We Can Lower Food Costs by Drying Vegetables

Edibles now wasted by spoilage and surplus production can be saved through work of new invention—boon both to farmer and consumer

FIFTY THOUSAND DOLLARS was cast into the Atlantic the other day by officials of the New York department of health. To be specific, something like 2,000,000 overripe oranges were destroyed because they were not fit for sale. Thus 250 tons of foodstuff from Porto Rico and Jamaica were lost after having been brought a long distance at a considerable outlay, says the New York Sun.

Again, not long ago, 2,300 bags of onions were thrown into San Francisco bay because they had deteriorated in the warehouses and could not be sold. These instances are but two among many thousands of similar cases of market losses. They give an inkling of the enormous wastage in produce that goes on in the United States annually, and all because green vegetables and fresh fruits will remain edible so long and no longer. The loss could be prevented if part of the moisture in the fruits and vegetables could be eliminated without injuring them.

The average citizen does not realize it, but his watered foodstuffs are levying toll upon him all along the line. It is that moisture content that invites deterioration and decay.

Trace the story a step back. The marketman has to contend with the same conditions; a goodly percentage of his stock wilts and deteriorates upon his hands because of the trouble-breeding moisture; and what he sells must bring a higher price in order to fetch a general profit. The wholesaler is confronted by the same problem, because he has to pay charges for transportation, cover depreciation in transit, and sell at prices that will insure a balance on the right side of his ledger.

Again, the farmer must ship only the very best of his produce in order that his perishable wares may stand reasonably well their journey to the markets. As a result, where his fruits and vegetables ripen overabundantly he must count broadly as a loss that part of his harvest which remains on his hands. He must get enough from his sales to pay for this wastage and the ultimate consumer sighs at the price thus made necessary.

A possible remedy for this state of things lies in the process recently perfected in this country that makes it practicable to dry fruits and vegetables without impairing their palatableness and their natural nutritive values. The hard pressed Germans have already been doing something in this direction.

The beet and the potato were the two vegetables that the Germans worked with on a large scale originally. Later they took up the drying of beet tops, potato tops, peas and grains for the feeding of domestic cattle. Before this, it was the common practice to pack away the beet tops in silos, and quite two-thirds of the crop was used in this fashion, but a good part of the ensilage was commonly spoiled by fermentation. It was to avoid this loss that the Germans resorted to drying. The result was a green, tender fodder containing a starchy content of 35 per cent. A ton of fresh leaves made 200 pounds of the dried foodstuff for cattle. The nutritive value was found to be as high as the more expensive meadow hay.

It was only natural that the Germans should elaborate their factories for this work, and give particular attention to the drying of vegetables for household use. The industry was widespread and thriving before the outbreak of the war. Indeed, it was generally recognized that the Germans were the masters of the art.

The vegetables dried are carrots, cabbages, kale, potatoes, spinach, turnips, etc. They represent the market surplus which would otherwise rot, and which, by being dried and packed, can be kept without fear of spoiling for a long time. The dried vegetables keep simply because the better part of their moisture content has been removed. The thing sounds simple; but the actual process presents difficulties.

The process of drying vegetables referred to as having been developed in this country is the work of Waldron Williams, Woodford Brooks and Dr. F. G. Wiechmann. Mr. Williams tells the story of the work of himself and his associates.

"I never realized how little was known about the art of drying until my attention was attracted to it as a field of commercial effort," he said. "I turned to my fellow alumni at Columbia university and hunted high and low in the technical libraries, but when it came to practical details none of these sources of information was of material aid.

"Finally we decided to make our own experiments, and something like two years ago we hit upon the working principles of our method.

"Our patents have not yet been issued, although they have been allowed, and therefore I do not feel warranted in going into particulars. Broadly, however, the process consists in utilizing air currents at relatively low temperature, which serve to draw out and carry off the moisture in the cut-up vegetables while leaving them unimpaired in flavor and nutritive value. Please observe that the vegetables are raw and not parboiled or in any way cooked at the time they are subjected to the moisture extracting process.

