PSYCHIATRY

H.T.'s Attackers Not Ill

An assassination attempted by more than one person, especially when they belong to organized group, is not likely to be act of mental illness.

➤ THE CHANCES are that the attempted attack on the President's residence, the Blair House, was not the act of mentally ill persons.

This is the opinion of Dr. Frederic Wertham, New York psychiatrist and author of a recent book on murder, THE SHOW OF VIOLENCE.

When a single person kills or attempts to kill a ruler or leader, that is often the act of a mentally ill person. It is scientifically called "magnicide," meaning the killing of someone big.

But when two persons act together in an attempted assassination, as they did in this case, and when these persons are members of an organized political group engaged in a political uprising, the act should not be viewed as psychiatric but rather a social or political happening.

This is the opinion of Dr. Wertham, expressed to Science Service by telephone. Dr. Wertham was, of course, speaking generally, in the absence of any direct information about the men who tried to shoot their way into the Blair House.

The assassin of former President McKinley was an insane person, as was also the man who made an attempt on the life of the late President Roosevelt before his inauguration. These were men, acting alone, driven by their own abnormal impulses and a desire to kill a big man in the public eye.

Although the President's residence is visited each year by a large number of "cranks," who are all potentially dangerous, they are, with few exceptions, harmless, quiet and well behaved.

A study of the psychotic visitors to the President and to other public offices in Washington was made a few years ago by Dr. Jay L. Hoffman, then of St. Elizabeth's Hospital and reported to the American Psychopathological Association.

"These patients are, in general, a pitiful lot," he reported. "They are frequently of foreign birth or extraction, without friends or family, well along in years, wanderers, unemployed, and completely unaware of the abnormality of their ideas and behavior.

"One may search the stories of their lives without finding much cause for happiness or satisfaction."

Only five out of 53 patients studied were married. Frequently there were no relatives or friends sufficiently interested in the patient to respond to correspondence from the hospital. A number had been raised in orphan asylums or foster homes. Most of those of foreign birth had no relatives in this country.

Their stories form a contrast to that of the two Puerto Rican Nationalist Party members who shot the White House guards defending the President's residence.

Science News Letter, November 11, 1950

PHYSICS

Extreme Cold Key to What Makes Steel Really Hard

➤ EXTREME cold has been the key to a new understanding of what makes steel really hard, Dr. James R. Killian, Jr., president of the Massachusetts Institute of Technology, stated at the University Club in Cleveland, Ohio.

Recent studies at M. I. T. have gone a long way toward a solution of the age-old problem of the mechanism of how steel hardens, he said. The same research, he added, has cast uncertainty on many low-temperature theories by showing the possible role of extreme cold in the hardening of steel.

Dr. Killian was discussing cold in the region near absolute zero, which is approximately 460 degrees below zero on the Fahrenheit scale. The recent studies at M. I. T. show that the atoms in steel can rearrange themselves in the process which makes steel hard even at the extremely low temperatures of liquid helium, 453 degrees below zero.

This discovery, he declared, refutes many ideas of low-temperature behavior. These ideas have assumed that the mobility of atoms decreases as their temperature goes lower and lower. These ideas implied that all atomic movements cease at extremely low temperatures and that no changes such as the hardening of steel may occur.

Instead it appears that steel hardening takes place more completely at low temperatures than at any others, he declared. The new studies indicate that steel hardening is a cooperative shear-like "sliding" in which atoms move in unison. At extremely low temperatures large groups of atoms in steel appear to participate in this sliding motion and thus are transformed from a soft form known as "austenite" to a hard form known to metallurgists as "martensite."

Science News Letter, November 11, 1950

BOTANY

Tree Production Speed-Up By Wires, Cutting Roots

➤ A SPEED-UP of from 12 to 16 years can be applied successfully to the production of better hybrid trees.

Dr. Syrach Larsen of the Danish plant experimental station, Krogerup, reports that he has forced ash trees to bear seeds in three or four years. Under normal forest conditions, the trees would have taken 15 to 20 years to propagate.

His method is to plant the best hybrid young saplings. When the young trees are about three years old, he pushes them into

GIRTH CONTROL—These seed trees have been temporarily steel-banded to force extra cone and seed production for quicker reforestation of nearby harvested area. Theory is to scare tree into thinking that it is dying which causes it to divert food energy to seed production.

maturity by cutting off half of the roots or by wrapping a wire around the trunk. The tree, thus hurt, produces seeds far ahead of time to be sure that there will be other trees to continue the species.

When the pressure is removed from the injured tree, it returns to normal health.

The wire method is also being used in western Washington forests (see picture, p. 309).

Science News Letter, November 11, 1950

DENTISTRY

Fluoridation Cuts Caries

➤ FLUORIDATION of the water supply in Newburgh, N. Y., for the last four years has resulted in a 32.5% drop in the rate of tooth decay among the town's school children, Dr. David B. Ast, director of the bureau of dental health of the New York State Department of Health, reported at the meeting in Atlantic City, N. J., of the American Dental Association.

By contrast, the decay rate in the neighboring town of Kingston has remained the same that it was four years ago.

