PUBLIC HEALTH

Infantile Paralysis Definitely on Decline

NATION-WIDE reports to the U. S. Public Health Service show that the infantile paralysis outbreak is apparently definitely on the decline. Total number of cases from all states but Idaho was 586 for the week ending Sept. 6, compared with 624 for the previous week. Idaho reported only one case for the previous week, so the total figure is not expected to be much changed when her report arrives.

A big jump in human cases of horse "sleeping sickness," or equine encephalomyelitis, was reported from North Dakota. For the week ending Sept. 6 this state reported 151 cases, compared with 98 the previous week. The increase, however, may be due to delayed reports, health authorities explain. Minnesota, South Dakota and Colorado reported fewer cases for the week of Sept. 6 than the previous week. From Wisconsin came a report of 24 cases of encephalitis between Aug. 16 and Aug. 30, but no report for the week of Sept. 6.

From Canada Rockefeller Institute investigators at Winnipeg report that the outbreak in Manitoba apparently was caused by the Western strain of equine encephalomyelitis virus.

Unusually warm weather, abundant rainfall and less mosquito control activity this year than in previous years in Manitoba, also reported by the Rockefeller scientists, seem to strengthen the case against the mosquito as the villain that spreads this disease of horses and man.

Science News Letter, September 20, 1941

CHEMISTRY

U. S. Scientists Seek Use for Water Chestnut

See Front Cover

EFFORTS to find means for making water chestnut self-liquidating are being made by the U. S. Department of Agriculture at the instance of President Roosevelt. This floating plant pest, introduced into some eastern rivers years ago, blocks navigation channels and has to be kept cleared out. It is especially bad in the Potomac estuary. The President expressed the hope that some use might be found for it that would repay part of the cost of its removal.

The plant in its fresh state contains about 98% of water. The dried residue consists mainly of cellulose. A quantity of it has been dried and bagged and sent to the Northern Regional Laboratory of the Bureau of Agricultural Chemistry and Engineering at Peoria, Ill., where cellulose research now centers.

In China, the native home of the weed, its sharp-horned fruits are gathered and the meat extracted for food. It is quite tasty, too, as any chow-mein devotee can testify. The trouble is, however, that a great deal of hand labor is involved in this use, which makes it impracticably costly in this country. Mass use of the whole plant, by mechanized means, offers the only possible economic solution under American conditions.

Science News Letter, September 20, 1941

PSYCHOLOGY

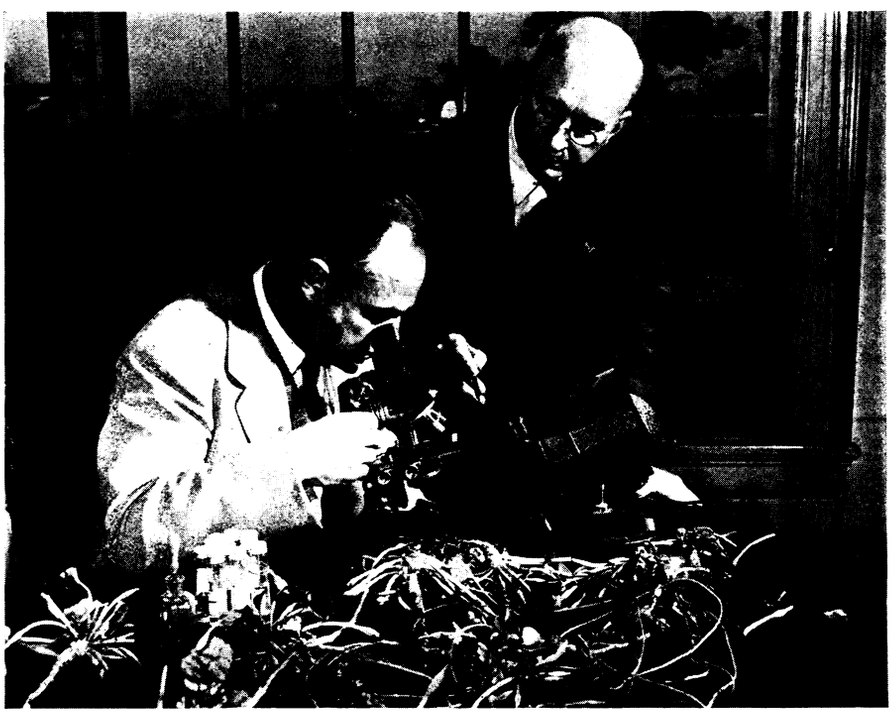
Electric Shock Treatment Causes Partial Memory Loss

Amnesia Greatest for Period Near the Treatment; May Be an Advantage in Preventing Dread of Shock

ELECTRIC shock treatment used to jolt a mental patient out of his dream world back into sanity has been found to cause a partial loss of memory, Dr. Joseph Zubin of the New York State Psychiatric Institute and Hospital, told the American Psychological Association meeting in Evanston, Ill. It was at Dr. Zubin's institution that the electric shock treatment was given for the first time in the United States in June 1940.

After reports that patients who had had the shock treatment found it difficult, following the shock, to remember where they lived or whether they had had the treatment, Dr. Zubin made some careful tests of memory before and after the shocks.

