

Prof. A. E. Murneek and Dr. S. H. Wittwer at the University of Missouri have shown. This speed-up has been detected and measured in numerous ways: over-all increase in size, added weight in solid substances, intake of food materials from the soil, and more lately increases in enzyme activity and growth hormone production.

In one group of experiments, extracts of immature corn kernels, in which effects of the reproduction process were still highly active, were applied to unpollinated tomato flowers. They caused the formation of fruits, and were materially much more effective in doing so than either artificial pollination or the use of synthetic growth substances.

There are two high points in this cycle of life-process stimulation during sexual reproduction, Professor Murneek and Dr. Wittwer determined. One comes immediately after the chromosomes in the sex cells have clustered together as a preliminary to their breaking apart into two groups to lay the foundations of new cells. The other high point comes after the pollination of the flower, and follows the approach and fusion of sperm and egg cells to begin the formation of the embryo plants within the future seeds.

A resume of the work of the Missouri botanists appears in *Science*. (Oct. 29)

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rods, as well as in porcelain enamels and pottery glazes.

In pre-war days some 20,000 tons of zirconium were used each year in the United States. Part of the supply was obtained in Florida and California, but considerably more was imported from Australia and Brazil.

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METEOROLOGY

New Device Tells Exact Hour It Rained or Snowed

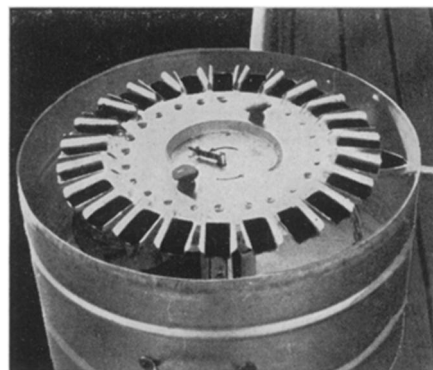
➤ NO LONGER will the weatherman have to be eternally on the lookout to record the exact hour when rain or snow fell. A new precipitation recorder has been devised to take care of this detail for him.

The new instrument consists of twenty-four glass plates that have been smoked on one side. Each hour, one glass plate is exposed to a slot in the top of the instrument through which whatever precipitation there might be would fall.

The time and amount of any kind of precipitation are important since the forecasting of floods and climatic conditions depends on this information.

The only one of its type in the world, this recorder is now in use at the Pennsylvania State College. The new instrument, called a Pluvio-chronograph, after the Greek word meaning "time recording rain gauge," was invented by Dr. Hans H. Neuberger, head of the Geophysical Laboratory at the college.

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RAIN INDICATOR—This instrument, the Pluvio-chronograph developed at the Pennsylvania State College, is pictured with the top removed to show its smoked glass plates. The wheel turns a notch each hour to expose a new plate to rain or snow coming through the slot in the cover.

MEDICINE

Caudal Analgesia Results

Reports of first 10,000 mothers given new childbirth anesthetic published; doctors say it can give complete relief with absolute safety.

➤ THE EXPERIENCES of the first 10,000 mothers given the new method of relieving childbirth pains, continuous caudal analgesia, in North American hospitals and medical schools are reported by the originators of the method, Dr. Robert A. Hingson and Dr. Waldo B. Edwards, of the U. S. Public Health Service. (*Journal, American Medical Association*, Oct. 30)

Of the 10,000, four mothers and two babies died. Complete relief of pain was secured in 8,100, partial relief in 1,200. There were 700 cases considered as failures. These results are almost identical with those obtained in 1,150 cases treated by Dr. Hingson and Dr. Edwards themselves.

The method consists essentially in blocking certain pain nerves by injecting chemical into the caudal space, somewhat as a dentist uses a local anesthetic to banish the pain in pulling a tooth. The mother remains awake but does not feel any pain and is perfectly comfortable during the childbirth. The babies are "just as alert and wide awake at birth as those born to mothers who had no form of sedation or anesthesia."

The Public Health Service surgeons are convinced the method will give complete relief of pain to the mother "with absolute safety to her and her baby, provided the procedure is supervised by a specially trained person.

"We have found," they state, "that

the ideal person for this responsibility is an obstetrician who has been fundamentally trained in the specialized form of anesthesiology."

More operative procedures, such as the use of forceps, and more cases in which the baby does not spontaneously turn to the best position for birth occur with this method of analgesia but to offset these disadvantages, the doctors state, operative procedures can be done more easily because of the relaxation which is greater than with any other form of general anesthesia.

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METALLURGY

Zirconium Dangerous Metal When in Powdered Form

➤ ZIRCONIUM, rare and costly metal used in ammunition primers, is a dangerous metal in its powdered form, the U. S. Bureau of Mines has warned.

A cloud of it may ignite spontaneously and explode at ordinary room temperature, whereas other metallic dusts rated as highly explosive need temperatures much higher to set them off. Government engineers recommend that the metal be used only as a sludge or in special containers.

One of the so-called minor metals, zirconium is used also in war-essential flashlight bulbs, radio tubes and welding