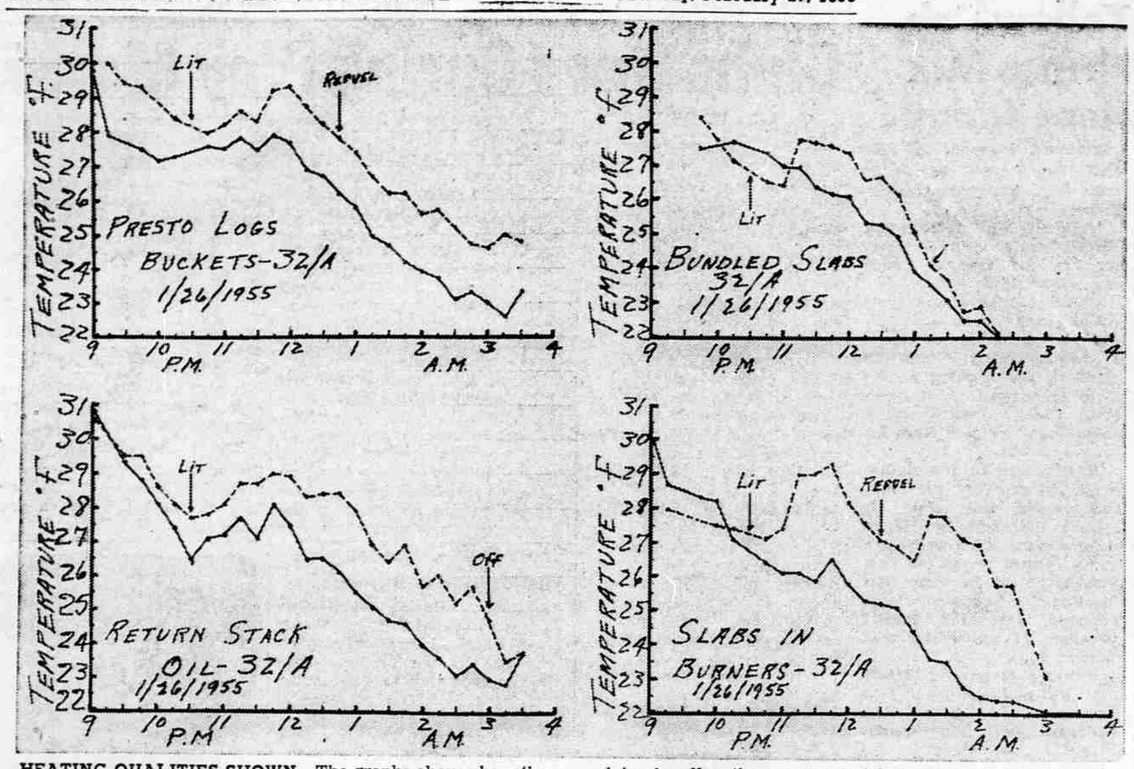
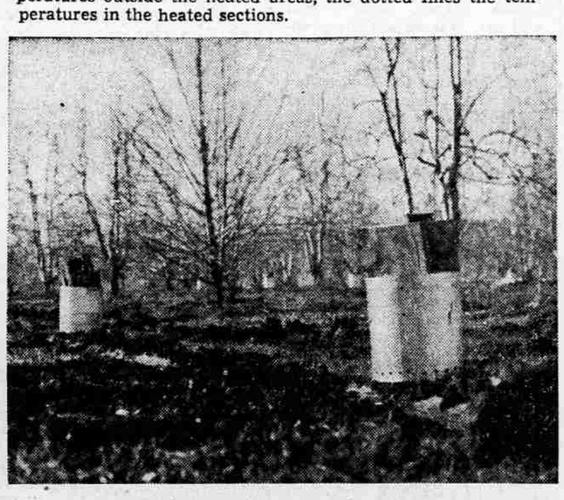


HEATING QUALITIES SHOWN—The graphs above show the relative heating qualities of fuels used in experiments in orchard heating, described in the accompanying article. Temperatures are shown on the vertical axes of the graphs, times on the horizontal axes. The fuels used included slabwood and edging bundles, the same materials in heaters, Presto-Logs in cans, and regular return-stack oil heaters. This experiment was conducted the night of Jan. 29. The solid lines show temperatures outside the heated areas, the dotted lines the temperatures in the heated sections.

PRESTO-LOGS BURNED — Shown here is the type of can heater used in the experiments in wood-burning to heat orchards, now under way. The five-gallon cans, with air holes punched around the bottom, contain four of the Presto-Logs, two of which are shown at right. They are lighted with the use of igniting oil, and will burn for two hours without attention, throwing out heat comparable to that put out by oil burners.