"We are able to control the volume of the air currents and their temperature to a nicety. The time required to dry the products depends essentially upon the fruits and vegetables dealt with. The period of treatment ranges between two hours and something short of five hours. This can be appreciated if one will stop to think how the watery content of various vegetables differs.

"For instance, fresh beets contain 87 per cent of water, cabbages 91.5 per cent, onions 87.9 per cent, potatoes 78 per cent, and tomatoes as much as 94.3 per cent. The larger the volume of water the longer the drying operation must be maintained in order to reduce the moisture content to the desired minimum. By our system we kept the percentage of moisture well inside of 12 per cent. This prevents the development of the microorganisms that promote fermentation and therefore the chemical actions are checked or avoided which would start deterioration and possibly lead to decay.

"Before our plants were working for the market at Middle River, Cal., Round Brook, N. J., and Webster, N. Y., it occurred to me that it might be well to visit Germany for the purpose of seeing how our products compared with those turned out by the factories there. I was fortified with letters of introduction to the foremost of those establishments, and logically I chose to make my first call upon the managing director of the most noted of the vegetable drying companies.

"He received me in a very handsomely appointed office, bearing all the hallmarks of commercial success, and courteously asked me to explain the object of my visit. I did this briefly. At once Herr Direktor waved his hand deprecatingly and expressed his sincere regret that I should have come so far to lay before him anything that pertained to the art of drying. 'I could have saved you the trip, Mr. Williams, because we know all there is to know about drying and improvement and to show us something new is quite impossible,' he said.

"Naturally I was not disposed to linger, neither was I inclined to display my samples, but the alert Herr Direktor had seen that I had some, and more out of politeness than anything else expressed a desire to see them. It was plain that he was at once interested, and before long he had six or seven of his technical associates summoned to the office, and they too were impressed.

"The Herr Direktor dismissed them, and when the room was cleared, turned to me eagerly and said: 'Mr. Williams, name your price. I did not believe vegetables could ever be dried to look like your samples.' As our patents were then pending in the German patent office I was not prepared to come to terms, but I left that establishment satisfied that we Yankees had forged a long way ahead in a very difficult art and I realized that we had the solution of a vexing economic problem—the utilization and the preservation for subsequent consumption of millions of tons of vegetables and fruits that would otherwise go to waste.

"How well we have succeeded in retaining the natural flavor of fresh vegetables is evidenced by the testimony of a New York housekeeper, a friend of mine. Merely to satisfy her curiosity I sent her a package of our dried spinach. The next time I saw her she said: 'Why, Mr. Williams, that spinach was actually fresher than the green stuff that I buy at my grocer's. Naturally, because that spinach was dried inside of eight hours from the time it was picked, while the provision store was selling spinach anywhere from a week to ten days old.

"We treated the vegetable when it was succulent and fresh and full flavored. The store article had been deteriorating for days before it was cooked. Upon this subject we read something from a government report:

"'Only those that have been accustomed to eating green vegetables fresh from the garden realize in what poor condition are many of the vegetables sold to the city buyer. Some varieties, as green peas, are so delicate in flavor that even a few hours' removal from the vines brings about a change. Indeed, the market gardener has been obliged to develop the keeping qualities of vegetables and fruits at the expense of flavor. If tightly packed and transported only a short distance the deterioration in most vegetables is not noticeable, but if closely packed for any length of time changes due to the action of enzymes or ferments normally present in the living tissue takes place, with a consequent loss of flavor.'

"Further, the same report calls attention to a very common spectacle in and about our markets: 'The huckster in his off hours may often be seen trimming off the wilted outside leaves of celery, cabbage and lettuce, and giving a fresh surface to the stem, and sometimes rinsing or sprinkling the lettuce with water not infrequently far from clean. The beets which are left over, after losing little by little their tops, are sold by measure to whoever will buy.'

"The department of agriculture is the authority for the statement that not less than 50 per cent of the fruits and vegetables grown in the United States never reach the consumer. Of course, a large part of this is wasted or thrown away or destroyed because the price does not warrant the farmer in shipping them.

