

TECHNOLOGY

Resin-Soaked Paper Upgrades Poor Lumber

► A SINGLE sheet of resin-soaked paper glued on each side of a white pine board can "upgrade" the lumber and make it more readily acceptable for many uses.

Developed by the U. S. Forest Products Laboratory in Madison, Wis., the use of paper overlays on lumber is expected to be put to use quickly by lumber producers in order to make good lumber out of imperfect trees.

Research by Bruce G. Heebink, laboratory engineer, revealed that the paper overlays both hide blemishes in the lumber and also greatly reduce swelling when the board absorbs moisture.

"In a lot of uses, blemishes in wood do not really matter, except for looks," said Dr. J. A. Hall, laboratory director. "So if we can cover them up, we have a more readily accepted material for construction lumber, cabinets, furniture parts, and so on.

"Paper overlays treated with waterproof synthetic resins and glued to the wood with waterproof glues can do this. The fact that they also reduce swelling, however, promises to make paper-overlaid lumber not just a substitute for high-quality clear lumber, but a high-quality product itself."

Dr. Hall pointed out that there is a need for "upgrading" in lumber because much of the best timber in most of the country has been used. This leaves young trees with generally knottier lumber, and old trees that are apt to have unsightly imperfections and would therefore be only common grade lumber.

Science News Letter, May 22, 1954

BIOCHEMISTRY

Cafeteria Style For Rat Poisoning

► AN OLD lettuce crate, properly baited, has proved one of the most effective tools for killing rats without risking the lives of household pets, experiments by Prof. Karl Paul Link, University of Wisconsin biochemist, show.

Prof. Link headed the research team that discovered Warfarin, the famous rat killing compound. For the past several years he has been conducting experiments to find the best way of getting rats to accept poisoned bait set out for them.

A lettuce crate with the bottom removed, and with both poisoned dry bait and water set inside it, proved to be the best of all the baiting stations he tried. A rat, he explained, likes water with his food, and likes to feel protected while eating his meal. The lettuce crate offers both these advantages while, at the same time, giving him a number of ways to escape through the three-inch-wide spaces between the boards at the ends. Also, a crate is a familiar object to the rat and he feels quite at home in it.

The use of a crate has the additional ad-

vantage of keeping larger household pets away from the bait.

Placing the bait in three small containers will help make it attractive to the rat, Prof. Link said, because a rat distrusts a single source of food and likes to nibble at one and then go on to another. Ground whole yellow corn proved to be the best of all the baits tried.

The crate, with the bait and water inside, should be placed over or as close as possible to the rat's hole, to attract him before he finds other sources of food.

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TECHNOLOGY

Listen in on Termite Footsteps, Jaw Noises

► TERMITES CAN be located by a compact sound detection device that records their footsteps, clicking noises made by their jaws, and a rhythmic tom-tom noise which they apparently use as a method of communication.

The sensitive device was developed by Roy Pence of the University of California at Los Angeles in collaboration with David Weems.

The instrument consists of a tiny microphone, "hip-pocket" power unit and earphones. Its compactness is especially suited for working in the tiny nooks and crannies "termite detectives" must probe. The designers say it may eliminate destructive "bore-and-chisel" methods now necessary to detect termites.

Termites apparently communicate by means of strange sounds. One such sound involves a rhythmic tom-tom like beat probably originated by soldier termites on sentry duty and relayed by other termites in the manner of a "jungle grapevine." It may be a danger signal, and is thought to be made by the termites hitting their hard heads on wood.

Another unique sound is a clicking noise. This occurs when sentry termites posted at entrances to the colony thrust their heads through the entrances at the approach of danger and snap their jaws.

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VITAL STATISTICS

U. S. Women Now Top Biblical Lifespan

► THE AVERAGE length of life expected at birth for American women is now 71.8 years, exceeding the Biblical lifespan of three score years and ten.

The average for men in the United States is 65.9 years.

The average for both sexes, 68.5, is a record high and represents a gain of nearly four years in the past 10, statisticians of the Public Health Service, U. S. Department of Health, Education and Welfare, point out in announcing the new life tables.

