

Deacidified ✓

6/8/71

The FORECAST

August

When Boys and
Girls Study Foods
Blueberries as Big
as Grapes

Gelatine as a
Summer Food

An Outdoor
Living-Room

Is Sunburn
Harmful?

1923



25 CENTS

AMERICA'S LEADING FOOD MAGAZINE

THE FIELD OF FOOD

Blueberries as Big as Grapes!

By Virginia Nixon

FEW things inspire us with greater admiration than the sight of some gallant soul making an unspectacular, long-drawn-out struggle against natural forces; an inch-by-inch struggle, with the final reward, if it comes at all, nearly half a lifetime in the future. Homesteaders, who slowly and patiently turn our deserts into gardens, are the heroes of such adventures; scientists, who spend years in laborious experiments trying to make theories into certainties, show the same determination, and closely kin to them are such men as Burbank, who raise dozens of generations of plants before they can see signs of an evolution toward a desired form.

The warriors in this silent battle with Nature are the real banner bearers of progress. Their advance is slow, but the ground they have gained is seldom lost. To them civilization owes a debt that she can never really pay.

Few of these enthusiasts are more interesting than the little group who are working, individually, to tame the wild plants which are useful to man and make them live contentedly within the pale of civilization. One of the latest to win a notable victory is Miss Elizabeth C. White of New Jersey, who has, with the help of her father and the United States Department of Agriculture, succeeded in taming, cultivating, and improving the wild huckleberry of the marshes until she has produced a



A particularly fine type of blueberry produced by crossing two wild bushes; the berries are reproduced in the picture as large as life. They are practically seedless

beautiful, deliciously flavored berry five-eighths of an inch in diameter, as large as a grape. This is great news for that ninety-nine per cent of our population whose idea of a perfect dessert is luscious, crimson-dripping huckleberry pies, for while the berries have been increasing in size under cultivation, they have also increased in flavor and sweetness; and, like so many of us who put on airs when we come up in the world, have changed their name to "blueberry." This, Miss White explains, is to prevent them from being confused with the in-

ferior "upland huckleberries," which have large seeds that crackle between the teeth and cannot compare with the New Jersey "swamp huckleberries." "Therefore," she adds, "when the best huckleberry bush among several millions has been located on some Jersey swamp and transferred to our plantation, its fruit becomes the aristocratic cultivated blueberry."

Miss White is the second of her family to tame one of New Jersey's wild plant children. Her grandfather was the famous founder of "Whitesbog," who early in the last century, bought a large tract of the almost useless pine barrens, roped it off to indicate that it was private property, and began to cultivate thereon the wild cranberry of the region, with a view to improving them and making them commercially profitable on a large

scale. When he did so, the people of the countryside, a silent, independent folk known as "pineys," were furious; they had for generations made their living gathering wild huckleberries and cranberries, and it seemed preposterous to them that anyone should suppose he had the right to rope off the barren wastes which they had come to think of as their common possession. They scornfully trampled down his fences and made a point of picking his private berries first. Armed guards finally convinced them, however, that a new order of things had begun, and in time they



The packing shed at the edge of the blueberry field is a busy place; here a steady stream of pickers leave their filled baskets

became willing paid pickers of "tame" cranberries at Whitesbog. Indeed it was partly for their sakes that Miss White and her father undertook the cultivation of huckleberries. The cranberry-picking season is not a very long one, and she felt that if she could grow an additional crop of another variety on the pine barrens, the pickers would have work for a longer season each year.

The desire to cultivate the native wild huckleberry has been in the back of Miss White's mind for many years. She explained to the New Jersey Horticultural Society just how she succeeded in realizing this ambition:

"Father and I," she said, "often discussed the possibilities of cultivating the swamp huckleberries, but after spending an hour sampling the fruit on bush after bush, finding the berries on one too sour for our taste, on another rather flat and insipid, on a third too small to bother with, and so on for many plants, and finding only an occasional bush on which the good-sized berries had a most delicious flavor—peachy, father calls it—we always decided that, unless we could have only these best plants, we did not want to cultivate any.

