

BIOCHEMISTRY

'Flu and Polio Weapon

Glucuronic acid, the product of burned, or oxidized, glucose, is discovered to be a possible defense medicine against virus infections, which include 'flu and polio.

► HOPE THAT a chemical from sugar may provide a defense against disease viruses, from 'flu to polio, is held by scientists at Yale University School of Medicine, New Haven, Conn.

The chemical is a product of glucose when it has been burned, or oxidized, in the body. It is called glucuronic acid. It is also made synthetically and is relatively inexpensive. It is known to detoxify certain poisons in the body.

"There is a chance, but no more than a chance" that it could be used to protect humans against virus diseases such as polio and influenza, Dr. J. F. McCrea, one of the scientists who has been working on the problem, states.

The work so far, which he and Dr. F. Duran-Reynals report in *Science* (July 24), has been limited to laboratory animals and to vaccinia virus (the cowpox virus used to vaccinate against smallpox) and influenza virus.

In mice there is "definite evidence" of prevention of influenza infection when these animals get 'flu virus treated with glucuronic acid dropped into their noses. Most control mice in the experiment who got untreated influenza virus into their noses died within two or three days with almost completely congested lungs as a result of the virus. The mice who got the treated virus almost all survived.

Whether glucuronic acid will stop polio viruses is not known yet. Work on that is scheduled to start in September.

Unanswered also, so far, is whether the acid will be as effective in humans as in the laboratory mice. For human use, if that becomes a reality, it could be used in one of two ways: 1. Mixed with the virus to produce a good vaccine. 2. Given directly by mouth or by injection as penicillin or other antibiotics are given.

For practical purposes it seems likely now it would be given directly. Vaccines take time to become effective after being given, whereas glucuronic acid might take effect immediately. Even if its effect were only temporary, as is probable, it might serve to ward off a 'flu, polio or other disease attack when given in the midst of an epidemic. Vaccines usually must be given before the epidemic gets very far under way.

Discovery of glucuronic acid as a possible, though only possible, defense medicine against virus infection comes from earlier studies by Dr. Duran-Reynals (see SNL, Jan. 19, 1952, p. 39). He found that cowpox virus could be inactivated by a body chemical called hyaluronic acid. This chemical is a component of the jelly-like mass

which holds tissues together which scientists term the ground substance.

The virus-inactivating effect of hyaluronic acid, he found, was markedly increased when this acid was treated with an enzyme chemical, hyaluronidase. The studies reported show that this is because treating the acid with enzyme releases glucuronic acid.

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MARINE BIOLOGY

Sea Urchins Burrow Through Steel Pilings

► SOLID STEEL is hardly a challenge to the purple sea urchin, one of the sharp-spined "porcupines of the sea," when it decides to dig a burrow.

Twenty out of 40 steel pilings of a pier near Ellwood, Calif., were put out of commission when purple sea urchins, *Strongylocentrotus purpuratus*, bored holes through steel plates three-eighths inch thick.

Sea urchins attach themselves to rock, coral, and cement, wood and metal pilings, where they pass sedentary life. They exert

a corrosive action on their supports, to make depressions where they can stay well protected.

Most people are delighted that the prickly sea urchins are inclined to keep out of the way, since the spines of some species are extremely poisonous. But when they bore into expensive pier pilings, their retiring nature causes them to rank with barnacles, teredo worms and other such "public enemies" of marine construction.

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MEDICINE

Fight Death by Relieving Fear

► SAVING LIVES of expectant mothers by banishing their fears of childbirth is the aim of a new program, first of its kind in the southeast, launched by Duke University, Durham, N. C.

Hemorrhage, toxemia and infection, in that order, are the leading causes of death in childbirth. However, in many cases, these causes could be prevented or overcome if the expectant mother started seeing a doctor early enough in the course of her pregnancy.

Fear, often based on old wives' tales, keeps many of these mothers from seeing a doctor or going to a hospital until too late. The Duke program, under the direction of Dr. John Ashe, will try to overcome this fear through public lectures, movies and demonstrations.

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LION-HEADED MARMOSETS—Found in southeast Brazil, these marmosets have extremely long hands, believed to have evolved because of their eating habits, since their food consists mostly of fruits and insects. The animals shown here are part of a colony in the National Zoological Park in Washington.