His geologic interest in his home region was mainly in glacial problems, especially the glacial lake Iroquois and the deformation of the Ontario basin. He was the first geologist to appreciate the complexity of the Pleistocene history of the valley. As early as 1885 he recognized the three controlling factors: (*a*) the damming effect of the waning glacier and the glacial nature of the earlier waters; (*b*) the succession of water levels due to opening of different outlets or places of escape for the impounded waters, by the recession of the glacier front; and (*c*) the dislocation and canting of the water planes by the tilting uplift of the land. His accurate conclusions regarding the complex history are embodied in a number of short papers, and especially in a chapter in the "Sixth Annual Report of the Commissioners of the State Reservation at Niagara for the year 1890." The title of this important but little-known paper is "The History of Niagara."

Dr. Gilbert's mind was of the reflective, philosophic type. He sought for the explanation and relationship of phenomena. His calm judgment and clear discrimination joined to a spirit of fairness and with gentle manners caused him to be much sought as a critic and helper. He was a sort of father-adviser to the members of the survey. Doubtless much of his thought has found expression in the writings of the younger men who revered and loved him. The writer of this appreciation never heard him say a harsh word of any one. He was reserved in personal matters, but it is known that the death of a young daughter affected and saddened his life. His wife, who was Fannie L. Porter, died over twenty years ago. Two sons are living.

Dr. Gilbert received many honors. The University of Rochester gave him the master's degree in 1872, and the LL.D. degree in 1898. The latter degree was also conferred by the University of Wisconsin. He was the fourth president of the Geological Society of America, in 1892, and was again president in 1909, the only man honored by a second term. In 1899 he was president of the American Association for the Advancement of Science, probably the highest honor in the gift of American science. Naturally he was active and prominent in the scientific societies of the national capitol, and was a member of the National Academy of Sciences. He was one of the very few honorary members of this society. In 1892, when the American Association for the Advancement of Science held its annual meeting in Rochester, this academy held a special meeting in Music Hall complimentary to the association, and the lecture of the evening was given by Gilbert, the subject being: "Coon Butte and the Theories of Its Origin." The relief map which he used on that occasion was donated to the university museum. It may be said that this was one of the very few times in which his theory has been proven wrong.

On the approach of his seventy-fifth anniversary, the sixth of last May, his friends were asked to send to the Survey letters of appreciation to be handed to him on that day. Unhappily he passed away on the first of the month at Jackson, Mich.

HERMAN LEROY FAIRCHILD

WAR BREAD

DR. ALONZO E. TAYLOR in his book "War Bread" gives a large amount of valuable information concerning the conservation of wheat under war conditions. Our duty is plainly set forth and many helpful suggestions are made.

There are two topics discussed in this book, "Food Value of the Different Grains," and "Ways of Stretching Wheat," which are of particular interest to the student of nutrition. Briefly stated, Dr. Taylor's conclusions are that the direct substitution of other cereals for wheat, and the judicious use of mixed flours, are the best ways of conserving wheat. Long extraction flours milled so as to include the germ or bran have not proved satisfactory for the making of war bread. A few quotations will perhaps best serve to give the author's conclusions upon these points.

Direct substitution offers the most obvious way of saving wheat (p. 62).

The best mixed-flour bread is prepared from flour of standard extraction. For practical pur-

poses it does not make much difference what the diluting flour is (p. 69).

In comparing American and European extractions, the water content of flours must be kept in mind. Here the flour contains about 13 per cent. of water, in Europe higher water content is permitted, 17 per cent. being common. In other words, our 75 per cent. extraction corresponds to a 78 per cent. extraction in Europe (p. 76).

The germ contains both ferments and bacteria, and is, therefore, prone to decomposition. The ferments split the fats, making them rancid. They act upon the protein also. Aided by bacteria, they produce the musty decomposition that is liable to occur in coarse flours, and does not occur in standard flours under the same circumstances (p. 77).

The common experience with whole wheat flour is that it spoils rapidly, even in the hands of the trade; and this is one reason why whole wheat flours are expensive (p. 81).

Breads made from flours containing the endosperm and the germ fraction are not unusually good breads. The writer has eaten breads baked from flours of 81, 85, 88, 93 and 97 per cent. extraction in Germany, England and France[1] (p. 82). European bakers have worked for over two years to produce good breads from these flours. It has not been routinely accomplished in any country. The methods of bread baking are very different in France, Italy, Germany and England. The standards of what constitutes good bread and the tastes of the public are different. In not one of these countries have the bakers been able to meet the tastes of the consuming classes with breads made from flours containing the endosperm and the germ fraction. The loaf is smaller, the moisture content higher, often tending to sogginess, does not crust well, and remains, when all is said and done, an unsatisfactory bread. The revulsion against this bread has been audible in every country, the people have repeatedly petitioned that they be given less bread and better bread (p. 83).

It has been the experience in the European countries that breads prepared from higher extraction flours do not agree with many individuals. This holds as true of breads made from the 85 per cent. extraction as from the 93 per cent. extraction. Many children and adults fail to digest these breads. The result is discomfort and often colic, gaseous fermentation, and resultant disturbances of intestinal functions (p. 84).

