

# BLODGETT FOREST



Carefully planned logging experiments being conducted in this part of Blodgett Experimental Forest will lead to marketing information for future management of second-growth forests.

**R**ESearch at Blodgett Experimental Forest is aimed at helping California's lumber industry during a critical period of change. Until recently, the State's lumbermen have worked mainly with old stands of trees yielding large logs. Most of this virgin timberland is now gone, and in the foreseeable future, lumbermen will have to work with younger, second-growth, managed forests of smaller trees. These changes will require research on new methods and techniques, if the lumbermen's competitive position is to be maintained.

The experimental forest consists of 2,731 acres of young-growth, mixed conifer trees, typical of over 3,000,000 acres of Sierra west slope country. The site is about 32 miles east of Auburn, on the Georgetown-Wentworth Springs Road, El Dorado County. Most of the forest lies between 4,100 and 4,600 feet elevation. It is administered by the University of California School of Forestry, Berkeley.

This land was logged-over during the early 1900's by the Michigan-California Lumber Company which later gave the forest to the University for use in forestry research. The controlled conditions available at the forest make it ideal for re-

search in many aspects of forest management and harvesting and related research.

At the present time, much of the work going on at Blodgett is for development. The area has been mapped and studied; a system of main roads, logging roads, spurs, and landings has been laid out and is being built so that every part of the forest will be accessible. Housing for permanent and temporary staff members of the School of Forestry has been built. Laboratories are available in one building.

Current harvest-research operations involve removal of old-growth trees left by the original loggers. These trees are often defective and are now much larger than the second-growth and would interfere with future marketing management plans. Proceeds from the sale of these large, older trees are also helping to pay for much of the forest development work at the station. The extensive road system is also being used to research the long-time value of planning and building adequate roads for the managed forest of the future. Records of three separate logging operations are being studied at Blodgett—one completely unplanned, one partially planned, and one thoroughly planned. In the most recent (1962) oper-

Elaborate installation surrounding experimental tree (also seen on cover) includes air compressor and rack of beakers and test tubes, left photo, used to maintain cooled, artificial atmosphere and allow introduction of radioactive carbon 14 (through carbon dioxide) without loss from respiration. Samples of "hot" resin, right photo, taken from base of trunk of the radioactive tree will be impressed into other experimental trees for use as a tracer in determining whether resin is re-metabolized or is a by-product of tree growth.



ation, which was completely planned, it was demonstrated that pre-planning can result in considerable savings.

It is not unusual, for example, to see logging operations with over 12% of the land in roads. On a 100,000-acre area this amounts to 12,000 acres of roads and a saving of only 1% would give the operators another 1,000 acres of cuttable timber. One plot of trees has been planted in rows like an orchard to research possible development of techniques for almost completely mechanizing timber harvests.

Seedling survival and growth as well as productive potentials of conifer types are being analyzed in phytometric, microclimate and soil moisture studies.

Entomologists are conducting an extensive project on the population and spread of the Western pine beetle. Aerial photography, with various film-filter combinations, is being used in conjunction with complete ground cruising to spot infestation trends as well as to test possible methods of detecting infestations of insects and diseases before visual symptoms appear. Bark from infested trees is being X-rayed to analyze the numbers and stages of the insects present. Seven hundred trees are being used to determine a possible correlation between the (resin) pressure of a tree and resistance to beetles. Resin pressure measurements are being taken several times during the year with gauges similar to those used in measuring boiler pressures. The distribution, abundance and biologies of principal parasites and predators affecting beetle populations are also being studied. Some of the current research projects and University personnel involved include:

**PHYTOMETRIC AND MICROCLIMATE STUDIES ON THE FACTORS GOVERNING SURVIVAL OF NATURAL AND PLANTED CONIFER SEEDLINGS; THE PATTERN OF SOIL MOISTURE DEPLETIONS UNDER UNDISTURBED CONDITIONS; THE GROWTH AND PRODUCTIVE POTENTIAL OF MIXED CONIFER TYPES:** Dietrich W. Muellder, John Tappener, and J. H. Hansen, U. C. School of Forestry, Berkeley.

**FOREST MANAGEMENT PLANNING:** Rudolph F. Grah, School of Forestry; Herbert C. Sampert, Manager, Blodgett Experimental Forest. **THINNINGS IN SECOND GROWTH PINE STANDS, LOGGING DAMAGE STUDIES, RESTOCKING OF YOUNG STANDS, AND WOOD QUALITY CONTROL BY TREE SPACINGS:** R. F. Grah.

**CULTURE AND MANAGEMENT OF CHRISTMAS TREES IN NATURAL STANDS:** Ed E. Gilden, Extension Forester, U.C., Berkeley.

**ROLE OF OLEO RESINS IN THE METABOLISM OF PONDEROSA PINE** (on Atomic Energy Commission Project): Edward C. Stone, School of Forestry, Ronald W. Stark, Department of Entomology and Parasitology, and Richard Tinus, School of Forestry.

**POPULATION DYNAMICS OF THE WESTERN PINE BEETLE:** R. W. Stark, Robert N. Colwell, Gene Thorley, School of Forestry; R. W. Bushing, A. A. Berryman, I. Otvos, C. J. Demars, Department of Entomology and Parasitology, U.C., Berkeley; R. C. Hall, U. S. Forest Service. The California State Division of Forestry, Pacific Southwest Forest and Range Experiment Station, and the Michigan-California Lumber Company are also cooperators.

**OLEORESIN EXUDATION PRESSURE AS A MEASURE OF TREE AND STAND SUSCEPTIBILITY TO BARK BEETLE ATTACK:** David L. Wood, R. W. Stark, Department of Entomology, U.C., Berkeley.

Marketable logs from old trees left by previous loggers are being sold to a lumber company and proceeds are helping pay for development work in the experimental forest.



A-frame construction of three cabins for housing personnel and equipment at Blodgett is particularly adapted for winter snows.



Microclimate effects on seedling survival of different conifer varieties are being studied at this Blodgett Forest test plot.