than at present into the ordinary food of the people, experience generally, but surely, showed that no other grain assimilated so well with the human constitution, and so well represented the two great classes of constituents necessary to sustain the wear and tear of human life. Thus, keeping pace with the increasing civilization and knowledge of the people, wheat has won its way to the head of our market lists, where it now stands, acting as a great social barometer, whose variations are watched with eager anxiety by the poor as well as the peasant.

A few words will suffice to show how wheat fulfils the conditions necessary for human nutrition better than any other of our cultivated grains. The valuable researches in physiological chemistry by Liebig, Mulder, and others, so ably followed up by some of our own chemists, have demonstrated clearly that to sustain the functions of animal life two classes of food constituents are required—the one to support the necessary temperature of the body, through the agency of the respiratory system; the other to furnish materials for building up of the material parts of the body, such as the bones, flesh, skin, &c. Thus, "food fuel" is being constantly required for the one, and "food materials" for the other. The regularity of this requirement constitutes health—and continued departure from it, disease.

It is generally conceded that, under ordinary conditions, these constituents are required in certain proportions; consequently, any substance containing these classes of constituents in the required proportions would by itself sustain human life for a longer period than other substances in which the relative proportions were not so suitable. These constituents we are accustomed to classify under the heads of—1, Non-nitrogenous, or heat-giving and fat-forming compounds; and 2, Nitrogenous, or flesh-forming and plastic compounds; and from experience, both scientific and practical, we have been led to look upon the proportion of six of the former to one of the latter as that which will, under ordinary conditions, most satisfactorily meet the requirements of the human frame in the northern temperate zone. Now, wheat happily possesses the two classes of constituents in these desirable proportions, and has, therefore been taken as the standard by which the nutritive value of all our other food grains has been gauged.

In barley, oats, and rye, the relative proportions, though they vary but little, are not so

suitable. If they are used exclusively as substitutes for wheat they generally derange the bodily health of the consumer, and we only find them forming the food of the people under circumstances where wheat cannot be procured. Beans and peas show a large excess of the nitrogenous or flesh-forming compounds; while in Indian corn and rice of the hotter and tropical climates, the non-nitrogenous constituents form a large proportion of their whole substance. These latter food grains, therefore, would require to be usually accompanied by some additional substances to secure the necessary balance between their nutritive constituents, before they could form any basis of the diet equivalent to that represented by wheat. Wheat seems to have been given specially to man as the fittest source of supply of his daily food, the subordinate animals, companions of his daily toil, and necessary for his existence, contenting themselves, nay, preferring either of the other grains—barley, oats, or beans—when left to their own selection.

The wheat plant appears to have been known and valued from the earliest periods. In the Bible we have frequent mention of it as being known by the Jews and Egyptians; therefore, we may fairly assign to it a eastern origin. Its range, however, is greater than that of most of our other food plants—its cultivation extending from within the tropics to well-nigh the limits of the temperate zone of the northern hemisphere.

This wide range of climate, which enables the inhabitants of many different countries to enjoy the advantages of its cultivation, is occasioned by the numerous species and varieties of which the genus wheat is composed, some being suitable for the climate of India, others for that of northern Europe, while all seem to thrive well in the zones of intermediate temperature. If we look for the principal wheat-producing countries in Europe, we shall find them to be England, France, Germany, Northern Spain and Italy, Prussia, Hungary, Southern Russia, Poland, and the countries bordering the Black Sea. In Asia, the countries lying between the Black Sea on the north and the Persian Gulf and the Red Sea on the south, comprising those regions mentioned in our Bible records, represent the area where wheat is most commonly cultivated. Egypt, Algeria, and the countries running down to the shores of the Mediterranean, are the principal wheat districts of Africa; while the present produce of Canada and the United States has already shown us the well-nigh illimitable area of wheat-producing soils, which American possessors, and which will be gradually brought into cultivation as its surface becomes occupied and its population increases. In Australia, New Zealand the soil and the climate are so admirably adapted to the growth of wheat. The beautiful samples of Australian wheat sent to the great exhibition in 1851, and the Paris