It is the experience of the nations at war in Europe that they would abandon higher extraction and return to mixed flours, prepared from standard flour, provided this were possible. Breads made in England of Standard American flour diluted with an admixing flour are much better than straight breads of 85 per cent. extraction flour. The Victory Bread of the United States is so superior to the war bread of the Allies and of the enemies as to be past comparison (p. 86).

Dr. Taylor discusses, in a broad way, the mineral and vitamine contents of whole wheat and standard flours. He recognizes the common deficiency of all cereals in failing to supply certain fat soluble constituents which can be secured only through foods like milk, meat and leaf vegetables, and hence he can see no gain in the substitution of whole wheat for standard extraction flour. He says:

In the diet of the nations at war there is a profusion of vegetables, more than in peace time, that contain minerals, roughage and vitamines freely. Go where one will, in the United Kingdom, France, Germany, Switzerland or Holland, one finds the diet of the people to-day rougher, coarser and containing more vegetables and less concentrated food stuffs than in peace time (pp. 87–88).

Under these circumstances, the plea for whole wheat flour in the American diet to-day fails of justification from this point of view. People should be allowed to select their roughage, whether in the form of fruits or vegetables, or in the form of whole grains. They should be allowed to select their mineral salts and vitamines in the same manner, and both are freely available. The legal distinction between food conservation and health propaganda must be kept in mind. It is argued in favor of whole wheat flour that its use might relieve or prevent constipation, rickets, scurvy, anaemia and pellagra. But the function of a food administration is to secure and conserve food, not treat preexisting diseases in a compulsory manner, applied to the majority who are not afflicted, as well as to the minority who may be diseased but still possess the right to select their treatment. In each country at war diet fads are being pushed at the food administration, who must confine themselves to the specific functions defined by legislative authorization (pp. 89–90).

As Dr. Taylor is a member of the U. S. Food Administration, and of the War Trade Board, Washington, naturally any statements which he publishes, particularly at this time, are of

[1] Note as Dr. Taylor explains, 81 European extraction would be 78 American basis.

more than momentary interest. The book is dedicated to Herbert Clark Hoover in the hope that it may aid his fellow citizens to support him.

HARRY SNYDER

THE BOTANY AND PLANT PRODUCTS OF NORTHERN SOUTH AMERICA

A COOPERATIVE investigation of the flora of northern South America, which, when carried out in detail, should be of highly significant scientific and economic importance, has recently been organized by the New York Botanical Garden, the United States National Museum, and the Gray Herbarium of Harvard University. This investigation is planned to include the plants inhabiting the Guianas, Venezuela, Colombia, Ecuador, and the adjacent Caribbean islands, Trinidad, Tobago, Margarita, Bonaire, Curaçao and Aruba.

The immediate object is to secure and organize collections of size and excellence from as many different floral areas as may be found feasible; to assemble all knowledge obtainable relative to the distribution of the species, their habitats, and their uses; and thus to acquire in North America, materials for critical investigations leading to much needed monographs of important groups and to detailed catalogues of floras as yet very inadequately known.

The region contemplated has great diversity of climate, soil and altitude and a corresponding wealth of vegetation. Perhaps no area of greater botanical promise has thus far received less organized floral investigation. Nor have the scattered results obtained in the past ever been brought together into correlated or accessible form, being at present scattered in fragmentary publications, foreign journals and casual works of travel, with the result that information even in regard to many plants of considerable economic promise is excessively difficult to assemble and surprisingly scanty when obtained.

In this rich and varied flora of northern South America is sure to be found a wealth of plants capable of yielding commercial timbers, drugs, vegetable oils, tannin, gums, waxes and essences of technical value, dye-stuffs, food-materials, fibers and countless substances such as rubber, highly significant in manufactures. Many of these products are reaching our markets in mixed or imperfect condition owing to inadequate knowledge of the precise plants from which they should be obtained. In other instances, although the species may be known, the range and availability is still too obscure to encourage enterprises of exploitation.

Recent events have shown how suddenly and unexpectedly America may be cut off from many European sources of manufacture and information. It is increasingly evident that all the American countries should gain the manufacturing and commercial independence which may be derived from a thorough scientific investigation of their natural resources. Among these the tropical American vegetation is one of the most significant and merits much more earnest investigation than it has thus far received.

It is confidently believed that the proposed studies will do much to extend the knowledge of South American products, and thus to increase trade and conduce to friendly relations with the countries concerned.

In the realm of pure science the results obtained will also have very important bearings on the studies of Central American vegetation already prosecuted by the National Museum and by the Gray Herbarium, and on those of the West Indian flora conducted by the New York Botanical Garden.

The scientists in charge of the botanical collections of the three cooperating institutions and other botanists and economists have long known the need for organized information relative to the vegetation of northern South America; these collections already contain specimens derived from various sources in the past, representing a considerable proportion of the plants inhabiting the region, and of their products, but much of this material has not been critically studied nor determined botanically. Old World museums and herbaria contain a more complete and better studied representation than American institutions possess. The extensive literature of the sub-