"Why shouldn't these products be so conserved that they would keep indefinitely and be welcome upon any table? It is possible by our drying process to preserve these fruits and vegetables in forms that are bound to be a boon to the housewife and a comfort to the family purse. Our dried products, for instance, can be sold at a lower price than the normal retail market price for green stuffs, and we should only find fresh vegetables formidable competitors when there is an overabundance."

SCRAPS

Waterproof knapsacks made of horsehair have been invented by a Japanese army officer.

A British patent covers a series of tanks attached to a cable to permit a vessel to spread oil on rough water.

Experiments with cooling buildings by forcing air through hollow walls with electric fans are being tried in India.

Rice straw in Arkansas is to be made into paper.

French scientists who have investigated have found that rubber is subject to attacks by microbes unless kept in perfectly dry air.

So bituminous is the clay found in one place in England that bricks made from it yield oil, gas and ammonia when heated in retorts.

The French minister of agriculture has appointed a commission to study the question of improved machinery for farming purposes.

Sweden's government has made arrangements to control and distribute raw materials, especially foodstuffs, because of the high prices.

Some species of lizards are seven feet long.

One of the newer electric irons is made to retain much of its heat after the current is shut off, and thus save electricity.

Flour costs more in Venezuela than for many years past, but competition among the bakers has reduced the cost of bread.

A fan that resembles the familiar electric is driven by a hot-air engine in its base, gas or denatured alcohol being the fuel used.

A vest with lapels that turn up and button to form a throat and chest protector has been patented by an Englishman.

A steering wheel, adjustable to several positions, has been invented to replace the handlebars of a bicycle or motorcycle.

An Illinois inventor's dredging machine literally walks on large feet and will travel over ground too soft for caterpillar tractors.

The surface of the Caspian sea has been gradually sinking for several years, until now navigation has been impeded at several points.

A Spanish bell bearing the date 1247 is still in use in Oakland, Cal.

German breweries are manufacturing a form of yeast to be mixed with stock foods to increase their nourishing qualities.

The United States bureau of fisheries now supplies more than 4,000,000,000 fish specimens annually to different hatcheries.

The production of apples in the United States equals a bushel and a half for every man, woman and child in the country.

Rubber nails for places where metal ones would corrode are a novelty from Germany.

A portable generator has been specially designed to provide electric lights to permit farm work to be done.

It is said the largest tree known, in thickness, is a partly decayed chestnut in Sicily, which is 60 feet across. Mexican cypress and the Oriental plane have reached 40 feet. This puts the California big tree and the baobab in the background, but the big tree is of greater bulk in combined height and girth, and the baobab is thickest in relation to height.

DESIGN RESIDENCE TO FIT BACKGROUND

Satisfaction With Your Home Heightened if the Place Is Beautiful.

NEAT DWELLING DESCRIBED

Plant Dark Leaved Shrubbery Near Structure and Make Foundation of Dark Texture Brick for Most Pleasing Results.

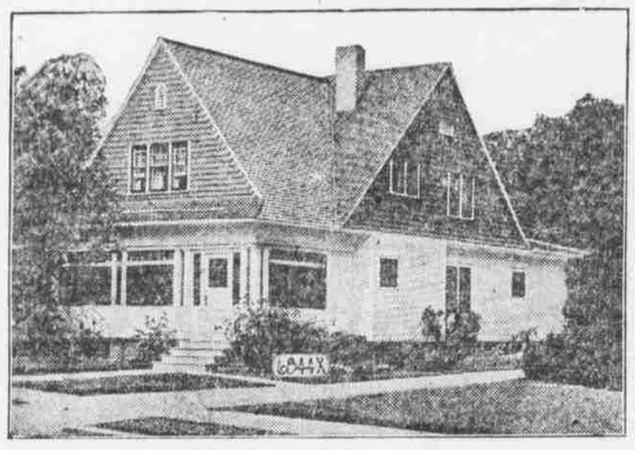
By WILLIAM A. RADFORD.

Mr. William A. Radford will answer questions and give advice FREE OF COST on all subjects pertaining to the subject of building, for the readers of this paper. On account of his wide experience as Editor, Author and Manufacturer, he is, without doubt, the highest authority on all these subjects. Address all inquiries to William A. Radford, No. 1827 Prairie avenue, Chicago, Ill., and only enclose two-cent stamp for reply.

