

The course of radioactive iodine fed to laboratory animals was traced from the stomach to the thyroid by an instrument sensitive to the radio waves given off by the charged atoms. It took but a few minutes for the tagged iodine to reach the thyroid gland, and within two hours after the iodine had been given it was synthesized into the thyroid hormone and on its way to various parts of the body.

There are two products of the thyroid: diiodotyrosine, the role of which is uncertain, and thyroxin, believed to be the true hormone. Under-production of thyroxin in youth will stunt physical and

mental development. Over-production of thyroxin in children results in gigantism. This hormone is important in the adult, also. An over-active thyroid increases the rate of metabolism so that the body burns up energy substances faster than they can be replaced by food, making the subject thin and nervous, as in some goiter patients. A lazy thyroid results in physical and mental debility, and often abets extreme over-weight. So a better understanding of the course of the thyroid hormone in the body, made possible by the tool of radioactive iodine, may lead to important health-keeping discoveries.

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MEDICINE

## Infantile Paralysis Virus May Enter Body Through Mouth

### "Working Hypothesis" That Virus Reaches Brain and Spinal Cord From Alimentary Tract May Speed Conquest

**T**HE virus of infantile paralysis enters the body through the mouth, not through the nose as has long been believed, Dr. Albert Sabin, of the University of Cincinnati, declared at the meeting of the American Medical Association in Cleveland.

If this "working hypothesis," as Dr. Sabin cautiously terms it until further studies prove or disprove it, is correct, conquest of this dreaded malady may be greatly speeded. While Dr. Sabin said nothing about practical results of his findings, anyone who knows the history of disease-fighting knows that far greater strides have been made in conquering diseases such as typhoid fever, whose germs enter the body through the mouth, than diseases such as the common cold, which enter through the nose. Infantile paralysis fighters, unfortunately, have seen so many promises of early conquest of the disease, such as the nasal spray blockade and vaccinations, fail that they are naturally hesitant about expecting too much now.

Dr. Sabin's picture of what happens in infantile paralysis is, briefly, as follows: The virus enters the body by way of the mouth and establishes itself in the alimentary tract, where it multiplies, probably in the walls of the small intestine and the pharynx. It invades the nervous system by two pathways, one leading to the brain by way of the cranial nerves which supply the upper

part of the tract or by way of the parasympathetic nerves from the lower alimentary tract, and the other pathway leading into the spinal cord by way of nerve fibers from the intestines. If the greater attack is along the first pathway, the illness will be of the bulbar type which affects the pharynx. If the attack is along the second pathway, the primary paralysis would be in the extremities.

In the non-paralytic and sometimes unsuspected cases, the virus is either limited in some way to the alimentary tract or an equilibrium is reached between the body and the virus before enough nerve cells have been destroyed to interfere with function and cause paralysis.

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PSYCHOLOGY

## Different Time Intervals Distinguished by Rats

**T**RY this one!

See if you can estimate a ten-second interval, or twenty seconds, or thirty. Get a friend to give you start and stop signals, having him time the interval exactly by his watch, and see whether you can tell a ten-second period from a longer one.

It is not an easy job to estimate elapsed time exactly to the second. But you can probably learn easily to tell the difference

between a very short and a longer interval.

Not all persons can. War veterans who were shot through the front part of the brain or in some other way suffered an injury to that important brain area are utterly at a loss when they try to tell a longer from a shorter time. They can read the position of clock hands. But they have no real conception of time as an abstract idea.

Yet it has now been discovered that this difficult ability is not confined to man and the other primate animals. Even rats can be trained to tell accurately the difference between a ten-second interval and the longer one of thirty seconds.

How this was done is related by Dr. John T. Cowles, of the University of Illinois, and Dr. John L. Finan, of Oberlin College in a report to the *Journal of Psychology*.

The white rats were put into a Y-shaped box, entering at the tail of the Y. There they were detained by a drop door lowered just short of where the two alleys branched off. Both alleys were also blocked by doors, just alike in appearance. At the end of the delay period, ten seconds on some trials and thirty seconds on others, the drop door was raised and the rat was free to run to one or the other of the gray doors.

If the delay was only ten seconds the rat would find one door, say the left one, unlocked so he could swing it open. If the delay was thirty seconds, running to that door would only give him a bump on the nose when the door refused to swing. He would then have to run to the opposite door to get through to his reward of food.

It took 600 learning trials, but six out of the nine rats studied learned to tell the difference between the time intervals so that when the wait was over—whether it was ten or thirty seconds—they could run to the correct door and get their reward.

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## ● Earth Trembles

Information collected by Science Service from seismological observatories resulted in the location by the U. S. Coast and Geodetic Survey of the following preliminary epicenters:

*Thursday, June 26, 6:52.1 a.m., EST*

In Bay of Bengal, near Andaman Islands. Latitude, about 13 degrees north. Longitude, 93 degrees east.

*Friday, June 27, 12:11.3 p.m., EST*

On Pacific Coast of Mexico, near Guatemala. Latitude, about 16 degrees north. Longitude, 93 degrees west.

*Monday, June 30, 11:50.7 p.m., PST*

Off California coast. Latitude, near 33.8 degrees north. Longitude, 120.1 degrees west.

For stations cooperating with Science Service, the Coast and Geodetic Survey, and the Jesuit Seismological Association in reporting earthquakes recorded on their seismographs, see SNL, Feb. 22.