

# Research Scientists Discover New Ways to Unlock Chemicals

Portland - Oregon's forest industries will share in a rich harvest in the coming years as research scientists discover new and better ways to unlock the storehouse of chemicals hidden inside the forest trees of the Pacific Northwest.

So says the Oregon Committee of American Forest Pro-

ducts Industries, forestry educational organization, in a survey of silvicultural developments by leading forest industry chemical producers in the state.

"Silvicultural," a relatively new term in common usage, denotes the field of discovering and producing chemicals from wood. It was popularized by Rayonier Incorporated, a pulp and paper manufacturer in Washington.

Numerous companies and research groups in the Pacific Northwest have become active in this field, and Oregon, as the number one timber state, has a vital stake and a bright future in silvicultural.

Many leading forest product firms and organizations which maintain headquarters or branches within Oregon's borders are already beginning to show real results.

An example of the wide variety of uses into which new chemical products of the tree are finding their way is furnished by Crown Zellerbach

Corp., which says its silvicultural chemicals are going into asphalt emulsions, briquets, ceramics, cleaning compounds, gypsum board, softboard, insecticides, linoleum paste, road binders, concrete admixtures, oil-well drilling compounds, paint, paint solvents and strippers, agricultural chemicals, synthetic fibers, rubber, camphor, wetting agents, resins, solvents, plasticizers and a host of other products.

Weyerhaeuser Company is shooting for a full line of silvicultural and is presently marketing quercetin, a brilliant yellow chemical derived from Douglas fir bark which protects products such as rubber, plastics, vegetable and animal oils, feeds other commodities from spoiling or deteriorating. Company scientists are continuing their extensive research on bark components and whole-wood fiber products.

In Portland, Georgia-Pacific Corporation will soon start production of 200,000 to 300,000 pounds a month of cyan-

ide chemicals in a major new chemical pilot plant which will use bark and sawdust. The new plant will turn out glycerin, copper cyanide, ferric ferrocyanide, copper sulphate and nickel sulphate worth an estimated \$2,000,000 to \$3,000,000 a year.

A new research and development center of Evans Products company at Corvallis is pushing research on chemical utilization of wood residues. The center is presently turning wood fiber from nearby mills into plastic-impregnated battery separators.

Western Pine association's laboratory in Portland has developed methods for extracting arabogalactan, a sugar from larch which is useful as a pill binder, and an ingredient for such products as ink and glue. The pine industry researchers have also improved extractive techniques for resin, a source of turpentine and rosin. Resin, which makes up some 5 per cent of pine trees, can be obtained from stumps, or even from lumber.

At Corvallis, the Oregon Forest Research center, an industry-supported state organization, has isolated major chemical constituents from western trees and has developed uses for extractives from Douglas fir bark such as tannins, waxes and dihydroquercetin. Scientists there are also studying lignin structure and are working with wood residues.

Industry foresters who think of their producing Tree Farms in terms of timber crops for lumber and paper products, plus by-products in watershed values, recreation and wildlife habitat, are becoming increasingly aware of the vast chemical storehouse their tall timber also represents, says AFPI.

In fact, the industry organization declares, the day may be fast approaching when bark, limbs, knots, pitch pockets and all may be hauled to the mill to be ground up, cooked and reshaped into dazzling new products. Approximately 30 per cent of every tree in the forest

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consists of lignin - the "glue" which nature uses to hold the fibers of the tree together. Researchers have not yet fathomed its exact structure, despite their progress in obtaining a growing range of chemicals from it.

Many of them believe that once they achieve the breakthrough in pinning down lig-

nin's structure completely - which some feel may come within five to 10 years - they will then have the framework with which to create a silvicultural industry comparable to this country's diverse petrochemical field.

As the forest industries stride into this new age of silvicultural, AFPI points out, tree farming - the intensive management of privately

owned forest land to produce repeated crops of trees - will assume vital new meaning in Oregon's timber-oriented economy.

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By BENNETT CERF

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