

# Dehydration Great War Aid as Food Saver

SENATOR THOMAS P. GORE of Oklahoma has introduced in the Senate a bill authorizing the Secretary of Agriculture to establish throughout the country dehydration plants available for public, municipal and State use and capable of drying perishable products of the orchard and farm so that they might be packed away for future consumption. The bill appropriates \$2,000,000 for the undertaking, the States and the cities concerned to join in paying half of the cost of the installations.

By this means fruits and vegetables would be saved which ordinarily go to waste, and so much more food would be available. If dehydration is carried to a point where the residual moisture is below that needful to induce mould and fermentation dried fruits or vegetables can be stored for many months without fear of deterioration.

Not only that, but they can be packed in containers that cost relatively little and

## Vegetables and Fruits Made Far More Palatable by Process Than by Ordinary Canning

are not so expensive to preserve as the run of canned stuffs. That is to say, dehydrated produce can be put up in cardboard cartons or paper lined barrels. This obviates the utilization of tin plate, which is especially high priced at the present time.

But the desiccated product is economically superior to its canned competitor. The reasons are: First, the dried vegetable is really concentrated nourishment, because it has had withdrawn from it a very considerable percentage of water, which can be easily replaced at the place of consumption. Second, the dried commodity, pound for pound of sustenance, weighs far less than its canned kind and therefore it takes up just so much less valuable space during transportation and storage. Third, rough handling and moderate injury to the container will involve little or no loss, while a punctured can of tinned goods is a ruined package.

Drying processes for fruits and vegetables are not a novelty in the United States. There is an immense business done in desiccated products, but as a rule the bulk of these are fruits, and comparatively little upon a large commercial scale has been developed in the matter of dehydrated vegetables.

### Must Hold Their Flavor.

It does not suffice merely to dry perishable foodstuffs so that they seem dry to the touch: they must be so low in moisture content that they will hold their flavor and color long after they have been desiccated and when cooked appeal both to the eye and to the sense of taste. If the dehydrating is not scientifically done the result will be a failure. Ideal drying, that desiccation which takes place naturally in some arid parts of the country, is a process which draws out all of the moisture from the very innermost parts of the substance. This is effected by means of solar heat and a peculiarly dry atmosphere.

Latterly inventive cunning has evolved dehydrating apparatus capable of duplicating nature's action, and, besides, doing the work anywhere and in a shorter time. That is to say, in the course of a couple of hours sliced fruits and vegetables can be robbed of all but a small percentage of their contained water and made proof against deterioration.

It is obvious that the surest way to make every acre of vegetables and every orchard yield a maximum measure of food both for our domestic wants and for shipment abroad would be to do just what Senator Gore has proposed, to erect thoroughly efficient drying plants all over the country at focal productive points and place them in the hands of men capable of skillfully operating them.

### Helped to Offset Blockade.

Dried vegetables have helped Germany to maintain herself despite blockades and the extensive curtailment of her external sources of food supplies. "Why," asks Edward Page Gaston of the International Dehydration Association, "should we suffer from a shortage of food, with the vast extent of our fertile fields, when the foremost of our enemies has been able to maintain herself despite production difficulties far worse than we have dreamed of?"

Mr. Gaston is an American who has had exceptional opportunities since the outbreak of war to study conditions in Germany, and he lays the greatest stress upon the part played by desiccating plants in that country. To quote him:

"My experience in relief work in Germany and Belgium makes our waste here all the more shocking as I view it now. Not a lemon peel or a melon rind is thrown away in the Kaiser's realm. Everything is turned to some account. While going through the prison camps in Germany and Belgium and wandering elsewhere in those countries I was amazed by the gigantic strides made by the Teutons in the drying of fruits and vegetables.

"There were no fewer than 400 dehydrating establishments in the German Empire prior to the fateful first of August of 1914. From information which I gathered abroad and facts that have come to my knowledge since I am satisfied that there are probably a thousand of these plants there now.