"We knew that to have a plantation of any size and of the quality we desired it would be necessary, in some way, to propagate in quantity from a few fine plants. We had a vague impression that it was considered impossible to start huckleberry plants from slips or cuttings, and feeling unable to cope with this problem, for a long time we did nothing.

"But early in 1911, in the monthly list of publications issued by the United States Department of Agriculture, was announced the publication of a bulletin entitled 'Experiments in Blueberry Culture,' by Frederick V. Coville, which I immediately sent for.

"To me it was fascinating reading, for never before had I known that the soil of our bogs was acid, as was the water of our streams, and that it was this which made our bog water brown, as in acid water the humus is held in

solution, while in the alkaline waters it is deposited and the water becomes white. Never before had I known that associated with the roots of blueberry, cranberry and most other plants which grow in acid soils is a symbiotic fungus which, in some still unexplained way, assists these plants in obtaining the nitrogen necessary for their growth.

"We wrote to the Department offering to cooperate in their further experiments in blueberry culture. The offer

THE warriors in the silent battle with Nature are the real banner bearers of progress. Their advance is slow, but the ground they have gained is seldom lost. To them Civilization owes a debt that she can never really pay.

Few of these enthusiasts are more interesting than the little group who are working, individually, to tame the wild plants which are useful to man and make them live contentedly within the pale of civilization.

was accepted. In March of 1911 Mr. Coville sent me from Washington a few blueberry plants, seedlings of the best bush, the "Brooks," he had up to that time located in New Hampshire. He visited the plantation from time to time, and in this way and by correspondence kept me advised as to the progress of his experimental work in Washington. When in 1914 it became desirable for the Department to try in

the field a large number of hybrid seedling blueberry plants, the testing ground was rented at Whitesbog and since then father and I have cooperated on an extended scale with the Department of Agriculture, as represented by Mr. Coville, in its experiments in blueberry culture."

This cooperation with the Federal government is not the whole story, however, of Miss White's patient work in evolving cultivated blueberries; indeed, it is hardly more than one chapter. The principal theme deals with her own efforts to secure the best of the wild bushes growing around them, learn their life habits and the conditions under which they would thrive and then raise generation after generation of them, practicing all the time "artificial selection" so that every bush would bear larger and finer berries than its parent bush. A discouraging task this must have seemed, with a goal uncertain and very far away. But this woman was sustained by the enthusiasm of anyone who is engaged in creative work. Her dream was to bring into existence a quality of berry not known before, and for this high aim no work was too slow or too laborious.

Her first decision was to enlist in the cause the very people who had at first fought the cultivation of cranberries—the "pineys." They were accustomed to range the state for miles in every direction, picking wild huckleberries, and they knew their way around in the apparently trackless swamps. So she succeeded in interesting several of the "pineys" and persuading them, for a consideration, to look out for especially fine bushes found in their picking and report their location to her. Each searcher was provided with a little aluminum gauge 16mm. or a trifle less than five-eighths of an inch in diameter, three two-ounce jars for samples of the largest berries on a bush and a paper of typewritten directions. In the jars were wooden plant labels for the bushes and there was also a bottle of a weak solution of formalin, fifteen parts of water to one part of

formalin, to keep the berries in good condition. Whenever the "piney" came across a particularly fine-looking bush, he was to take the largest berry therefrom and try to drop it through the gauge. If it would not go through he was to mark the bush, bring back samples of its berries, and in the fall, when the time came for transplanting, was to be paid liberally to guide Miss White back to the spot.

"That summer," says Miss White, "my hopes were doomed to disappointment; for a severe frost while the plants were in bloom almost wiped out the crop of wild huckleberries, and apparently only one bush with big berries was left uninjured in New Jersey, at least that was all that was marked for me.

