

## GENERAL SCIENCE

# Science Review for 1951

Atomic artillery, breeder for more bomb material, advances in understanding photosynthesis, Old Stone Age skeleton among top science highlights of past year.

*This summary of the year's happenings in the world of science is limited by space to just the highlights. Most of the events are described in detail in the pages of SCIENCE NEWS LETTER for the current year. If you wish to refer to any particular report, you may find it readily through the index. (See SNL, June 30, and also the issue that will appear next week, Dec. 29.)*

## By SCIENCE SERVICE STAFF

► IN MANY fields, ranging from the forefront of atomic energy to a most ancient chapter of Homo sapiens, science and technology has pushed forward during 1951. There have been significant gains of both practical and fundamental importance.

In the application of the atom to military uses, the atomic bomb has presumably been made smaller and applied to artillery and guided missiles capable of being used by ground troops.

The earth's meager supply of fissionable material for atomic energy production began to be augmented by the world's first large atomic breeder. This is a reactor that creates out of thorium a fissionable kind of uranium as the result of neutron bombardment furnished by conventional atomic "fuel," uranium 235 or plutonium.

Big installations looking toward even more atomic energy progress, including the hydrogen bomb plant, were pushed with unprecedented vigor.

Atomic bombs continued to be exploded for test purposes, with a series of U. S. trials on the Nevada desert contrasted with one or more Soviet bomb tests reported.

Some progress at understanding how sunlight is utilized by the green plant seems to have been made, with the goal of achieving photosynthesis artificially which could rival atomic energy in its practical importance. Growing algae as an efficient method of using the sun's energy was investigated more intensively.

Television achieved coast-to-coast transmission through completion of a radio relay system, which can also be used for other multiple communication channels. Color television's practical application was stymied by regulations intended to conserve production facilities and materials.

The exploration of the structure of the atom and fundamental particles continued, with cosmic rays providing the large smashing energies necessary. Perhaps the anti-proton has been found.

The most disastrous flood in our nation's history visited the Middle West.

A new method of light production by electricity, called electroluminescence, was

developed that promises to make possible glowing ceilings, walls and other surfaces.

Astronomers found that the space between stars is filled sparsely with hydrogen gas.

A new chapter in human history was unearthed in a cave in Iran when skeletons definitely like men of today were found among cultural remains of the Old Stone Age.

Many hopeful medical advances included control of some cancers by removal of both adrenal glands, use of new chemicals for reducing high blood pressure, and cortisone was reported effective in treating more ills.

New methods of synthesizing cortisone were reported, one of which started with a wild Mexican plant root.

The rate of growth of poultry and pigs was increased in practical application of feedstuffs containing antibiotics and vitamin B 12.

Science News Letter, December 22, 1951

## AERONAUTICS

## Radio-Radar Controlled Guided Missile Produced

The B-61 Matador, radio-radar controlled guided missile, was put into production and a unit formed for training men in its practical use.

A jet-propelled flying-boat fighter reached the flight test stage in England.

A composite aircraft engine with both piston and jet power was developed.

Airplane wings with degree of sweepback changeable in flight were tested on a new "flying laboratory."

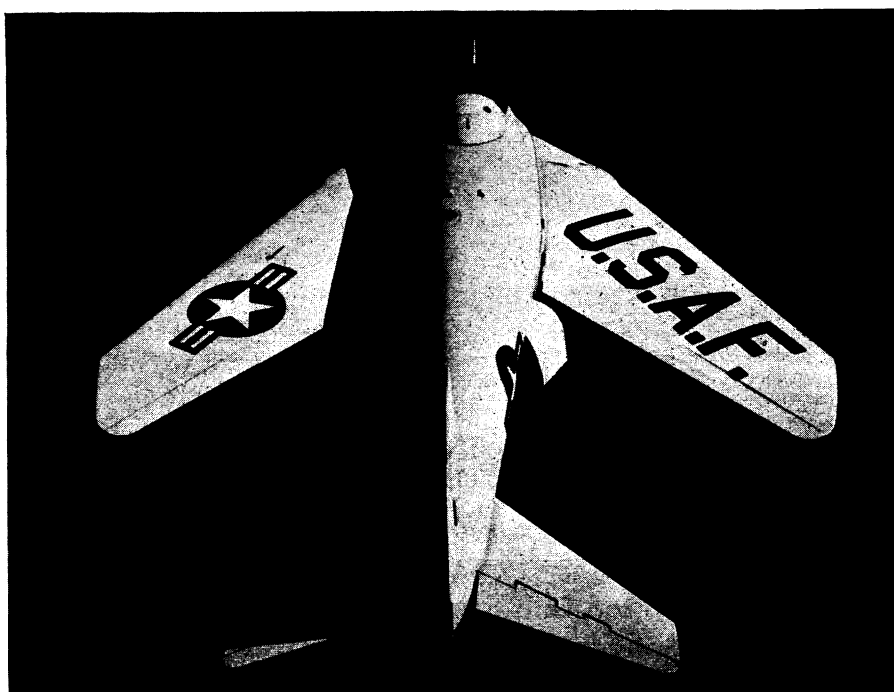
Small ram-jet engines were successfully applied to the rotor tips of helicopters.

A slow- and low-flying airplane was designed and constructed especially for agricultural uses.

A new type of radar sending out a continuous radio wave instead of the intermittent waves commonly used was put in use recording the speeds of models flying faster than sound.

A new mass-production method of producing one-piece hollow-steel propeller blades by extrusion was developed, resulting in blades with greater resistance to severe stress.

Soil density and moisture content were successfully measured by use of a radioactive material and a detector to determine airfield subsoil stability.



**CHANGEABLE WINGS**—The Bell X-5 has wings whose degree of sweepback can be changed at will. For take-off, climbing and landing, they are best in the forward position, while for great speeds at high altitudes, they are best in the swept-far-back position shown here. The sweepback will help reduce trouble with shock waves near the speed of sound.