

CHEMISTRY

Chlorophyll Possible From Lifeless Earth

► THE CHEMICAL basic to life, chlorophyll, could have been spontaneously created in the lifeless world of two billion or more years ago, experiments by Ohio State University chemists indicate.

In tests set up to re-create conditions that probably existed before life appeared on earth, the chemists found that two common gases and water, when passed over heated silica produce a chemical with the same basic structure as chlorophyll.

Under the direction of Dr. William M. MacNevin, the scientists passed carbon dioxide, ammonia and water over a heated silica tube, representing the hot rocks of the earth's early days. This produced molecules of porphyrin, which have a basic structure like that of chlorophyll.

Chlorophyll is the highly complex chemical by which green plants utilize carbon dioxide and the energy of sunlight to manufacture the food necessary for life.

In another experiment re-creating conditions of the earth's youth, the scientists sent 100,000 volts of "artificial lightning" through an atmosphere of marsh gas (methane) and water vapor. This resulted in the formation of a resinous substance so complex chemically that its structure could not be analyzed.

Artificial lightning was used in this investigation of the young earth's probable chemistry, because of evidence that lightning was almost continuous then, Dr. MacNevin said.

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TECHNOLOGY

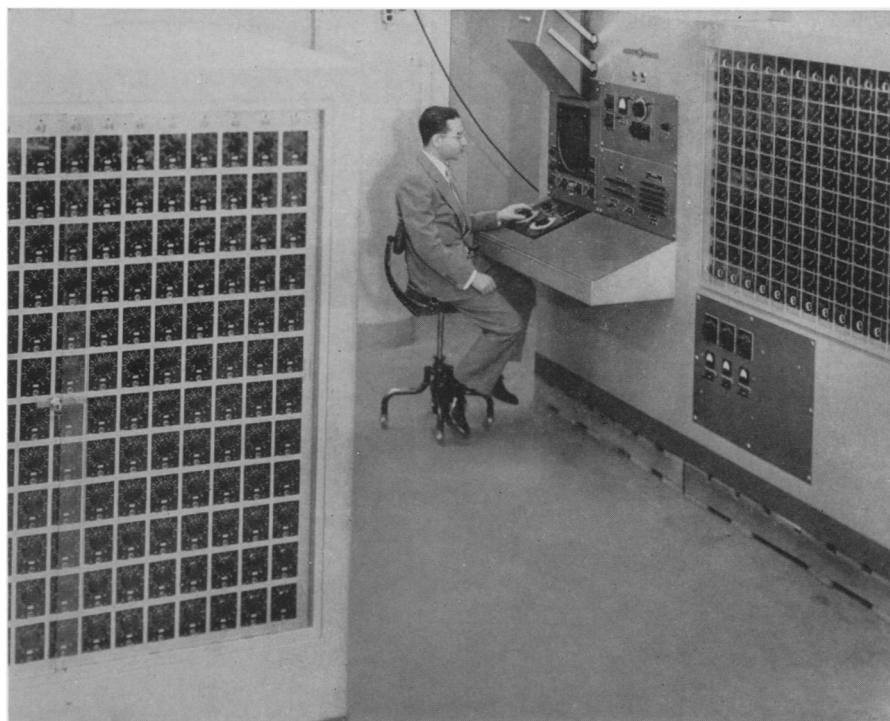
Develop New Process To Flameproof Fabrics

► IMPROVED FLAMEPROOFING of cotton fabrics, using a new process known as "THPC," has been developed by the U. S. Department of Agriculture.

THPC applied to cotton fabrics by conventional methods of processing gave excellent flameproofing qualities. Cloth treated by the THPC process should be especially useful for curtains, draperies, upholstery, bedding, and other household items. Wilson A. Reeves and John D. Guthrie of the Bureau of Agricultural and Industrial Chemistry's Southern Regional Laboratory in New Orleans developed the new process.

Two chemicals used in this new flameproofing process are a phosphorus compound and urea, a common industrial chemical. Another is "methylolmelamine," a substance widely employed to make fabrics creaseproof. The process should cost only slightly more than some of the less permanent flameproofing processes now in commercial use. THPC is made from inexpensive chemicals by a technique feasible for commercial production.

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RIGHT MAN FOR RIGHT JOB—The two and one-half ton electronic computer shown here may some day help Army psychologists fit recruits into the right job.

PSYCHOLOGY

Machine Tests Tests

► A MACHINE has been created in Washington to do much of the routine brainwork in testing new Army psychological tests.

Scientists using the "robot psychologist" at the Army's Personnel Research and Procedures Division would not speculate on the machine's ultimate effect upon Army life. But it may mean future recruits will be happier in the Army because they will be doing the right job.

Basic plans of the robot were drawn up by Department of Defense psychologist Dr. Richard H. Gaylord. Dr. Gaylord's plans were turned over to General Electric engineers for development and production.

The robot is highly complex and specialized. In the same category as other electronic "brains" that have "memories," the machine helps psychologists evaluate new tests that have been drawn up to reveal what special abilities each man has.

Extremely simplified, this means that the machine would show the trained psychologist which of four mechanical-ability tests does the best job of revealing a recruit's mechanical ability.

It can do this, however, only after the tests have been given to a group of men who are assumed to have high mechanical ability. Data obtained from the actual testing then are fed into the machine for evaluation.

The machine, through clusters of spots it throws on a tube similar to 16-inch television picture tubes, shows which test best samples the person's trait—or "factor" as the psychologists call it—under study.

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MARINE BIOLOGY

Whales Tracked by Ultrasonic Pulses

► MOBY DICK, the great white whale, could not elude modern British whalers, armed with ultrasonic "whale-finders," as he did the persistent Captain Ahab.

British whaling expeditions to the Antarctic this season are reported to be using ultrasonic sound pulses to track down the leviathans. Employing the Asdic principle perfected during the war for detecting enemy submarines, ultrasonic pulses sent out from the ship strike whales and rebound to the ship, revealing the direction and distance away of the sea-going mammals.

The ultrasonic whale-finder can follow a whale's course under water for distances up to 2,000 yards, reported the U. S. Fish and Wildlife Service. Helicopters may also be used to locate whales this season.

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