"Fortunately the bottles and gauges were not perishable and kept perfectly for the season of 1914, when I was really embarrassed by the number of plants marked. There were about sixty of them, and in November, after the plants had become dormant, I spent three weeks in superintending the digging. The plants were scattered over such a wide area, some being down at Jenkins' Neck, eight miles below Chatsworth, some near Vincentown, some in the neighborhood of Cranberry Hall and in most any swamp between. Five bushes a day was the very best I could accomplish; more often it was less. Here I would like to pay a tribute to the pine people who have assisted me to locate these plants. When we got in the woods and swamps, I was the one who read haltingly and with imperfect understanding, and had to rely implicitly on my piney guide. I have never ceased to wonder how they do it. We would leave some little-traveled woodland road for a less-traveled path; then we would leave that behind and wander around in some pathless thicket where all the bushes looked alike to me; then my guide would say, 'That there bush was right around here, that's the tree I broke—there it is now!' and he would show my little labels, some of them carefully covered up at the base of the stems so that no one might find and move them."

While the work of gathering the best wild berries was progressing, the bogs were being made ready to receive them. Here Miss White's long observation of their habits was a useful supplement to the information gained from Mr. Coville. She knew that the many previous failures to domesticate blueberries had been due to the erroneous idea that all they needed to make them thrive was rich garden soil and plenty of manure. This theory had always ended in disaster. The shy wild plants sickened and died in surroundings in which other plants thrived mightily. Their natural home was in the damp, acid pine barrens. Miss White also noticed that every thriving wild huckleberry bush had access to some tussock of moss or heap of loose, partially decayed vegetation through which both air and rootlets freely penetrated. She concluded that the roots must have a continual supply of both moisture and air, but must not be actually in standing water.

Consequently she had the bushes and small trees in the destined land burned and the soil turned over with a deep plow, so that the white sand would be on top. The blueberry fields at Whitesbog are also sub-irrigated, since they come under the influence of reservoirs maintained at a higher level for the benefit of the cranberry bogs.

Finally came the time for the planting. More than a hundred bushes with berries five-eighths of an inch in diameter had been located. Two of them bore berries three-quarters of an inch in diameter. Each of these selected plants was divided into many pieces, from which new plants were started. Thus each original bush yielded from 5 to 500 new plants.

Then followed three years of care and anxiety and nursing of the shy wild children before the first berries would appear and the ambitious foster mother would know whether or not her work had been in vain. When they did appear, many were as small as the wild ones, while others had no flavor. Only six showed enough promise to justify their cultivation. These were named, the Rubel, Harding, Sam, Dunfee, Adams and Grover.

"These six varieties are," says Miss White, "as distinct from one another as are varieties of strawberries, apples, or any other fruit. We named the varieties resulting from the wild bushes after the persons who found them. For example, the berry which we call 'Dunfee' was found by ten-year-old Theodore Dunfee. How tickled he was to have found a bush up to the standard! 'Sam' was found by Samuel Lemon—you see we had to use his first name—and the Rubel by a chap whose name was Rube Leek. Dr. Coville said the last name savored too much of

onions, so a combination had to be invented."

The berries from the many descendants of these six varieties are of fine flavor, and the seeds are so small that most people call the berries seedless. In size they average over one-half an inch in diameter, and an occasional one is found three-quarters across, as large as a Concord grape.

The commercial possibilities of this crop are obvious. The land, in the first place, is cheap, since it is of a kind on which few other things will grow. Picking expenses decrease with the increase in size of the berry. The bushes also are long-lived, with a probable abundant production period of fifty years.

The market value is twice that of the wild blueberries, or huckleberries. A recent writer in *The Country Gentleman* quotes Miss White as saying:

"Our commission man has been getting forty cents a quart for our berries, whereas the wild berries have been selling for only twenty cents. In spite of the fact that we are not yet ready to put a berry of uniform grade upon the market, since we are picking only from the seedlings which vary greatly in size, our berries already have a reputation and we could sell a great many more. Some of our choicest have retailed as high as seventy-five cents a quart. In 1920 our shipments netted twelve dollars a crate—thirty-two quarts—and last year they netted about \$12.50 a crate.

"One good thing about the cultivated blueberries is that we already have for them an established market. It isn't like trying to introduce a brand new fruit that no one has heard of before. The public doesn't need to be educated up to buying blueberries."

Specimen bushes of different strains are carefully protected from over-zealous pickers and birds by a netting cover, which is easily set aside when the fruit is to be observed and measured