"The shortage of the ordinary mate-

rials required in canning compelled the Germans to resort to drying processes on a greatly expanded scale. This is one explanation of why our enemies have been able to show such marvellous endurance.

"Dehydration has enabled them to move rapidly to the fronts vegetables in a condensed form, and thus to move quickly immense quantities of subsistence of a palatable sort. In this way it has been possible to vary the dietary of the troops under conditions which would seem at first blush quite out of the question. The men of the navy and the civil populace have likewise benefited for the same reason and from the same source.

"Our own authorities are awakening to the real meaning of conservation through the drying of foodstuffs, but we shall not get anywhere in the matter unless coordination be the keynote of the Federal and the State efforts to promote the establishment of desiccating plants. The scattered activities of individuals won't contribute to any marked amount to the volume of saved produce.

"The German Government and the municipal authorities of the empire did not leave it to the initiative of the people; those in power saw to it that drying equipments should be assembled wherever the quantities of fruits and vegetables made such plants worth while. How much we can save by improving our ways in handling perishable comestibles has been made clear by our Secretary of Agriculture. Mr. Houston has estimated that there is an annual wastage per capita of about \$7 in this country arising from faulty methods of cultivation and distribution. That is to say, approximately 50 per cent. of all the produce we raise is sacrificed and does not reach the consumer.

### Are Better Known in Europe.

"Strange as it may seem American dried vegetables are better known abroad than they are here. Before I returned to this country I was able to open up a very promising market for native commodities of this sort, and one demand, amounting to a goodly number of tons, was promoted in conservative London; to be specific, the great Army and Navy Stores of the British metropolis.

"I also obtained orders from certain English exporters, who sent these dried vegetables to Mesopotamia, to the Persian Gulf, to Chile, to Australia and to other parts of the world. One consignment went up the Tigro-Euphrates Valley for the British troops during the advance upon Bagdad.

"I have talked with the Governors of some of our States and with many other leading people who wished to inaugurate campaigns in their localities through the Chambers of Commerce, &c., for the purpose of creating a definite national movement for the widespread practice of dehydration in preserving perishable farm products. Aside from community dehydrators, a special effort will be made to construct travelling plants. One of the largest American corporations, a company which serves more than two million meals yearly to its road crews, has started negotiations looking to the installing of separate plants on several railway cars.

### To Prevent Food Waste.

"The idea is to send these about the country wherever vegetables and fruits shall be reported in overabundance and likely to rot for lack of immediately available shipping facilities or because of a momentarily lacking market. After making a cleanup in one place the outfits would move on to the next nearest available point for action.

"Plans are also being considered for dehydrating plants which can be mounted upon fleets or motor trucks of large dimensions. Drying plants of this sort, because of their transportation flexibility, could go right on to the fruit and vegetable farms after the fashion that a harvesting outfit moves about the country.

"The demand for desiccated foodstuffs is steadily increasing, particularly among people who are familiar with the best we can do here. One foreign government has already purchased four hundred tons, which is equivalent to forty-eight million rations. Another government has been inquiring of late for ten thousand tons of these so-called dry fresh products.

"Because of its compactness food in

this form helped in the discovery of the South Pole. Amundsen, the Norwegian explorer, carried it with him during his successful Antarctic trip. Donald MacMillan, while upon his Arctic explorations, had with him American dehydrated vegetables for more than four years. This is a striking example of the keeping quality of foodstuffs in this form.

"I am assured that dehydrated products can be produced and sold at a price substantially lower than that for canned goods, and at most times for less than fresh vegetables as they are generally offered in the cities. This is a matter of some moment in view of the prevailing high prices of food.

"It is all very well to urge the farmer to greater productive effort, but it is plain that the same old scale of wastage will continue unless we either use quickly or preserve in a satisfactory fashion the great volume of the fruits of his labors. Dehydration is the surest way to achieve this vitally necessary end."

