

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

**H**OW 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.

*Science News Letter, September 20, 1941*

## Scientists Are Young

**A**MERICAN 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.

*Science News Letter, September 20, 1941*

### 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

**C**HLORINE, 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."

*Science News Letter, September 20, 1941*

## ● 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.