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PSYCHIATRY

Elderly Need Supplies To Their Self Esteem

► PRESCRIPTION TO ward off depression in elderly persons: Activities in which they can achieve or create something, thereby building up their self esteem.

This Rx might be written on the basis of findings reported to the American Psychiatric Association meeting in St. Louis by Dr. Ewald W. Busse of Duke University, Durham, N. C. It came from a study of almost 350 people aged 60 or older.

Work alone is not the solution to the problem of the depressions of elderly persons.

"Purely 'receiving' pastimes, such as listening to the radio, are not as good as productive activities, but a combination of the two is most desirable," Dr. Busse and associates found.

The elderly, their study showed, tend to be "misers" of their affections, because they are fearful that if they give their affection away, they will not receive any in return.

Associated with Dr. Busse in the study were Drs. Robert H. Barnes and Albert J. Silverman of Duke, Dr. Margaret Thaler, Denver, and Dr. Laurence L. Frost, Bethesda, Md.

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BACTERIOLOGY

Radioactive Phosphorus Detects Flaws in Germs

► RADIOACTIVE PHOSPHORUS is helping detect fatal flaws and consequent vulnerable spots in disease germs of the parrot fever and virus pneumonia group, Dr. James W. Moulder of the University of Chicago told the Society of American Bacteriologists meeting in Pittsburgh.

The germs have a diameter of about a fifty-thousandth of an inch. They are between viruses and bacteria. They are like bacteria in their response to antibiotic drugs. They are like viruses in lacking some enzymes essential for their life chemistry. Unlike viruses, however, they do have some enzymes of their own.

Once inside the cell of an animal or man, they progress in four major stages. The initial small body doubles in size, then splits several times to form a cluster. The clusters clump in a sac inside the cell. Then, 48 hours after the start of the process, the sac splits, breaks up the cell it infects, and releases a host of new germs to infect other cells.

For these and similar studies, Dr. Moulder was awarded the Eli Lilly and Company award in bacteriology and immunology.

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CE FIELDS

MEDICINE

Warn of Brain Damage After Heart Arrest

► MORE AND more patients are being saved from death only to lead a helpless child existence the rest of their lives, four Los Angeles physicians warn, in effect, in the *Journal of the American Medical Association* (May 8).

The patients are those whose hearts stop beating and who are revived by the dramatic procedure of opening the chest and massaging the heart until it starts beating again.

The trouble is that in such cases the brain has been deprived of oxygen so long it has been irreversibly and severely damaged, and cannot function normally.

In the Veterans Administration Neuropsychiatric Hospital in Los Angeles are three such patients, Drs. Richard V. Freeman, Louis M. Berger, Sidney Cohen and Wilbur A. Selle report.

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ARCHAEOLOGY

Discover Lost People Who Never Had Toothache

► A VANISHED people who once lived on Japan's north coast bordering the Okhotsk Sea never suffered from tooth decay.

The Society for American Archaeology meeting in Albany, N. Y., was told that this ancient people knew how to make and use knives, forks and spoons. They sewed with needles, cut wood with wedges and axes, and dug in the ground with a hoe-like tool. They also left behind flakes of stone that may have been used as razors. Yet agriculture was unknown among them, and they lived on fish and wild animals.

Discovery of remains of the people known as the Okhotsk Culture was reported by Prof. S. Kodama of Hokkaido University and Lt. Col. Howard A. MacCord, U. S. Army. Since they are both now in Japan, the report was read by Dr. Ralph Solecki of the Smithsonian Institution.

Sites of the Okhotsk people are found all around the Okhotsk Sea, in Hokkaido, northern Japan; the Kurile Islands and southern Sakhalin, north of Japan; and there may be Okhotsk sites in Kamchatka, although that has not yet been proved.

Bones found show that they were a broad-headed people with long, broad features, high cheekbones and narrow noses. Tooth decay was absent although the teeth were badly worn. The skull and facial features differ markedly from the Ainu people who later occupied the same site, and also from the Japanese and the Tungusic tribes of Sakhalin and Manchuria. However, similar

features are found in such northern peoples as the Chukchis and the Aleuts.

