



GUARDIANS OF RURAL ELECTRIC SERVICE—These devices, called *GR circuit reclosers*, will be installed on rural electric lines to guard against prolonged service interruptions. These units reclose the electric circuits automatically following such interruptions as might be caused by overloads, short circuits or other temporary difficulties. The work is being done at Westinghouse Electric Corporation's East Pittsburgh Works.

MEDICINE

Hope of Quick Polio Test

French scientist has developed simple test which consists of injecting material from a suspected polio victim into the brains of mice. Requires more study.

➤ **HOPE** of a quick and simple test for the infantile paralysis virus to replace the expensive monkey test now used is revived by a report from Dr. Pierre R. Lepine, of the Pasteur Institute, Paris, to the journal *Science* (Aug. 6).

Such a test would help doctors tell positively whether a child with a little fever and upset stomach, for example, is infected with the polio virus or just having an attack of the now prevalent "summer grippe."

In addition, it would speed trials of new drugs for polio, since doctors trying them could be sure they were given to actual cases of infantile paralysis. At present this is difficult to determine and lack of such knowledge means a drug must be tried in very many cases before doctors can be sure it is successful.

Efforts to learn how epidemics spread could also be speeded by a simple test in-

expensive enough to perform on every suspected case.

Dr. Lepine's test is simple enough. Essentially, it consists in injecting material (feces) from suspected polio patients into the brains of five mice. Two days later the mice are given an injection into the brain of active Lansing mouse-adapted polio virus. At the same time another five mice are injected into the brain with the Lansing virus only. Within 10 or 11 days, at least four out of five of these last mice should be dead or paralyzed. But at least three out of five mice also injected with the suspected polio material should be alive and well. The virus they got from the patient would have protected them against the fatal dose of Lansing virus that killed or paralyzed the control mice. If the material did not protect them, the patient did not have polio.

This kind of test, called interference

protection, has been tried before by other scientists but has not proved successful. Whether the details of Dr. Lepine's test, such as method of concentrating the material from patients, method of inoculation and time intervals, will make the difference between success and failure of the test remains for future study to determine. Also to be learned is whether the test will succeed with other strains of polio virus.

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CHEMISTRY

Synthetic Resin Makes Deciduous Woods Usable

➤ **THANKS** to a synthetic resin, woods such as maple, beech, birch and poplar can be used to make a paper of excellent quality, the National Bureau of Standards revealed. Woods formerly little used may now help ease the shortage of printing stock.

Most papers made from wood come from the evergreen spruce, fir, hemlock and pine, with some other wood used to supplement them. Deciduous woods, from trees that shed their foliage annually, are now used only as filler in the manufacture of high-grade printing paper. They do not produce the primary qualities of strength and resistance to surface pick in the usual methods of processing. However, with the addition of melamine formaldehyde, the resin employed, they acquire the desirable qualities.

The discovery of the process for using deciduous woods in papermaking is important because the supply of the ordinary woods used is rapidly decreasing. Large quantities of the non-coniferous trees are available, and the process provides an economic use for them.

In conventional papermaking, the fibers are prepared for fabrication by mechanical beating in water. Beating causes the fibers to absorb water and form a gel-like film on their surfaces by a structural change called hydration. This gel is the cement that bonds the fibers together to give paper of conventional manufacture its strength.

The beating, however, is accountable for unwanted qualities. It promotes some of the most troublesome behavior of paper in printing, including high expansion, excessive curling, slow oil absorption, and show-through of images.

The new technique substitutes the synthetic resin bonds between the fibers for the gel-like bonds formed by hydration. The resin bonding gives strength with only a fraction of the beating required without it, and it produces a superior paper by elimination of the adverse effects of hydration.

Several types of synthetic resins were used by the National Bureau of Standards, but the melamine-formaldehyde resin gave the best results to date. Surprisingly small amounts of this resin are required, usually less than 3% by weight.

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