The test was to memorize and later recall a list of groceries such as coffee or sugar together with some invented "brand" names.



HUNTING FOR VALUE

Dr. Henry G. Knight, chief of the Bureau of Agricultural Chemistry and Engineering, is explaining to Secretary of Agriculture Claude R. Wickard the structure of the leaves of the water chestnut which is being tested for possible uses at the request of President Roosevelt.

Memory after a shock is only about 87% what it is without the shock, Dr. Zubin found. The names learned just before the shock were harder for the patients to remember than names learned earlier, although ordinarily the most recently learned names are remembered best.

This loss of memory for happenings close to the time of the shock may be considered as a good thing for the patient, Dr. Zubin said. Patients do not fear or dread the treatment because of this fact that it is not remembered. In other shock treatments, such as the metrazol or insulin therapy, patients sometimes learn to dread the business of preparing for the shock and having the hypodermic needle stuck into them.

Science News Letter, September 20, 1941

Anxiety Outlives Cause

HOW anxiety may be built up in an individual and persist to cause the learning of habits long after the reason for fear is gone was demonstrated in animal experiments reported by Dr. Neal E. Miller, of the Institute of Human Relations, Yale University, before the American Psychological Association.

Rats when first placed in a two-compartment box had no particular preference for either the black or the white compartment. But a shock in the white box would make them scurry into the black box through the open door between them. After a few repetitions of this, they would escape out of the white chamber even when there was no shock. They would even learn, with no more shock, to do a lot of work, turning a wheel or pushing a bar to get the door open and get out of that white box.

This, Dr. Miller said, is like the way human patients will persist in peculiar compulsive behavior and in learning new habits that seem to have no sense, to escape from anxiety the cause for which is gone.

Hungry animals who learned to run into the black chamber for food would later learn to operate the wheel to open the door even though they had had before that all the food they could eat.

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Scientists Are Young

AMERICAN scientists are young. This has been revealed by the listing for defense of all American scientists in the National Roster of Scientific and Specialized Personnel, Dr. Leonard Carmichael, president of Tufts College and director of the Roster, told psychologists at the American Psychological Association meeting.

Over a fourth of the first 60,000 scientists listed on the roster are under thirty years old. More than half are under forty. Only a fifth are over fifty. The total on the Roster now is more than 180,000.

The roster is the reservoir of scientific brains for all the defense program and is similar to the National Register through which the British keep in touch with their scientists. All sorts of information about the scientists, their training, experience, location and what they are now doing is instantly available in the form of 80-column punched cards which can be sorted and counted in a matter of minutes by electrical machines.

In the last few months, the Roster has been used to supply to defense agencies more than 40,000 names.

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CHEMISTRY

Chlorine Can Now Be Made In Unlimited Quantities

New Process Reported to American Chemical Society Does Not Require the Use of Any Electric Current

CHLORINE, poisonous green gas needed in immense quantities in both defense and civil industries, is now available on an unlimited basis, through a new process reported to the American Chemical Society in Atlantic City by its discoverers, Prof. Arthur W. Hixson and Dr. Alvan H. Tenney of Columbia University.

Best feature of the new process is that it does not require the use of any electric current, needed in the production process now most widely in vogue. Need for electricity in other vital defense activities, notably aluminum manufacture, was in danger of creating a serious bottleneck in chlorine output.

The only raw materials needed are sulfur and common salt, both of which can be produced in this country by millions of tons. The sulfur is burned in air, producing dry sulfur trioxide. This gas is thoroughly infiltrated through salt. The material thus made, when heated, gives off chlorine gas, while the solid part remains behind as salt cake, or sodium sulfate, another chemical used in the manufacture of glass, rayon, paper and in many other industries.

The process is self-contained so far as energy requirement is concerned, for the heat produced by the burning sulfur is more than enough for the second step, where the chlorine is separated from the salt cake.

Uses of chlorine in industry are legion, and demand from defense-speeded plants is going up by leaps, Prof. Hixson reported. He said:

"In 1940, when chlorine production was close to capacity, 605,000 tons were consumed in the United States, an increase of 120,000 tons over 1939. This year the demand is twice as great, and by 1942 it probably will double again.

"New uses for chlorine are found almost daily. Neoprene, principal ingredient of synthetic rubber, contains chlorine. Ethylene glycol, used to cool the Army's latest high-speed airplanes, requires the chemical for its manufacture, as does ammonium picrate, the Navy's main source of explosives. Chlorine is also used to make the lucite windows of modern long-range bombers, and in the salt-waterproof plastic insulations of anti-magnetic cables which have recently been designed to combat the menace of magnetic mines.

"Huge amounts of chlorine may be needed at any time to purify emergency supplies of water for armies in the field, as it now purifies the nation's water supplies. Chlorine compounds have uses varying from cleaning women's dresses to scouring the sides of battleships before painting; from manufacturing health restoring medicinals to preparing the latest types of war gases."

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● RADIO

Thursday, September 25, 2:45 p.m., EST

On "Adventures in Science," with Watson Davis, director of Science Service, over Columbia Broadcasting System.

Dr. A. C. Ivy, of Northwestern University, will discuss life at high altitudes and aviation medicine.

Listen in each Thursday.