SLABWOOD, EDGINGS USED—Slabwood and edgings also were used in the experiments. Some were tied in bundles, and others were placed in can heaters, as shown above. The experiments are designed to eliminate oil as a heating agent and to make use of local products. Results so far as inconclusive but promising.

ORCHARD HEAT BY WOOD OBJECT OF EXPERIMENTS

Can wood products be used to protect fruit orchards during the frost season?

A series of experiments designed to answer this question has been conducted here this winter, and is still continuing. While no startling conclusions can yet be drawn from the experiments, the results show promise of success.

The story of the experiments, which have taken place at the Southern Oregon Branch Experiment station off Kings highway south of Medford, is a story of voluntary cooperation from hundreds of men and organizations, each contributing something to the project.

On three nights so far this winter, fires have been lighted in the station's orchards to test the relative heating qualities of oil, which is now generally used for heating; slabwood, easily obtainable from local mills, and Presto-Logs, which are made of pressed sawdust.

Preliminary results indicate that orchards can be protected from frost by use of the wood products. Whether this is practical or economical is yet to be definitely settled.

The experiments were originated with three thoughts in mind:

1. Burning wood products throw off smoke which is far less thick and dirty than that from oil flames;

2. Use of wood products would create a good market for now-useless or marginal wood products which are produced locally, and

3. Costs of using wood may turn out to be considerably less, both as to capital outlay for heaters and for actual operating expenses.

Temperatures Recorded

The burning trials were made on nights when the temperatures fell below freezing. Orchards were spotted with thermometers at regular intervals, and two balloons were raised over the orchard, equipped with thermocouples to record temperatures in the upper air.

One segment of the orchard had regular, return-stack (or "smokeless") heaters. Another had slabwood bound in bundles, and a third location was heated with Presto-Logs, arranged four together in five-gallon cans. Location patterns of all three were identical.

The wood fuels gave as good protection against frost as did the oil heaters, the researchers found. Several different methods of burning and arranging the heat sources were used.

The slabwood and edgings were strapped into 50-pound bundles about 20 inches long, set on end on the ground and ignited with the aid of oil. The Presto-Logs were burned in the cans, after being started with oil. The cans had perforations in the bottom to provide a supply of air.

Heat Roughly Equivalent

The slabs and pressed logs furnished heat roughly equivalent to that of an oil burner using about two gallons during the two-hour burning periods.

Some 4,000 acres of orchard in the Rogue valley are now heated for frost protection. In a typical season about 1,200,000 gallons of oil are needed, at a cost of some $175,000. Another 4,000 acres would be heated if costs were lower.

Wood to do a comparable job of heating would total some 10,000 tons a season. An ample supply is available, since sawmills in the area daily produce about 1,000 tons of slabs and edgings and 1,000 tons of sawdust and shavings.

Potential New Industry

The Presto-Logs are now imported, but if they prove successful ,they could be manufactured here under license, thus providing a small new industry for the valley.

Protection from frost has long been one of the major problems of orchardists in the area. Research on the methods began with the planting of the first orchards, more than 50 years ago. At first, straw, slabwood and practically anything else burnable, including manure, were used to heat the orchards, and in the cold days of early spring many residents of Medford turned out to help heat the orchards.

Later, oil came to be the standard heating agent, usually being burned in low, partly open pots. In recent years, as the population grew, complaints from residents about the smoke —usually known as "smudge"— grew to proportions where the orchardists have started looking for other methods.

Return-Stack Heater

One with promise is the return stack heater which sends the smoke back through the combustion chamber, reburning it and eliminating most of the undesirable elements in the smoke. But these heaters are considerably more expensive than the regular pots, and buying enough for several acres requires a major capital investment.

It was the search for alternative methods, offering the possibility of less smoke, smaller cost and benefits to other local business, that motivated the current experiments.

Orchardists know that heating is an absolute necessity for their business. Some years damage would be small, but in the Medford area alone in 1954 damage totaled an estimated $5,000,000 despite widespread orchard heating. If lower-cost and unobjectionable methods can be found, heating could be extended to "marginal" orchards which need heat only once every few years, thus eliminating the chance of a freeze disaster such as that last year.

Some Other Acreage

During the coming season, heating operations will be conducted at the station with the wood products. In addition, there is a strong possibility that some commercial acreage will be heated with Presto-Logs this spring.

The experiments are strictly a cooperative endeavor. They are sponsored jointly by the Forest Products laboratory at Oregon State college, Corvallis, the Jackson County Fruit Growers league and the Rogue Valley Traffic association.

But many other agencies, companies and individuals have joined in to help. Some of these include the Medford weather bureau, the Southern Oregon Branch Experiment station where the tests are performed, the extension service, the Southern Oregon Conservation and Tree Farm association and two of its members, Mogan and Ross Lumber companies, and others.

