

## SCIENCE NEWS

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## COSMIC RAYS

CATCHING cosmic rays (in a different way from at present), slowing them down for study and perhaps putting them to work in explaining the secrets of the universe, is suggested by Professor Laurence Ellsworth Dodd, of the University of California at Los Angeles. The cyclotron, now used for speeding up the flight of atomic particles, would work in reverse for this operation.

It is theoretically quite possible, Dr. Dodd states, to reverse the usual cyclotron procedure so that rapidly traveling particles can be slowed down for investigation. The high-speed cosmic-ray ions that approach the earth from all directions would theoretically enter the cyclotron and could be stopped by it if it can be further developed to the point where it can emit particles of the same speeds as those of the cosmic rays.

The cyclotron gives tremendous speeds to particles by whirling them in an ever-increasing spiral between two electrodes which alternate their charges at high frequency. Even at its fastest, however, the cyclotron does not yet project particles with the higher speeds of cosmic rays and some means of producing higher frequencies will have to be found before the cyclotron could act as a catcher for such rays. By varying present methods of studying these rays, further secrets of charged particles entering our atmosphere from outer space might be discovered.

A practical obstacle, not to reversing the cyclotron, but to its use for catching cosmic rays, is that cosmic rays have a way of choosing their own directions, and one might have to be content with pointing this ion-catcher in a fixed direction and with "waiting for something to turn up." Cosmic rays are charged particles of exceedingly high energy running into billions of electron-volts which enter the earth's atmosphere and produce other high-speed particles whose velocities may approach that of light.

## ITEMS

ALONG about the first of the year, or a little earlier, expect to see tooth powder, tobacco, cocoa, medical tablets, ointment and a few other things packed in shiny aluminum cans and boxes. Because aluminum is now relatively more available than sheet steel, the WPB has made available about 7,000,000 pounds of this white, light metal for what is called "experimental" manufacture of containers. There will also be large sized cans of aluminum for baking powder, lard, malted milk, pretzels, crackers, biscuits and potato chips, and the door is left open to allow special manufacture of aluminum cans for other products during July, August and September.

ENGINEERS needing to keep camouflage foliage green and fresh, drought-area farmers and gardeners everywhere may benefit from research completed by Dr. C. L. Comar and Dr. C. G. Barr, of the Michigan Agricultural Experiment Station, on wax sprays to keep plants from withering before their time. There is a great need for oil emulsion sprays that will keep the leaves from losing their moisture

but not be poisonous in other ways. This requires separate tests for the effect on the leaves of each chemical considered for use in the spray. Much of this time-consuming work has now been done by the investigators on sunflower plants. Their research on chemicals and temperatures to be avoided will save time for others in perfecting the desired sprays.

A SURINAM toad, a rare species from South America, has produced a batch of eggs at the Washington National Zoological Park. This is an event so unusual that the last time it happened—ten years ago—a leading New York zoologist made a special trip to Washington just to see it. The Surinam toad, unlike most toads, does not lay her eggs in the water, although (again unlike most toads) she lives practically altogether in the water. Instead, she deposits them on her own back, with the assistance of the male. The skin of her back grows into a pocket around each individual egg, and a little horny lid forms over the top. There will be thirty or forty of these sealed pockets. Within them the eggs hatch, and the tiny tadpoles that emerge remain thus sealed up until they have gone through their whole development and are ready to push aside the lids and emerge as tiny but perfectly formed toads.

WARTIME uses of bituminized-fiber pipe for drainage and sewage disposal, as a substitute for critical metals, have proved so satisfactory that such uses will probably continue in post-war days. This pipe is made of coal tar pitch reinforced with an interwoven fibrous structure. Some of the desirable properties of bituminized-fiber pipe are strength, durability, lightness, resistance to corrosion and low installation costs. It has the ability to bend with shifting earth instead of cracking. This type of pipe has long been used as a protective conduit for underground electric cables. Commercial standards for bituminized-fiber pipe have been issued by the National Bureau of Standards in recognition of its probable future uses. It establishes construction and performance requirements that the industry believes will insure a satisfactory pipe for many drainage purposes.

THAT teeth which ordinarily would be extracted are being treated by the use of a sulfa drug plus a relatively new antiseptic, zephiran, is reported by Dr. M. Eigen, dentist of Arlington, Va., in the *Journal of the American Dental Association*. Dr. Eigen has tried this treatment in more than 100 cases of pulpitis. This condition is an inflammation of the tooth pulp which contains nerves and blood vessels. In some cases of pulpitis treated successfully, there had also been infection at the tip of the tooth root and pain which extended into the ear. The method of treatment consists, essentially, in cleaning out the cavity with zephiran, which is a wetting agent with antiseptic properties, and applying a sulfa drug. In some cases, zephiran alone succeeds in clearing up the trouble but the addition of the sulfa drug seems to give better results.