RESOURCES

Cork in Bottleneck

American industries using cork were embarrassed when only important cork-growing region was threatened by war. American cork will assure future supply.

By DR. FRANK THONE

➤ CORK FOR America's future needs is the objective of an ambitious planting project, participated in by federal and state forestry departments, numerous civic organizations and thousands of young people in school science clubs and Scout troops. A hundred thousand seedling cork-oak trees have been set out during the past three seasons, and by the end of the present autumn at least double that number will have been added.

Stimulus for this unusual program has been the embarrassing situation in which many American cork-using industries found themselves when access to the only cork-growing region that really counts at present was dangerously threatened by the war. The native home of the cork is the mountainous regions on both shores of the Western Mediterranean—Portugal and Spain on one side, Spanish and French North Africa on the other. When the Nazis overran France and achieved control of her North African holdings, that naturally took a large part of the cork crop out of our reach. Portugal and Spain remained neutral, but to get ships in and out of their ports involved running the thickest part of the submarine gantlet.

Used for Life-belts

Lack of cork means a lot more than trouble in getting stoppers for bottles. Bottle corks, indeed, are not the most important use for cork by any means. Cork blocks are needed for life-belts and fishing net floats; corkboard for insulation in refrigerators and house walls; cork gaskets for many uses; composition cork for crown cap liners; finely ground cork for heavy-duty linoleum, and various forms of cork for a hundred other purposes. Cork is one of those versatile natural materials, like leather, that can do a lot of jobs well, and for which there is no single acceptable substitute.

The freeing of North Africa, and the bettering of the shipping situation to Mediterranean ports on the European side, have relieved the cork situation considerably. Nevertheless, our recent unpleasant experience has taught us a sharp lesson and it will be far better, no matter what kind of improved world the peace may usher in, not to leave ourselves in a position to be caught in the same fix again. It is somewhat along the same lines with the well-known drives to get rubber, cinchona, manila hemp and other tropical products grown in this hemisphere instead of overseas, except that in this instance there will be the further advantage of having the once-imported product grown within the boundaries of our own country, not even on the premises of a good neighbor.

Originator and sponsor of the new drive to make the United States self-sufficient in cork, at least to a large extent, is Charles E. McManus, president of the Crown Cork and Seal Company, one of the country's major cork-using concerns. The movement has become more than simply an effort to provide a home source of a needed raw material; it amounts to a kind of crusade. The company, under Mr. McManus' impetus, has undertaken to collect cork-oak acorns from known sources, and to distribute these, or seedlings grown from them, to persons or organizations who can "give the little trees a good home."

At present, one source of the acorns used for seed is a good-sized grove of trees at Chico, Calif., set out by by the University of California in 1904. However, there are also a number of smaller groups of trees in California, as well as single specimens scattered over a considerable area in the South and Southwest. Arrangements for harvesting and distributing their acorns have been made in the various states.

The promoters of the drive are anxious to locate cork-oak trees that have not yet been reported. Here is where the efforts of interested persons, and most of all young people's organizations, can do the greatest good. Boys and girls, as well as grown-ups who like hiking in the open, make the best scouts for these valuable trees.

Cork is the outer bark of an oak closely related to the native live-oak of the South and Southwest. Cultivated specimens, from acorns (*Turn to page 250*)

WANTED—Search for cork oaks, such as the one pictured here, is being pushed to develop sources in the United States. They would free the nation from dependence on former imports.

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brought to this country long ago, are most likely to be found in states south of the Mason-Dixon line in the eastern half of the country, and west of the Mississippi in Arkansas, Louisiana, Texas, New Mexico, Arizona and California.

Since the cork oak is not a native tree it is not likely to be found in the woods, but more probably near human habitations, in parks and similar localities. Especially good hunting grounds are likely to be the plantings on large estates, and the half-wild stands of trees left around the ruins of old plantation houses and abandoned ranches.

It is not difficult to identify a cork oak. If you live in the South or Southwest, or are spending the winter there, you undoubtedly know what a live-oak looks like. A cork oak looks like a live-oak, except that its leaves always have toothed margains, and its acorns are usually very much longer and less bluntly pointed than those of the live-oak.

The really critical test, however, is supplied by the bark itself. Dig out a small block of the bark, if you think you have found a cork oak. If it is thick, and made of pure cork, your tree is a cork oak, and should be reported. A postcard to the Crown Cork and Seal Company, Baltimore, giving exact location, name of owner, size of tree, and abundance of acorns if any, will be a definite contribution to the national effort toward independence in one essential raw material.

The cork oaks that are now being planted will yield their first crops of cork bark in from 15 to 20 years, depending on soil, climate and other factors. After the first stripping, which usually yields bark of lower grade than that obtained in later harvests, thick shells of cork can be removed from the trunk about every 10 years for a century at least. Sometimes cork can be harvested from the lower portions of larger branches. Once a cork-oak grove is established, it becomes a long-time income-yielding part of one's estate.

Harvesting cork is a relatively simple affair, though like any job it is best done by those who have acquired some experience.

A blunt-edged, crow-bar-like tool pries the bark off in slabs. Sometimes the cork from the entire trunk can be removed in one piece.

The raw bark is put in big kettles or vats, weighted down and boiled vigorously for half an hour. This treatment removes water soluble materials and softens the bark. Then the rough outer surface of the bark, known as "hardback" is scraped off, after which the slabs are stacked up to dry and await marketing.

STRIPPING—The thick bark, valuable in many war products, is shown being stripped from a cork tree in California.

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ASTRONOMY

Molecule Identified

Comparison of spectrum of head of comet with that of oxyammonia flame and independent research both lead to identification of molecule as NH_2.

➤ NITROGEN-HYDROGEN molecules made up of more than two atoms have been found to be numerous in the head of comets. Working at their respective observatories early this year, Dr. Polydore Swings of McDonald Observatory, Dr. Andrew McKellar of the Dominion Astrophysical Observatory and Dr. Rudolph Minkowski of Mount Wilson Observatory independently concluded that a molecule composed of one atom of nitrogen and two of hydrogen plays a dominant role in the composition of the head of a comet.

Conducted mainly from measurements of spectrograms of the recent bright comets, Comet Cunningham (1940c) and Comet Whipple II (1942g), this study reported in the *Astrophysical Journal* (September) was made at the three observatories. Relatively few photographs of the spectra of comets in the visual region had been made previously.

The spectrum of Comet Whipple II was compared with that of an oxyammonia flame set up in the laboratory at the Dominion Astrophysical Observatory in Victoria, British Columbia. This flame very closely resembled that of ammoma burning in an atmosphere of oxygen.

The prominent features of the two spectra matched well, and it was believed that several of the strongest features in the emission spectra of comets are due to the molecule responsible for at least part of the oxyammonia flame spectrum, this molecule probably being NH_2, a molecule composed of one atom of nitrogen and two of hydrogen.

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