Newburgh and Kingston are two guinea pig towns which have been putting on a large scale trial of the value of adding sodium fluoride to the water supply for checking tooth decay. The towns are of about the same size and characteristics. At the beginning of the fluoridation trials, the rate of decayed, missing and filled teeth among some 3,200 school children of Newburgh was 20.6 per 100 permanent teeth. The Kingston rate was 20.2.

The difference in decay rates now, Dr. Ast said, cannot be attributed to any differences in the amount of corrective dental service in the two cities.

Fluoridation of water supplies, he said, may ultimately reduce the tooth decay problem to the point where "the present dental personnel and facilities may be able to control this almost universal disease."

Science News Letter, November 11, 1950

ENGINEERING

Ozone as Preservative

➤ THE VALUE of ozone in preserving eggs, fruit and meats in storage is reviewed in a leaflet issued in New York by the American Society of Refrigerating Engineers. It was prepared by Dr. A. W. Ewell, ozone consultant of Westinghouse Electric Corporation.

Ozone is a form of oxygen with three atoms of oxygen instead of the two normally present. This special three-atom form of oxygen is found in very small amounts in fresh air.

Ozone can be produced from the oxygen in the air by several means. Important among these means is a device known as the ozonator which produces ozone by an electric discharge. A more simple ozone producer is an ultraviolet lamp.

In the presence of bacteria, molds, odor and taste-carrying vapors, and many other oxidizable substances, ozone loses its extra atom, thus making it the most powerful oxidizing gas known. It burns up the bacteria. Ozone has an advantage over other oxidizers because the only residue it leaves is common oxygen. In the quantities used in storage plants it is ordinarily harmless to human beings.

The most important use of ozone in storage plants is in egg rooms, according to Dr. Ewell. A high humidity is necessary in egg-storage rooms to reduce shrinkage. This high humidity is favorable to mold growth, but the mold growth can be controlled by ozone. When the proper amount of ozone, a relatively small quantity, is used in the egg room, and a temperature of 31 degrees Fahrenheit and a humidity of 90% are maintained, eggs after eight months' storage, he says, are indistinguishable from eggs a few days old.

Experiences with ozone in the storage of apples, small fruits and meats are reviewed by Dr. Ewell. Its use in destroying odors other than putrefaction in cold storage rooms and ship holds is also reviewed. Storage goods subject to rancidity, such as butter, lard and fats, must be excluded from prolonged storage in even low concentrations of ozone, he states.

Science News Letter, November 11, 1950

MEDICINE

Skin Resistance Measures Deafness in Children

➤ HEARING impairment in babies as young as four months old can be diagnosed with great accuracy through a new testing method developed by Drs. John E. Bordley and William G. Hardy of the Johns Hopkins Hospital and Medical School, Baltimore.

They described the method at the State and Territorial Health Officers Conference in Washington.

Hearing defects need to be picked up at as early an age as possible, they stressed. Children with hearing impairment should have whatever treatment and special training they need before they start to school Hearing aids, like eyeglasses, can be fitted to very young children. There are "dozens and dozens" of different kinds of hearing problems, the Hopkins scientists pointed out. Not all of them can be answered "by shouting more loudly."

The new test is one for measuring the least possible loudness at which pure tones can be heard. This is called pure-tone audiometry. Ordinarily it involves the cooperation of the person being tested, who must signal when he hears a test-tone. Babies and very young children, however, cannot be tested by this method. So the Hopkins scientists make use of skin resistance methods.

The underlying idea for this is that when humans are stimulated in various ways, sweating occurs. As a result, the skin's resistance to the passage of minute electric currents is reduced. This change in resistance can be amplified and plotted on a moving drum to give a visible record of the response to the stimulus.

To use this method in hearing tests, the child is first conditioned to develop skin resistance changes in anticipation of a standard sound. This is done by giving a light, painless electric shock a few seconds after a standard sound used as a stimulus. When the child has been conditioned, so that he regularly shows a change in skin resistance following the sound stimulus, the tone is gradually reduced in loudness until it reaches a point where the child can no longer hear it. Even when the child is too young to say whether or not he hears the tone, the point of no hearing can be told by the fact that there is no change in skin resistance.

Science News Letter, November 11, 1950

AERONAUTICS

Near-Vacuum Chamber Tests Supersonic Propellers

➤ AN underground chamber from which most of the air is removed will be in use early in 1951 in carrying out various mechanical tests upon supersonic propellers for airplanes.

It is a steel cylinder nearly 13 feet in diameter and eight feet high, sunk below ground level and covered by a removable low steel dome. Within the chamber, propellers are rotated horizontally. Before a test is started approximately 99% of the air is removed from the chamber so that a low-horsepower engine can be used to rotate the propeller at high speeds.

This new type of propeller-testing device was developed in Dayton, Ohio, by Aeroproducts Division of General Motors under contract with the U. S. Navy. It is designed to accomplish various mechanical tests upon supersonic propellers, also being developed under contract with the Navy and the Air Force.

Information concerning the supersonic propellers under development cannot yet be revealed. However, it is known that the blades are thin with a tapered plan form. They are for probable use in the planes powered with high horsepower gas turbine engines of the types called turboprops. Present supersonic planes are powered with turbo-jets.

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