Where the Okhotsk people came from and what eventually happened to them is a puzzle still to be solved through later finds, although the scientists suggest that they may have been absorbed by the Ainu people. If that happened, however, the Ainu did not take over the knowledge of how to make pottery, because this later people did not make or use pottery.

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PHARMACOLOGY

Worthless Drug Found Useful After 100 Years

► AN OPIUM chemical known for more than a century, and generally considered worthless for all that time, has now found a medical use. It stops coughs and probably will be put into cough drops and syrups before too many more months.

The chemical is narcotine. Unlike other opium chemicals, it does not stop pain and it does not have any sleep-inducing effect. And, fortunately, it does not have the power of other opium drugs to make addicts of persons taking it.

It is the first non-addicting opium chemical with a specific anti-cough effect. A synthetic drug, related to a synthetic pain-killer, has also been found to have anti-cough action without having any pain-relieving action. Discovery of these two drugs has overthrown the long-held assumption that the cough-stopping action of narcotic drugs, such as codeine, was related to the pain-killing action.

Narcotine's cough-stopping action was discovered in animal studies by Dr. Charles A. Winter and Lars Flataker of the Merck Institute for Therapeutic Research, Rahway, N. J.

Trials in human coughers by Harvard Medical School scientists among others showed that narcotine had definite anti-cough effect and acted rapidly.

The animal studies showed it to be as good as another opium chemical, codeine, for stopping coughs, and the trials with humans seem to bear this out. Narcotine is now being made available to drug manufacturers for use in cough medicines.

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BACTERIOLOGY

Germ Poisons Make Polio Paralyze

► A NON-PARALYZING polio infection so mild it might escape detection could be transformed into a full-blown paralyzing attack of the disease by infection at the same time with diphtheria germs or some others that produce nerve-attacking poisons.

Evidence for this from mouse studies was reported by Dr. Leonard F. Laskowski Jr. of Saint Louis University, St. Louis, at the meeting of the Society of American Bacteriologists in Pittsburgh.

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TECHNOLOGY

Automatic Plant To Handle Acetylene

► A PLANT to handle the highly explosive gas acetylene as the source of polyvinyl blood extender and other rare chemicals will be started soon in Calvert City, Ky.

Operation of the plant will be controlled automatically from behind barriers of steel and concrete, and will be monitored by fire-proof and explosion-proof instruments.

Discovery that acetylene can be forced to yield many new chemicals by heating it under great pressure gave the Germans an additional source of chemicals to supplement their limited supply of petroleum during World War II.

Access to the processes developed by the Germans, extended by research in experimental plants in America, has increased the number of chemicals useful in synthetic rubber, plastics and insulation materials which can be made from acetylene. These, in addition to the polyvinyl blood extender known as PVP, will be produced in the new plant of General Aniline and Film Corporation.

The new chemicals have so far been produced by General Aniline at its Central Research Laboratory, Easton, Pa., and its pilot plant at Linden, N. J. The Calvert City plant will be in operation in 1955, it is estimated.

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AGRICULTURE

Macadamia Promising As California Crop

► A VALUABLE new crop will be added to California's agriculture, already the most highly-diversified in the world, if it lives up to the promise shown in experiments at the University of California at Los Angeles.

This is the macadamia, a tasty, high-oil-content nut native to Australia. Introduced in Hawaii some time ago, it has proved a commercially valuable crop there.

Propagation of the macadamia has been carried out successfully in a study, under the direction of Dr. C. A. Schroeder, that included grafting of older trees in the field and of nursery stock. The research has also included importation and testing of varieties of the nut from Hawaii and Australia, and tests of local seedling trees.

One variety has an unusually high oil content, up to 70%. This results in better storage and retention of higher quality in commercial processing than with varieties of lower oil content.

The macadamia has about the same frost tolerance as the avocado. Adapted to a wide range of soils, it has a high resistance, possibly a complete immunity, to avocado root rot. This may make it a suitable replacement crop for avocado orchards rendered valueless by the disease. The California Avocado Society is cooperating in the study.

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