

GENERAL SCIENCE

1953 Science Review

New knowledge of living chemicals is probable as history's remembrance for 1953. Polio virus isolated and identified, and vaccine ready for mass trial.

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 27, and also the issue which will appear next week, Dec. 26.)

See Front Cover

By SCIENCE SERVICE STAFF

► TO HISTORY the most important happenings in 1953 may be rather tentative suggestions as to how life is carried on.

The Russian H-bomb, the end of the Korean war, actions of a new administration in Washington, and a dozen other events made headlines. But quiet work of scientists on the innermost structure of living material could very well rank with the great scientific discoveries of all time.

The structure and operation of living matter, particularly the protein and the other complex chemicals in the living cell, have been great biological and chemical mysteries.

Protein has a rope-like twisted molecular structure which Dr. Linus Pauling of the California Institute of Technology has puzzled out mathematically. X-ray diffraction studies have shown such patterns. For desoxyribonucleic acid, important especially in reproducing cells, two Cambridge University scientists, Drs. J. D. Watson and F. H. C. Crick, suggested a helical form that provides a mechanism for such molecules to reproduce themselves, essential to the workings of heredity.

From such fundamental research may come disease conquests of the future, since the largely unconquered viruses must reproduce similarly to larger organisms, despite their small size. Knowing what they do is a first step toward stopping them.

During 1953, the polio virus was isolated, identified and shown to be a minute sphere-shaped particle. And the work on a vaccine for polio came to sufficient fruition to allow planning of protection during 1954 of about a million school children with an immunization against polio's three types.

Oxytocin from the pituitary gland was synthesized, first of the hormones from this gland to be synthesized. This gland's growth hormone was linked to both arthritis and tooth growth, among the many findings about hormones.

A furor of discussion followed the publication of the Kinsey report on sexual behavior in the human female.

A Soviet explosion of thermonuclear or

fusion type indicated that Russia has or can have H-bombs of superpower comparable to our own. This quickened atomic energy defense activity. There was also political discussion on atomic power and work progressed on actual power plants for submarines and potential commercial use.

The 50th anniversary of aviation, dating from the Wright Brothers' first flight, was celebrated. Research began upon a new type of plane that takes off vertically through use of Venetian-blind type wing. A sort of flying landing field for fighter planes was made practical through use of a long-range bomber that launches, and then recovers in flight, the little fighter. The first plane that cracks the supersonic barrier in level flight as standard operating procedure, the F-100 Super Sabre, went into production. Planes of the future will carry a crash locator that consists of a radio beacon that goes into automatic action when disaster comes, marking the spot for rescue.

Television of the future, both color and black-and-white, will be recorded on magnetic tape in a manner similar to the tape recording of so many radio programs. This development of the year will make TV cost less in time and money than film now used.

Mechanized production of electronic devices for war and peace, through standardized unit parts made with printed circuits assembled by machine, was forecast for wide use by the Bureau of Standards' "Tinkertoy" project unwrapped during 1953. It will be used on radars, electronic bomb-sights and other defense equipment, and then on radio, TV and other commercial electronic devices.

Development of automatic machines, including the so-called electronic "brains," or computers, continued with promising changes foreseen for many fields. Progress was made toward application of the computers to practical weather forecasting. Development of transistors continued.

The idea that human origin occurred in Africa was strengthened by more studies and more anthropological finds. The exposure of Piltdown Man jaw as a fraud fashioned from an ape explained some discrepancies in the course of human ancestry.

With regard to present-day human beings, there was increased understanding of how we see, since the chemical progress involved in night vision was duplicated in the laboratory. In the difficult task of measuring and evaluating human temperament with objectivity, new and promising tests were developed.

The climbing of Mt. Everest left a few still unscaled mountains on the earth's surface. Beyond our sphere, there was further evidence for doubling our astronomical yardstick, making the universe both twice as large and twice as old as believed two years ago.

Realization that more knowledge of outer space is practical for radio and climatic studies, as well as for intellectual and philosophical value, spurred plans for new observatories, including a new joint one in the United States.

In a new political climate in Washington, governmental research, particularly at the National Bureau of Standards, was hampered by the "Astin affair" sparked by the battery additive controversy, despite the sustaining of the Bureau of Standards by two exhaustive reports. Other government research activities, such as soil conservation, fish and wild life protection, reclamation and weather suffered actual, or threatened curtailments. The National Science Foundation, however, received somewhat more financial support and continued to expand its program in support of research.

Science News Letter, December 19, 1953

AERONAUTICS

New Plane Promises Vertical Take-Offs

Work progressed on an automatic radio transmitter beacon that goes into action when a plane crashes; combined with automatic ground-based direction-finding stations, the beacon will serve to pinpoint the scene of future airplane crashes, permitting rescues in record time.

A plastic-treated material of glass fibers was found to be successful for airplane construction, saving on construction cost, permitting faster flight and making airplanes "invisible" to radar.

Tests were successful on models of a new type of airplane wing, resembling Venetian blinds, which will enable a fast transport plane to make a vertical take-off from a small airport.

A giant long-range bomber was adapted to make it possible for a full-size combat jet plane to act as a parasite plane on it, landing on, as well as taking off from, the mother plane.

A rotary bomb bay door solved the problem of dropping bombs from very fast planes flying through flak-filled skies.

The Sea Dart, the Navy's revolutionary delta-winged jet fighter that can land and take off in water, entered final experimental tests at the year's end.

A prototype of the F-100 Super Sabre, now in production for the Air Force, attained supersonic speed in performance; it set a new official record of 754.98 miles an hour.

A new altitude record was set at 83,235 feet in an experimental plane.

The experimental Douglas D-558-II Skyrocket set a new unofficial speed record of 1,327 miles an hour by flying twice the speed of sound (Mach 2).

Air Force got what is believed to be the world's largest helicopter, carrying 40 passengers and three crewmen. It is shown on the cover of this week's SCIENCE NEWS LETTER.

A swept-winged guided missile, capable of striking at supersonic speeds from submarines, surface ships and shore bases, was developed.

Tests showed that lack of gravity will not harm the body or mind of the space traveler.