Dr. John Higdon, horticulturist at the experiment station, has been working actively on the project, which is under the overall direction of Stanley Corder, of the Forest Products laboratory. A number of local orchardists, merchants and interested individuals have aided with the work, as have several of the major oil companies.

One of the problems remaining to be solved is a method of water-proofing the Presto-Logs so they can be stored under damp conditions without going to pieces.

But the major problem remains the figuring of ways and means of doing the job, and figuring if costs will be low enough to make the use of the wood products feasible.

In 1896 two Americans — George Harbo and Frank Samuelson — rowed across the Atlantic ocean in an 18-foot open boat. They used only oars — no sails, no motor. Their 3,200-mile row took them 62 days.

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'Radar-Like' Equipment Spots Distant Copco Line Troubles

Fault-Locator Use Eliminates Trips By Checking Crews

A "radar-like" piece of equipment that spots trouble miles away is being used by California Oregon Power company to search out line trouble on its system in southern Oregon and northern California.

Known as a line fault locator, the equipment has been used successfully by Copco since about 1947.

Using it, an operator can look at a small screen located in one of eight towns in this area, and can tell what may be wrong with a power line up to 50 or more miles away.

Can Pinpoint Trouble

For example, it is possible to tell if a line, 40 miles away, is grounded or open. Better yet, an experienced operator can pinpoint the site of the trouble within a comparatively few feet.

Obviously, the saving in time, manpower and equipment, which this equipment makes possible, is extremely valuable to Copco.

W. H. Fisher, electrical engineer for the company, declares that location of one fault on transmission lines in mountainous country pays for the equipment by saving time and the cost of patrolling and sectionalizing.

Before the equipment was installed, it was necessary, when trouble developed, to send out crews through all kinds of weather. One crew would start from one end and one from the other. They would call in from time to time, sometimes hiking for miles just to reach a phone, until the trouble was located. Then, it might be necessary to send back for more men and equipment.

Sometimes, especially in winter weather, by the time one break had been found, another would occur.

Like TV Set

The things a fault finder operator can determine about transmission line trouble, just by looking at a screen that looks much like a television set on the blink, are hard for the layman to believe.

For example, on one occasion during a storm an operator at Grants Pass was watching his screen. He saw a sudden flash, immediately put the point of his pencil on it, and then did some rapid calculations.

He called a crew, and told them that a power line had torn loose from an insulator, and was swinging in the wind, coming in contact with another line. The trouble, he said, was on the line between Grants Pass and Crescent City, Calif., and he told them exactly where he thought it was located.

When the crew arrived on the scene, they found the trouble was exactly what he said it would be, and it was within a quarter of a mile of where the operator had expected.

Saw Second Break

On another occasion, an operator had discovered trouble and a crew had been dispatched. The operator resumed watching the screen and saw another break develop behind the crew. He called them by radio, they split the crew, and both breaks were repaired in short order.

In tests conducted last week on the line between Medford and Grants Pass, an operator pinpointed trouble set up for the test within six one hundredths of a mile.

A fault finder consists of a pulse generator, oscilloscope, and various other equipment. The pulse generator sends an impulse along the line being tested, and when the impulse runs into an open or grounded line, or other trouble, the impulse is reflected back and shows up on a line on the oscilloscope, or screen. The principal is much like that of radar, or sonar.

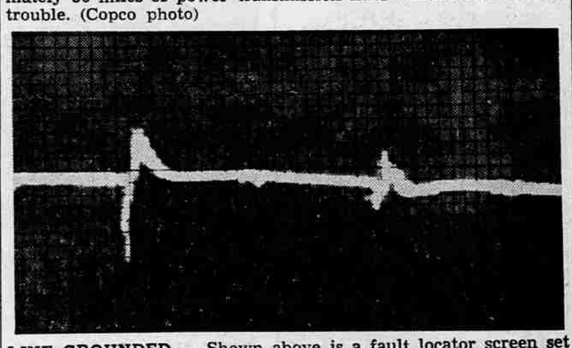
Shows 50 Miles

The screen shows approximately 50 miles of power line, and can be changed to show five-mile sections of the line. The larger the change in the line shown on the screen, the larger the trouble. If the change, or "pip" is above the line, it means an open circuit, and if it is below the line, it means a short circuit.

Squares, similar to those on graph paper, on the screen, allow the operator to determine the distance of the trouble from the site of the fault locator.

Locators are set up in Roseburg, Grants Pass, Cave Junction, Prospect, Yreka, Copco, Klamath Falls, and Alturas, and they can be moved about in a truck if necessary. Fisher explains that no locators have been set up in Medford, because the Prospect and Copco units can "look into the Medford area."

