

start on other trails leading to more knowledge.

New Vitamin Test

A new method of testing the presence of vitamin B₁, which removes the human element in the investigation and makes a photoelectric cell do the work was described to the chemists.

The present method of testing vitamins is to feed them to laboratory animals, watch the effect on their growth, and then—by weighing the animals over periods of time—determining the benefits of the vitamin's presence in the diet. This bio-assay, as it is called, is a slow and tedious process, and even when complete is always subject to scrutiny because of possible errors.

Drs. Douglas J. Hennessy and Leopold R. Cerecedo of Fordham University described how, in the case of vitamin B₁ at least, the power of the "electric eye" can take much of the human element out of such assays.

Previously the Netherlands scientist Jansen had discovered that when vitamin B₁—known chemically as thiamin—is oxidized it turns blue if irradiated with ultraviolet light. The intensity of the blue fluorescence, the Fordham investigators found, is a measure of the amount of vitamin present. With a photoelectric cell they were able to determine, without human error of judgment, the intensity of the blue color and hence the concentration of the vitamin.

Science News Letter, October 1, 1938

PSYCHOLOGY

Similarities May Provide Clue To Mental Treatment

THE MANY ways in which John Smith is like Hank Jones may provide scientists with a new clue for understanding why some are successful in life and why some wind up in the mental hospital.

Bringing mathematics to the aid of psychology, Dr. Joseph Zubin of the Mental Hospital Survey Committee, told the American Psychological Association that a statistical study of like-minded people and how they resemble each other may lead to a straightening out of the present confusion between similar types of mental disease. This is of vital importance to physicians because two patients apparently suffering from the same mental symptoms may not respond to the same treatment. Although outwardly similar they really differ from each other in ways now unknown to science.

Science News Letter, October 1, 1938

RADIO

Proposes Limit to Distance For Radio Remote Control

Devices for Distance Tuning of Radio Sets Are Really Small Transmitters Sending Out Waves and Interference

THE FEDERAL Communications Commission is tackling the knotty problem of fixing distance limits over which the new radio remote control devices can operate.

You can now buy tiny radio transmitters which will play phonograph records in your home and broadcast their program to your own large radio set. You can also push a button and tune your set by radio waves while sitting across the room. And there are systems for analyzing radio listener response in which the individual listeners push a button and record by radio—a block or two away—whether they are listening to specific programs.

All these devices require small radio oscillators and transmitters which send out radio waves and hence they might under existing radio rules, require a licensed radio operator to make them work. The task of licensing the laymen users of these devices is, of course, an impossibility and so if they are to continue to serve a useful purpose some solution must be achieved.

While the simple operation of many of these devices makes a requirement for a licensed radio operator seem ridiculous, the fact remains that, in the last few years, there have been an increasing number of charges of interference with already licensed reception. The FCC's task is to fix, somehow, the limits—in distance—over which such devices shall act.

Generally Accepted

At informal hearings in Washington the manufacturers of these devices have shown fairly general acceptance of the Commission's proposal that interference shall be construed not to exist if the tiny amount of field energy of 15 microvolts per meter is not exceeded at a distance of lambda over two pi, where lambda is the wavelength of radio wave emitted and pi has its usual numerical equivalent of 3.14.

In actual practice lambda over two pi comes out to be a distance of 157 feet for a radio wave having a frequency of 1,000 kilocycles; 78.5 feet for 2,000 kilo-

cycles and in the ultra-high frequency bands a distance of only five feet at a frequency of 30,000 kilocycles.

At the hearing the only adverse opinion on this regulation came from those concerns making remote control devices operating on the high frequencies. Most of them wish to control mechanisms some 20 feet away and a restriction limiting action to distances of 5 feet would bring sizable problems.

Science News Letter, October 1, 1938

FISHERIES

Compressed Air Harpoon Helps Keep Whale Afloat

A COMPRESSED air harpoon has been invented by Karl Moos, a Norwegian machinist. Instead of the gunpowder charge commonly used in present-day harpoon guns, Mr. Moos' invention is propelled by air under a pressure of more than 5,000 pounds per square inch.

Not only that, but when it is fired, the hollow harpoon is filled with air under the same pressure. As it strikes the whale a valve is opened and the air is released into the whale's body. This hastens the death of the animal and also keeps it afloat until it can be taken up by the whaling ship for cutting up.

Science News Letter, October 1, 1938

A government scientist has invented a device to measure the length and crimp of wool fibers quickly.

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