There is, of course, a direct relation between the house and its surroundings. By this we mean that either the surroundings must be laid out for the house, or, as in the case where a spot of special natural beauty is selected for the building site, the house must be designed for the surroundings. The latter case obtains in some small towns and in country estates. The former case, or a compromise between the two, exists in the larger towns and cities.

Perhaps it is not the case in this country so much as it is in some of the European countries, but the fact is true, nevertheless, that for the lover of beauty both natural and architectural, the small town which has been situated where nature has furnished plenty of trees, a pleasing topography and clear-watered streams—such a town offers the best possible site for the building of a home. The point is this: It is cheaper and usually more satisfactory to let nature furnish the attractive surroundings and model the home into the background, than to build the background for the home.

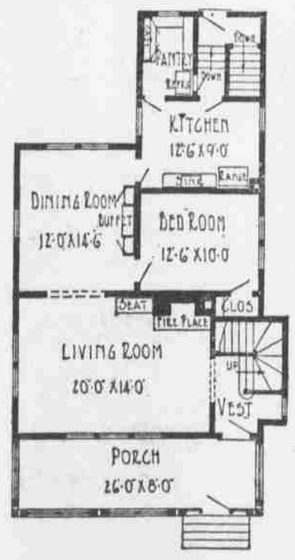
Not that those who have studied into the subject of scenic architecture



Seven-Room Family House.

are not able to produce pleasing surroundings for the house, for they have proved their ability to do so. Because it is impossible for some lovers of beauty to go where nature has provided it, the work of the landscape architect is very important. The small town blessed with natural beauty is, then, not so much to be considered as the only possible site for the building of a beautiful home as it is to be considered as a spot which offers advantages hard to obtain in imitation of nature, unless a large sum of money is available for the purpose.

The question might be asked, "Why not go to the country where nature's work has not been marred by the inroads of 'civilization?'" A logical question, and in some cases the affirmative answer is unquestionably the right one. The man who comes from the city, however, or even the town, has been brought up in close touch with the people around him. His habits have been formed in the influence of society. Put him and his family away from the rest of the community and the result is

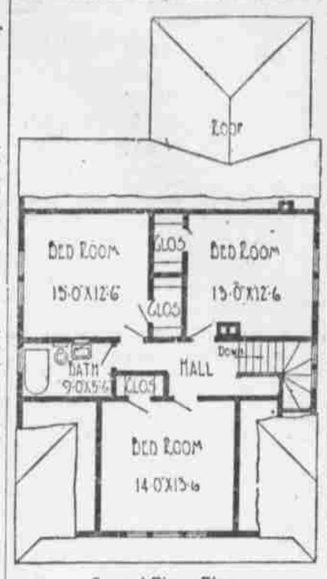


First-Floor Plan.

lonesomeness. Therein lies the greatest advantage of the beautiful small town. Habits do not have to be changed, friendships may be formed and the normal conditions of life exist. The man who owns an isolated summer home seldom goes there with his family alone—he crowds the house full of friends (or if he doesn't his wife does). And what is the reason? Simply that "I" is not used when the real pleasures of life are being discussed; the correct pronoun is "We."

What of the case in which nature has not contributed and the means are not available to supply the deficit artificially? The case is not hopeless! By proper architectural treatment a house may be placed on a 50-foot lot which is by no means devoid of beauty. True, it is largely up to the house itself, since little can be expected of the surroundings. The architect, in this case, can hardly hope to obtain pleasing results if the size of the house required is large. When a structure of moderate size is called for, his skill will enable him to so design it that it will appear smaller than it really is.

The attractiveness of a house which will yield well to a decorative treatment such as that shown in the accompanying view cannot be questioned. The white lower portion, in contrast



Second-Floor Plan.

with the upper dark portion, is very pleasing and always gives the impression of brightness that goes with well-kept premises. The upper part of the walls is finished with shingles, while the lower walls are faced with beveled siding. The porch is built into the house and fitted in a manner which gives an air of privacy. A set of screens may be used on this porch during the summer time, these to be taken out during the winter and glass sash inserted in their place. The porch will then act as a blanket to protect the front of the house from winter winds.