## French Chemists Busy Utilizing Resources

FRANCE is in no way inferior to any other country as regards the production of chemicals and the raw materials necessary to their manufacture, according to a recent report of the Paris Chamber of Commerce. Because of the difficulties which American manufacturers have experienced in obtaining sufficient chemical supplies since the outbreak of the war the strides that the French have made despite the war are especially interesting.

Too much credence, the report says, has been given to a time worn legend tending to establish a belief that France finds herself in a state of evident inferiority when compared with other great nations in regard to the manufacture of chemicals and that she is in a measure dependent on the foreigner. An impartial examination of the facts that have come out since the war began will on the contrary prove that France is in no way inferior to any other country as a producer of raw materials required in the manufacture of chemicals.

The developments that have been and are being made by the French are described in the report. It points out that special training schools for chemists have been established. It says:

"The various improvements made in the working and management of her 9,000,000 H. P. hydraulic power enable her to amply supply her own works and factories. By making a reasonable use of coal she is able to dispose of more than 470,000 tons of tar a year for the manufacture of coloring matter. In regard to the production of sulphuric acid, the very base of chemical manufactures the situation in France is at least equal to Germany's, being quite as favorable."

Prior to the war Germany produced 411,000 tons of acid and imported from abroad the materials required for the manufacture of 1,200,000 tons. French production amounted to 905,000 tons, of which 62 per cent. was obtainable from home sources. As regards chloride of sodium, France produces from her salt marshes, mines and works nearly a million tons. The treatment of sea water easily supplies her with bromine. Phosphates abound in French northern Africa, nickel and chromium in New Caledonia. Lastly France possesses the best layers of aluminum in the world, as well as mines of lead, antimony, arsenic and iron ore. The departments of the south and her colonies yield large quantities of oleaginous seeds, turpentine and plants used in perfumery.

The number of factories engaged in the manufacture of chemicals has been greatly increased, and special schools are training each year 200 chemists in all that is required in the way of a thorough technical education. In November, 1916, the Compagnie Nationale des Matieres Colorantes was founded, starting with a capital of 40,000,000 francs.

Other concerns have been formed or have extended their sphere of action. Special attention may be called to the founding at the beginning of 1917 of the Compagnie Francaise de Produits Chimiques et Matieres Colorantes de Saint-Clair-du-Rhone. The Societe de Saint-Denis has increased its capital from 4,375,000 to 7,000,000 francs. After the war French chemical manufacturers possessing such resources and plants should contribute in a very large degree to the economic expansion of the country.

## Col. MacArthur, Son Of Fighting General

COL. DOUGLAS MACARTHUR, who has been wounded and who gained the French War Cross the other day, is a good soldier by inheritance, being a son of Gen. Arthur MacArthur, one of the commanders of the American occupation forces in the Philippine campaign.

He was born in Arkansas November 9, 1876, and was appointed to the United States Military Academy at West Point from Wisconsin June 18, 1898.

Four years later he came forth as a star graduate and was assigned to the Engineers Corps. He was graduated from the Engineers School in 1908 and reached his Captaincy in 1911.

When the Mexican trouble came along Capt. MacArthur was attached to the General Staff—the goal of every ambi-



COL. DOUGLAS MACARTHUR  
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tious soldier in all lands. He was picked to take charge of the censorship, a delicate and difficult job in a country that sets much store by the freedom of its press. So well did he handle the job that when it was over the newspaper correspondents joined in a round robin thanking him for his good sense and judgment.

When the United States entered he was elevated to the rank of Colonel and made chief of staff of the Rainbow Division. He filled the place well during the formative stage of the division, and then, when the command went to the trenches, he dashed to the front and assumed a leadership that commanded in France the admiration of the French soldiers. During the fighting that followed the first week in March his personal efforts won for him mention in the orders of the day and the bestowal of the French War Cross.