

# medical sciences notes

## DRUG

### Help seen for cystic fibrosis

A fungus that can make life miserable for cows has provided a drug that could some day help victims of cystic fibrosis, a Michigan State University biochemist says.

Dr. Steven D. Aust isolated the drug, which he named slaframine. The fungus makes cows slobber, but the drug makes experimental animals' pancreas secrete necessary digestive enzymes. In cystic fibrosis, the pancreas is clogged with a thick mucus, preventing the flow of such enzymes. This curtails normal digestion, so that the person becomes undernourished on what is normally an adequate diet.

Years of intensive testing remain before slaframine can be tested on humans, Dr. Aust says, but he believes it has great potential for cystic fibrosis patients, as it may increase the flow of mucus from their lungs, relieving their breathing problems.

## ORAL CONTRACEPTIVES

### Animal tests may run 10 years

Tests in dogs and monkeys to determine any long-term harmful effects of two experimental oral contraceptives will begin soon.

The Food and Drug Administration has awarded a contract to the International Research and Development Corporation of Mattawan, Mich., to conduct the initial phase of the research. The studies in dogs are expected to last seven years; in monkeys they are to run 10 years.

Estimated cost of the first stage, 28-month contract will be \$372,000. Separate groups of dogs and monkeys will receive three dosage levels of MK-665 and WY-4355 as well as mestranol, the estrogen component of the two experimental drugs. MK-665 and WY-4355 are progestational components not used in any other oral contraceptives, although mestranol is used in some marketed oral contraceptives.

Tests of MK-665 and mestranol were stopped in humans about two and a half years ago when breast changes appeared in some test monkeys.

## MONGOLISM

### Chemical improves muscle tone

Adding a chemical to the daily diet of 14 mongoloid infants at Children's Hospital in Washington, D.C., has improved their muscle tone and restored normal reflexes.

Although it is too soon to know whether or not intelligence or head size is being improved, Dr. Mary Bazelon of the neurology staff found that the addition of 5-hydroxytryptophan, or 5-HTP, enabled newborn limp mongoloids to raise their heads and stretch out their legs in a normal manner.

A report on Dr. Brazelon's work in the June 28 MEDICAL WORLD NEWS explains that 5-HTP is a metabolic precursor of the little-understood chemical serotonin, which is normally found in many parts of the body, including the central nervous system. A few years ago, Children's Hospital researchers found that the blood of mongoloid children is deficient in serotonin.

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Dr. Bazelon began daily doses of 5-HTP within four days after the babies' birth; from one to seven weeks after starting the treatment, all 14 could arch their spines. Their reflexes were brisk and easily stimulated. Five out of the first six babies treated began walking before they were 18 months old, although the usual time for mongoloids is three years.

## ANTIDOTE

### Auto-injector counteracts nerve gas

A hypodermic syringe for administering an antidote to nerve gas has been developed by the Swedish pharmaceutical company, Astra, according to the June SWEDEN NOW.

The syringe is based on a spring arrangement with a trigger mechanism. When the soldier presses the injector against his thigh, outside his uniform, the spring glides forward and forces the needle into the thigh. The resulting resistance is sufficient to puncture the ampule and inject the antidote into the body. The whole operation takes only a second.

The auto-injector meets Swedish Army requirements for a small, light injection syringe that the individual soldier can use even when wearing heavy gloves. It is shock-resistant and can withstand wide variations in temperature and humidity.

## PAIN KILLER

### Drug helps facial neuralgia

The drug carbamazepine, whose trade name is Tegretol, represents a major advance in the treatment of tic douloureux, a facial neuralgia producing severe pain in the central and lower cheek. Close supervision is necessary because of occasional serious side effects. The MEDICAL LETTER of June 28 emphasizes, but adjustment of the dosage can usually make the drug tolerable.

Generally Tegretol does not relieve facial pain from any cause other than that related to the fifth cranial nerve, so physicians are warned to be certain of the diagnosis before prescribing it.

In some countries the drug is used also for the treatment of epilepsy, but the Food and Drug Administration has not approved it for such use in the United States.

## ANTIBIOTICS

### Totally synthetic penicillin reported

Since 1940, when penicillin was first introduced to medicine, scientists have been working toward a total synthesis of the drug. Several semi-synthetic forms now in use depend upon microorganisms to construct part of the molecule to which a synthetic structure is attached.

The announcement of a completely synthetic penicillin by a New Jersey professor, made at the Fifth International Symposium on the Chemistry of Natural Products in London, therefore, is of considerable importance.

Dr. Ajay K. Bose, professor of chemistry at Stevens Institute of Technology, Hoboken, N.J., says the new form can be synthesized by a reasonably short process, using commercially available chemicals.