Technology Notes

HIGHWAY SAFETY

Return of the Corduroy Road

The corduroy road may return to America—not the side-by-side logs of frontier days, but grooved cement to carry away rain water and give more traction to today's high-speed automobile tires.

On the other hand, a modern development, the studded tire, has proved useless—at least in New Jersey.

These are two of the findings reported at the forty-sixth annual meeting of the Highway Research Board.

A specialist from the National Aeronautics and Space Administration, Walter B. Horne, suggested grooving highways crosswise to eliminate the hydroplaning of auto tires when they suddenly hit a puddle and tend to skim over its surface instead of holding the road. Similar grooves, only an eighth of an inch wide, have been cut in European airport runways and are under order for National Airport in Washington for the same reason. They not only give the tires more bite, but help drain the surface.

The New Jersey Highway Department reported that studded tires "could produce a less safe and more costly highway system for the major portion of the year for the majority of the traveling public."

In reaching this conclusion, Robert A. Pege said his tests showed that most skidding accidents happened on dry pavement, where studded tires may be inferior to regular tires in skid control; studded tire use has been shown to cause both "a dramatic decrease in pavement skid resistance" and in increased maintenance costs.

"The beneficial period of use" on ice and snow, he said, "is very limited in New Jersey."

FORESTRY

On-Site Wood Chipper

The problems of transporting logs to papermills may be greatly reduced by a device that converts them to chips right in the forest.

Powered by a gas turbine aircraft engine, the chipper has been tested extensively in Quebec, Canada. The present design uses trucks to carry the chips to the mills, but in the future a chip pipeline may do away with conventional transport, says the manufacturer, Domtar, Ltd., Montreal.

AIR SAFETY

Choppers on the Rack

A huge torture rack in which helicopters can hover 50 feet above the ground is being used to test U.S. and Canadian choppers' resistance to icing.

The rack is a welded steel framework covered with nozzles from which artificial clouds of water droplets settle on the helicopters' rotor blades. Used only when temperatures are below freezing, the rack provides valuable data on the efficiency of deicing equipment.

The centrifugal force imposed on blade ice as a helicopter rotor turns causes some of the ice to be thrown off, says the Canadian National Research Council, which runs the rack. However, this "self-shedding" creates another problem: unequal shedding can throw the blades dangerously out of balance, possibly even damaging the rotor mechanism.

Gas turbines face an additional hazard of engine icing, requiring recirculated exhaust gases or "electric blankets" to keep the turbine stator blades clear.

MICROSCOPY

Counting Through a Microscope

Up to 1,000 objects an hour can be counted and measured under a microscope using a new eyepiece designed to simplify this tedious task.

Two hairlines in the field of view move toward or away from each other as an adjustment knob is turned. When they exactly span the particle to be measured, two buttons are pressed, one electronically registering the size of the object and the other keeping a running total of the number of objects being measured.

Usable with most microscopes, the eyepiece was invented by Dr. D. W. Humphries of Sheffield University, Brighton, England.

AGRICULTURAL MACHINERY

Driverless, Go-Anywhere Tractor

A driverless tractor that can pull plows, harrows or hoes over even irregularly-shaped fields has been developed at Reading University in England.

The tractor is not limited to straight lines and circles, nor is it radio-controlled. Instead, it follows a wire buried in the field and carrying a low-voltage alternating current. A row of search coils across the front of the tractor sense the vehicle's position in relation to the wire and direct the steering mechanism.

The cables, including the cost of burying them, should cost about $22 an acre, says the University. The tractor price is estimated at $11,000.

AEROSOL

Cold in a Can

An aerosol can of "spray-on freeze" may help in fields as diverse as electronics and medicine.

Sprayed from a can, the substance is suddenly released from such high pressure that its rapid evaporation produces cold down to minus 60 degrees F. At the same time, it leaves a protective coating to prevent corrosion from ice formation.

Heat-sensitive electronic components such as capacitors and resistors can be cold-tested right in their circuits by isolated freezing. Local heating can be prevented during soldering of very small parts, and close-fitting parts can be made mesh easily by contracting them with cold.

Electroluve Ltd. of England also suggests the spray as a local anesthetic, and says that the film is harmless to skin.