

GENERAL SCIENCE

# New Government Office For Defense Scientific Work

## Office of Scientific Research and Development Will Coordinate Work of Defense Agencies and Departments

**C**OORDINATION of all scientific activities concerned with national defense is the objective of the new Office of Scientific Research and Development which has been created within the Office of Emergency Management by Executive order of President Roosevelt. Under the directorship of Dr. Vannevar Bush, president of the Carnegie Institution of Washington and until now chairman of the National Defense Research Committee, the new organization will serve as liaison agency for a number of scientific groups which have hitherto worked independently of each other, reporting directly to the President.

Funds for the promotion of scientific research programs for the production of new weapons and defense materials and methods, and for medical research programs having defense value, are provided by Congressional appropriation. The new Office of Scientific Research and Development is authorized to "initiate and support" such programs. This is a long step forward, for similar bodies set up during previous national emergencies have had only advisory capacity, and could not undertake research programs or other activities on their own initiative. Dr. Bush indicated his intention to "lean heavily" upon these older advisory bodies, particularly the National Academy of Sciences and the National Research Council.

In carrying on the activities authorized by the new executive order, one of the principal disbursing and action agencies will be the already existing National Defense Research Committee, of which President James B. Conant, of Harvard University, has been appointed chairman, succeeding Dr. Bush. It is understood that Dr. Conant's duties will be such that he can carry them out without neglecting his work as a university president.

Other agencies already functioning that will report to the President through Dr. Bush include the National Advisory Committee for Aeronautics and the Health and Medical Committee established by order of the Council of Nation-

al Defense. Distinctly defense activities of established bureaus in government departments, such as the Bureau of Mines and the National Bureau of Standards, will also come within the purview of the new Office of Scientific Research and Development.

Somewhat similar action was taken in Britain some time ago, when a single coordinating body was appointed to act as liaison agency between the government and about half-a-hundred research groups in various British defense organizations both military and civil.

Close cooperation is provided for, between British and American research bodies. Britain already has an office in this country, and when Dr. Conant was in England recently he set up a similar office there, which is now taken over by the new Office of Scientific Research and Development. British scientists have requested their American colleagues to take over certain basic scientific research,

especially in the field of medicine, in order that they may devote their attention more intensively to immediately pressing practical problems.

The new Office of Scientific Research and Development will also mesh closely with the Office of Production Management under William S. Knudsen and the Office of Civilian Defense under Fiorello LaGuardia. The function of Dr. Bush's organization for them, as for the Army and Navy, will be to find useful scientific methods, devices and materials, which these agencies of application can take over, produce and put into use.

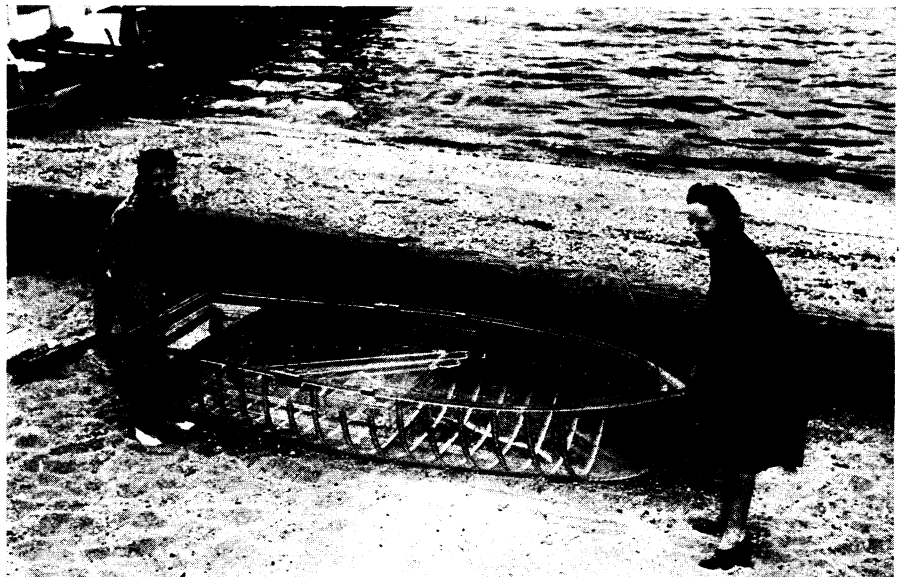
*Science News Letter, July 12, 1941*

PHYSIOLOGY

## Hormone Production By Thyroid Gland Clocked

**H**OLDING a clock on the thyroid gland to time its production rate as a chemical factory, scientists at the University of California find it takes this U-shaped gland in the neck just two hours to manufacture its highly complex hormone.

This is the first time the formation of a hormone of any of the body's endocrine glands has been measured. The measurements were made by Dr. I. L. Chaikoff, Dr. I. Perlman and M. E. Morton, using tagged atoms of radioactive iodine from the atom-smashing cyclotron. (*Turn to next page.*)



### TRANSPARENT

*The first rowboat ever made entirely of du Pont's clear methyl methacrylate plastic "Lucite," being launched for a trial in Long Island Sound. Actually it was not designed for deep sea service but for store display.*

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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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.

*Science News Letter, July 12, 1941*

#### 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

## ● 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.