The small vestibule in which the staircase is built has a cased opening into the living room. The fireplace in this room is tucked cozily into a corner and a little seat is built against the wall at one side of it. A cased opening leads back to the dining room, which is built into the corner of the house—the ideal situation for this room. A first-floor bedroom, which would make an excellent den if not needed for other purposes, is entered from the dining room.

The kitchen with its connecting pantry is well arranged to meet the demands of the critical housewife. A work table is built beneath the pantry window and the cupboards are handily located on either side. The refrigerator may be placed in the pantry, and an opening is provided so that it is iced from the landing at the top of the short flight of steps leading from the grade entrance.

Three very large bedrooms are provided on the second floor. Each has a generous closet fitted with shelves at both ends. The bath is centrally located off the hall at the head of the stairs.

The view also shows a neat and inexpensive two-car garage built on the rear lot line. The garage is painted white to conform with the lower part of the house with which it is in line.

A house finished as this one is, requires the use of dark-leaved shrubbery near the building. The reason is that the upper dark walls need to be balanced by a mass of dark color near the ground. The effect is carried along by building the foundation walls above grade of some dark-colored material such as may be found among the many patterns of modern rough-texture face brick.

Dante Used Few Superlatives.

A contributor to the Italian review, Minerva, with time to spare, has made a count of substantives and adjectives in the works of Virgil, Dante and Leonardi. In the second book of the Aenid, which contains the Fall of Troy, there are 1,637 nouns and 589 adjectives. In Dante's "Divina Comedia," out of the 6,215 adjectives which it contains, only 17 are in the superlative.

Weather Signs.

The old remark about a red evening and a gray morning as indicating good weather (alluded to in the Gospel of St. Matthew) still holds good as well as that which says that a red sky in the morning foretells bad weather with much rain and perhaps wind. One of these remarks has taken form in: "A red sky at night is the sailors delight; a red sky at morning is the sailors' warning."

Punishment.

"He asked my daughter to go over to his house tonight and sing." "Looks as if he'd had another row with his wife."

UNCLE SAM TRAINING FLIERS FOR WAR

The photograph shows men of one of Uncle Sam's training schools for aviators examining instruments on deck and in the cockpit of the machine before making a flight. This inspection is made to insure safety and is repeated every time an ascension is made. Besides receiving instruction in actual flying, the men being trained spend many hours in the shops learning how to repair, take apart and put together their motors and other working machinery. The students are also taught how to construct minor parts of the machine.

COMMUNITY HEALTH MATTER OF CHOICE

May Be Maintained in Any Degree That the People Desire, Say Experts.

CONCERTED ACTION REQUIRED

Continued Education of Public Along Sanitary Lines Necessary, Declare Uncle Sam's Inspectors.

A very extended and interesting study has been made by Uncle Sam's public-health service on the subject of public-health administration. As the result of this long study, officials of the service have come to the definite conclusion that community health must be understood to be an attainable condition, and then that practically every community may have the degree of healthfulness which it desires to secure and with which it is satisfied.

Sanitary regulations, the experts say, often interfere temporarily with individual comfort and family management, and the statement often holds that any interference which tends to protect the health of the community is considered unwarranted interference with vested rights.

Individual Effort Ineffective.

The old idea, it is pointed out by officials of the service, that one's health is his own business, is based upon false and unfounded premises, and has no standing in the sanitary code of today. In the past, individual effort to protect oneself against infection from without has generally proved ineffective, they say, and the appearance of epidemics called for more concerted action.

The earlier efforts in public health work found expression in local communities before being taken up by the state. However, progress in smaller towns and villages has in many instances, the experts say, remained at a standstill. This lack of progress has often been due, it has been found, to a certain civic pride which has defeated any attempt to change the old order of things, or to co-operate with neighboring communities in promoting measures for the betterment of all concerned.

Local Boards Weak.