OPERATOR AT WORK — A Copco employee is shown above, working with a line fault finder. The larger piece of equipment, at right, includes the oscilloscope, or screen, on which approximately 50 miles of power transmission lines can be checked for trouble. (Copco photo)



LINE GROUNDED — Shown above is a fault locator screen set up on the line between Dixonville and Days Creek, in Douglas county. On the line, across the face of the screen, Dixonville is located at the extreme left. The large up and down break in the white line shows that there is a grounded line between the two communities, about 1 miles from Days Creek. The smaller up and down break in the white line, nearer the right side of the screen, is a reflection of the impulse to the grounded line. (Copco photo).

Tiny Pup Answers Medford Woman's Small-Home Needs

(Picture on Page 1)

Mrs. Walter McMahan, 243 Beatty st., has the answer for any home owner who desires a small dog for a small place.

She has a six-weeks-old puppy, which weighs all of four ounces and will fit nicely into the palm of a person's hand or a teacup.

Appropriately called "Little Bit," the dog stems from pedigreed parents, a chihuahua father and manchester mother, both small-breed dogs.

Tiniest of Four

Little Bit is by far the tiniest of four in the parents' first litter. However, she was not the smallest of the group at birth. One other was smaller, but since then has surpassed Little Bit in growth.

The tiny pup's quarter-pint size is a mystery to its masters, who have pampered her "just like a baby," including 2 a.m. feedings from a bottle the first few weeks. It was necessary to feed the dog separately—otherwise the larger animals would eat all its food. The dog now eats from a dish, and has "a good appetite for its size."

Is Cold-Blooded

Being so tiny and thin-skinned leaves Little Bit very cold-blooded, so she spends most of her time nestled under an oil heater or huddled with her three brothers and sisters. When left alone to walk, she is somewhat shaky, lacking the strength of her huskier relations.

At the present, Little Bit is 6½ inches long and 5½ inches in girth. It is doubtful that the pup will reach normal chihuahua size, about five to six pounds.

However, Mrs. McMahan said all four babies "looked like mice" when born. Little Bit has at last grown to rat size.

New Paint Company Here To Manufacture Products From Materials of This Area

The formulation of a fire-resistant roof coating from southern Oregon minerals and the manufacture of this and other types of paints, will get under way within a week or 10 days at the new locally-owned firm, Medford Paint Manufacturing corporation, 906 North Riverside ave., officers have announced.

Members of the firm have been carrying on research and experimentation for some months on the roof coating. Named Asbestex, it is made from aluminum, ground asbestos, synthetic rubber and several fire-proof chemicals that when mixed, result in a roof coating which is the most fire-resistant possible to produce, Robert L. Taylor, the president, said.

Local Minerals

The Medford Paint corporation is affiliated with the Bowers Chemical company near Grants Pass, which, Taylor said, owns large deposits of minerals from which are manufactured paint pigments and paint colors. These include iron oxides, raw and burnt umbers and siennas, ground asbestos, barium sulphate, antimony trioxide, chromium orange and chrome green, colored talcs and magnesum silicates.

This affiliation will enable the Medford firm to purchase paint pigments and colors at a discount and a part of the proceeds will be invested in the paint corporation.

North of Grants Pass

The ore deposits of the Bowers plant and the manufacturing plant are located about 40 miles northwest of Grants Pass. D. W. Bowers, a chemist and geologist of nearly 50 years experience, claims that it would take him more than a thousand years years to market all of the chrome and paint pigments and colors he can manufacture from his ore deposits.

Bowers and his sons, Calvin V. Bowers, an experienced millwright, and E. L. Bowers, Rogue River, experienced salesman and operator, are all investors in the paint corporation, and are members of the board of directors. The members of the board now are seeking an experienced business executive to join the corporation as office manager to complete the five-man board of directors.

At a meeting of the present board last week they voted to release for public sale $10,000 worth of their 6 per cent preferred shares of capital stock at $100 per share. The proceeds from this stock sale will be used in building a fire-proof addition to their building at 906 North Riverside ave., and in purchase of new machinery, the officers said. This will enable them eventually to give employment to a number of Medford men and women.

The Asbestex paint, Taylor said, will withstand the severest weather and temperature changes without checking or blistering, and will adhere tenaciously to all grades of composition shingles and roll roofings, all kinds of builtup and metal roofs, or to concrete and block construction. This makes it ideal for all industrial buildings and roofs of schools and other public buildings, he said.

Heat Resistant

Asbestex also is heat resistant, deflecting sun heat from walls and roofs, thus cooling interiors at least as much at 15 degrees, Taylor said. It is non-oxidizing, non-combustible, water and corrosion resistant and will not support mould or fungus growths. This roof coating will reduce replacement costs 50 per cent, according to the president.

The new corporation's factory also will manufacture a line of fire-resistant paints and enamels for both outside and inside of homes, and industrial and other public buildings, thus materially assisting in the work of fire prevention.

E. W. DeSpain is temporary secretary of the firm and Taylor also is temporary treasurer.

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