

Blast waves from an atomic bomb in Nevada rose as high as 50 miles into the sky to be reflected back to earth as much as 600 miles away.

A new joint task force was planned to continue research on "thermonuclear weapons" at Eniwetok and Bikini.

The Nobel Prize in physics was awarded to the Dutch physicist Dr. F. Zernike of the University of Groningen for development of the phase microscope, in which living cells can be "stained" by light waves without killing them.

The chemical structure of aureomycin, antibiotic drug, was discovered, making practical synthesis possible although highly improbable.

Substances known as lysine polypeptides, which affect some viruses and bacteria in much the same way as the antibodies that create immunity, were synthesized.

Catalase, an important plant and animal enzyme, may be a factor in the natural synthesis of both chlorophyll and hemoglobin, plant and animal research indicated.

ACTH, pituitary gland hormone, was isolated as a pure white powder soluble in water and with a molecular weight of about 3,500.

FAD, or flavin-adenine-dinucleotide, coenzyme essential to the utilization of oxygen, was synthesized.

An electronic device was developed, operating ultrasonically or in the audible range, to measure liquid flow, including blood flow without use of surgery.

A new way of separating small particles, such as cells or bacteria that are of equal density but different electrical conductivity, was found in their behavior in a magnetic field.

Careful temperature control made possible the manufacture of germanium crystals uniformly enough to make transistors interchangeable.

A sixth series of atomic spectrum lines, as well as the five previously known, was found in light given off by excited hydrogen atoms; the new series is in the infrared part of the spectrum.

When a cerium compound is dissolved in water and the solution set in sunlight, it was observed, two chemical reactions occurring in seesaw succession split the water into hydrogen and oxygen.

Compounds of aluminum, gallium and indium with arsenic and antimony were found capable of acting as semiconductors and possibly as replacements for hard-to-get germanium.

By separate studies of X-ray diffraction patterns and mathematical theory, new understanding was reached of the structure of protein as a complex twisted form in which spring-shaped molecular chains are intertwined.

Nine semi-living chemical substances known as enzymes were found to work in unison to permit the human digestion of fat.

A new natural uranium mineral, found in a Utah mine, was named Umohoite.

Radioactive cotton grown on a living cotton plant gave scientists new evidence on how cellulose is formed.

A whole new series of plastics was made possible from compounds of phosphorus, nitrogen, boron and arsenic with other chemicals.

A synthetic rubber with resistance to aging due to oxidation and long wearing was made from the antifreeze fluids, propylene glycol and ethylene glycol, mixed with adipic acid.

A food packaging material was made from a special type of saran that shrinks to fit the contents.

A fertilizer material was developed to give soil a full year's supply of nitrogen safely in one application.

Drying of paints, varnishes and inks was hastened by adding amine chemicals and metals to the linseed oil.

Cooking fat odor found unpleasant in res-

taurant kitchens was conquered by synthetic antioxidants that protect against rancidity.

A new chemical to protect foods from mold spoilage was announced, as were two soy products that give bread a built-in fresh feel.

The tang of the Mexican drink tequila was found to be contributed by inulin, contained in the agave plant in place of starch; this is fermented to alcohol.

The Nobel Prize in chemistry was awarded to Dr. Hermann Staudinger for pioneering research in high polymer chemistry, establishing that the molecules of polymerized materials are true compounds and have their atoms in long chains.

EARTH SCIENCES

Government Enters Numerical Forecasting

An English party succeeded in reaching the top of Mt. Everest on the eve of Queen Elizabeth's coronation; other attempts were made to climb Mt. Annapurna, Nepal (successful), Mt. Goodwin Austen (Mt. K-2) on the Pakistan-India border (unsuccessful), and Mt. Llullaillaco on the Argentine-Chilean border (successful).

The greatest depth under the sea was reached when a descent was made to 10,339 feet off the island of Ponza, Italy, where complete blackness was found broken only by phosphorescent flickers.

Numerical weather prediction by means of high-speed electronic computers achieved, for the first time, prediction of the development of an extra-tropical cyclonic storm; because of this success, the government established an operational numerical forecasting unit.

Granite rock from Manitoba, Canada, was found to be 3,500 million years old, the oldest

known; lead tetramethyl, made from radioactive lead, yielded the same figure.

A hurricane's eye extends to the top of the storm and then comes back to earth in a second column of calm air 200 to 300 miles away called the "hyperbolic point"; tracking the hyperbolic point, it was reported, may permit better forecasting of the hurricane path.

Cross-polarization of radar transmitting and receiving instruments made it possible to detect the presence of ice crystals in high clouds, thus providing additional clues relating to the occurrence of rain or snow.

The process by which heat and pressure deep under the earth's crust deform rocks and cause them to flow was duplicated in the laboratory.

Great internal waves, reaching a height of 300 feet but not rippling the surface, were found in the heart of ocean depths.

The general level of the world's oceans was found to have risen five inches since 1895, due largely to melting polar ice.

A disastrous flood resulting from a severe storm caused great damage in the low countries of Europe.

Dutch farm land, ruined by salt when floods broke the dykes and rushed over the land, was reclaimed by a process of ion exchange.

A widespread and serious drought caused great loss, especially to cattlemen, in the Southwest.

A national water shortage was found to be due to greatly increased use and not to a general drop in water resources.

Volcanic eruptions included one of Krakatoa, famous East Indian volcano, and a new volcano, San Benedicto, off the Lower California coast.

Research studies indicated that the earth's core is of solid iron surrounded by the same metal in a molten state, and that the temperature at the boundary between the two is a little greater than 8,400 degrees Fahrenheit; jet streams and swirling currents make motion of the core similar to that of the upper atmosphere.

More than 500 tornadoes hit the United States, making 1953 a record year, the increase being attributed in part to improved observing and reporting programs.

The first "mid-ocean" submarine canyon was discovered.

Underwater television was successfully used to study fish life 100 feet below the surface of a Canadian lake and the ocean bottom at a similar depth.

A new radioactive mineral called cheralite, containing uranium and thorium, was discovered in India.

Motion pictures, taken of a radar screen tracking the storm, showed the birth and growth of a Midwestern tornado.

Congressional action provided for the establishment of a committee to study the feasibility of rain making and other forms of weather modification.

Holes drilled through 4,000 feet of the hard coral crust of Eniwetok atoll uncovered evidence that the base rock is volcanic lava.

Powerful flashes of lightning were found to be associated with the growth of ice pellets or soft hail of thunderstorms.

Large scale eddies, cyclones and anti-cyclones were duplicated in laboratory models of the atmosphere, using both smoke in air and dyes in water.

Preliminary studies of the formation of fog droplets indicated that the nuclei may be partly made up of tiny crystals of salt evaporated from the ocean.

Measurements of electric charges on cloud droplets and the electric field of natural clouds suggested that the reason certain clouds produce rain and others remain unproductive may be related to electrification.



TWISTED STRANDS OF LIFE — Dr. Linus Pauling, California Institute of Technology chemist, demonstrates with strands of rope how strands of molecules are twisted into the structure of protein. Such studies may explain the nature of living matter, as scientists learn to unravel the rope-like form, and may also yield clues to cancer's cause and cure.