Although theoretically responsible for the health of the communities they represent, local boards of health are today, generally speaking, the weakest elements in the public-health machinery that is so slowly being built up for the physical welfare of the nation, according to these experts of Uncle Sam. Aside from certain routine matters, such as the enforcement of old-fashioned quarantine, the placarding of some of the cases of contagious disease that happen to have been reported, and fumigating at the termination of some of them, their activities are too often expended in attempting to abate common nuisances or settling neighborhood disputes over a chicken pen or carting away and burying dead animals—functions more fitting for the police department.

The study of the public health service on this subject has shown that the public has been slow, especially in rural communities, in accepting the simple facts of preventable diseases. Continued efforts to educate the individual as well as the public at large, the experts say, must be made, because success in public-health organization and administration depends upon the co-operation as well as the moral and financial support of the community. The same general laws, it is pointed out, govern health and disease in the city and the country.

REINDEER MEAT COMING

Venison From Alaska May Be Sold in United States Soon.

Efforts of Uncle Sam to Promote Industry Have Resulted in Establishing Big Herds.

With all the faithful pioneering that has been carried on in Alaska, with all the enterprising development of the past few years, vast stretches of the interior still remain unknown and unexplored.

The latitude of Alaska is very nearly that of Norway and Sweden. Families from the Scandinavian countries take particular delight in settling there, and similar conditions naturally suggest similar occupations. Stock in this country can feed itself throughout the winter months.

Large tracts of grassy land with their rich grazing possibilities suggested stock, the long winter demanded that the stock be hardy, Scandinavians and other settlers knew that reindeer would stand the gaff. Reindeer were brought. In 1892 Uncle Sam decided to use his influence in the establishment of reindeer breeding as a definitely organized industry, and in that year a herd was imported from Siberia.

For ten years annual importations continued; during that period 1,200 were brought over. Now 70,000 animals graze the plains and valleys from Nome to the farthest Aleutian island.

Of these, 46,000 are owned by the natives and native herds are acquired through a system of apprenticeship. The native whose work is approved by the superintendent in charge of his district is given six deer at the end of his first year.

Since its introduction the industry has spread throughout the southwestern portion of the territory. It is carried on with profit on the islands, and each year a large surplus is reported.

This surplus will in time develop into one of the most important sources of the meat supply of the United States, it is expected.

Secretary Lane is a strong believer in the future of the reindeer industry. He believes that the phenomenal growth of the Alaskan herds will continue in the future as it has in the past, and that with the improved transportation facilities resulting from the completion of the new government railroad, reindeer venison will occupy a conspicuous place on the American dinner table of the future.

TO PROTECT THE CHILDREN

Uncle Sam's Experts Would Have Country Profit by Experience of Europe in War Time.

Thousands of children besides war orphans and refugees have been directly affected by the war, according to reports from belligerent countries which have come to Uncle Sam's children's bureau. Juvenile delinquency has increased, more children have been employed under adverse conditions, special measures have been necessary to protect the health of mothers and babies, and home life has been broken up by the increased employment of mothers.

The bureau believes that the experience of other countries should be carefully considered in order that all possible provision may be made to prevent similar harm to children in the United States.

A preliminary survey of the foreign conditions emphasizes the importance of a strict enforcement of all child labor and school attendance laws and a generous development of infant welfare work by public and private agencies, it is declared.

The Two Sides.

The conflict of this world is between the material and the spiritual. The European war is an illustration of it. That is material. All wars are material, because they depend on force, and force is material. Guns, powder, dreadnaughts, battles are all material. Good will, reason, faith, friendship, aspiration are all spiritual. Now the most practical issue of the day is by which influence is the world to be ruled? If by materialism, we use hate, slaughter, devastation, blood and extravagance. If by spirituality, we use gentility, generosity, kindness, fraternity and consideration. There is a great abyss between the two, and poor human nature declines to bridge it and take up the spirituality side. But it will have to come to it if this planet is to be the place for intelligent humans to live on. In the far distant evolution there is a place where we will have to give up the material utterly and embrace the spiritual side. Every thinking man knows that.—Columbus (O.) Journal.