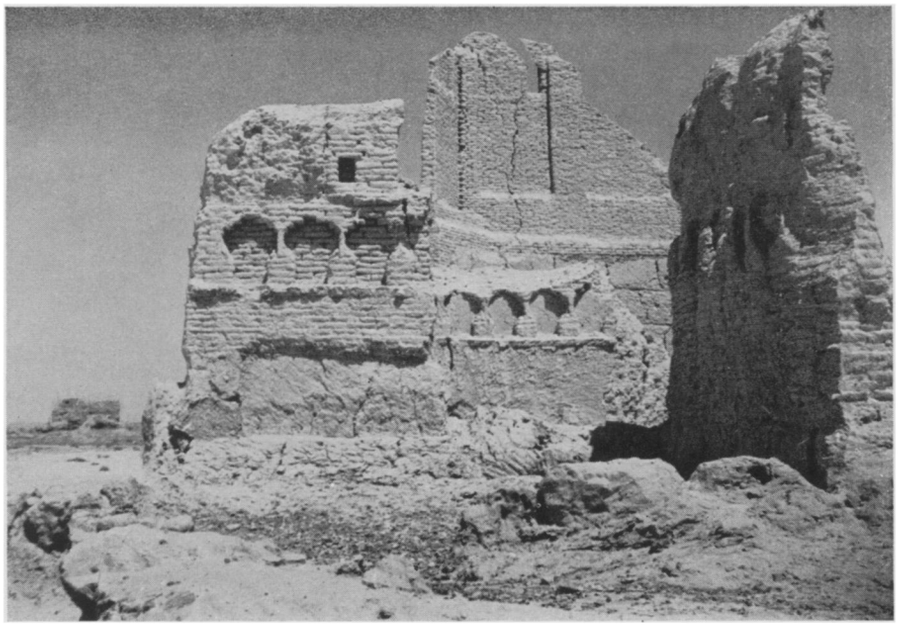

CITY DISCOVERED—A "lost city" in the remote desert region of Afghanistan was found. The deserted city is believed by scientists to have flourished in the twelfth century.

vitamins; it was cured by vitamin injection.

A female sex hormone was found in fresh young spring grass, which may account for the larger milk yield of cows at that time of year.

Amino acids from urea can be produced in the rumen of cud-chewing animals, it was found.

A cheaper vaccine for the protection of livestock against foot-and-mouth disease was made by culturing the virus on the lining of the rumen.

Hornets were found to be useful in tracing radioactive leaks because of their trait of accumulating barium in their bodies; periodic killing and analysis of some of the insects reveals pollution of the plants of the neighborhood.

Proof was found that mosquitoes carry the virus of eastern equine encephalomyelitis.

An inbred strain of corn that produces no pollen was developed, making it possible to grow hybrid seed corn without the laborious and often injurious detasseling process.

Use of hormone sprays reduced the dropping of apples before harvest.

Coconut milk was found to contain a still-unidentified substance which stimulates plant growth.

The seaweed Laminaria produces a growth-control substance in much the same manner as higher plants, it was found.

High aroma, low nicotine "Turkish" type tobaccos have been successfully grown in the United States.

Carbon black was successfully used to raise soil temperature by increased heat absorption from the sun.

Uranium in the form of its nitrate salt was found to cause hereditary changes in widely different kinds of fungi.

Two new insecticides, benzene hexachloride and gammexane, or 666, were found to cause hereditary changes in plants through multiplying the number of chromosomes.

DFDT, apple-scented German cousin to DDT, was found to be a better killer of houseflies than DDT and less toxic to warm-blooded animals and fish.

Pyrethrum was synthesized for insect sprays with more killing power than the natural product.

The aquatic plant pest, water hyacinth, can be controlled by spraying with 2,4-D, it was found.

DDT-resistant strains of flies were found to require 50 times the normal dose of DDT to kill them.

DDT resistant strains of flies and mosquitoes were found.

TCA was found to be effective in eradicating quack-grass and Johnson grass as well as prickly-pear cactus, but causes a temporary soil sterility.

Compound 42, chemical relative of dicoumarol, was found in field tests to be an effective rat killer, causing fatal abdominal bleeding.

Sudden reduction of osmotic pressure kills certain viruses by "osmotic shock," leaving them "ghosts," that is, empty head membranes with tails attached, it was found.

Actidione, antibiotic derived from the same fungus that produces streptomycin, was found effective against plant-disease fungi.

"Caesarian" operations saved valuable hybrid plant embryos, removing the immature embryos from abnormally developing seed capsules.

Micrografting was used to save valuable hybrid plants so weak they couldn't break through the seed-coat normally, attaching them to the stems of stronger, related plants and protecting them in a gelatine capsule.

The seed-pod of the cascalote tree of Mexico was found to rival the South American quebracho as a source of leather-tanning tannin and as an oil-drill lubricant.

A starch substitute for sizing textiles was found in a wild onion of India.

Seedless figs were produced in half the usual time, by dispensing with wasp pollination, and by spraying instead with the synthetic hormone, 2,4,5,-T.

Plants with large, deep root systems, like corn, make less use of fertilizer phosphorus than do plants with more limited root systems like potatoes, experiments with radioactive phosphorus showed.

Phony peach disease was found to be carried by four related species of leaf hoppers.

The elementary particles, or molecules, of cellulose, consisting of small equal-sized rods, were discovered with the aid of the electron microscope.

A new method of spreading chromosomes for photography under the electron microscope brought the genes one step nearer to positive identification.

A micro-analysis apparatus was developed which measures the minute quantities of various chemicals present in a cell nucleus.

The virus of mosaic disease in tobacco showed up as tight sheaves of needle-like particles in electron microscope photos.

New preparation techniques enabled biologists to study the nuclei and flagella of bacteria cells under the electron microscope.

The first international congress of biochemistry was held in August at Cambridge, England.

The giant African snail, a plant pest, was detected in 15 shipments at American ports, and was destroyed in all cases.

More flavorful fruit juices were made possible by development of a process for extraction through distillation of the "essence" of the fruit.

Elephant seals, once thought extinct, are increasing in numbers off the coast of Mexico.

Hutias, big rodents thought to be extinct, were found living in Haiti.

CHEMISTRY AND PHYSICS

New Atom Smashers Were Completed This Year

Several new atom smashers were completed or under construction during the year: among them a 6,000,000-electron-volt bevatron, model of larger machine planned; a 300,000,000-electron-volt synchrotron at the University of California; a 70,000,000-volt synchrotron at the U. of C. Medical School devoted to medical research; another 300,000,000-electron-volt nonferro-magnetic synchrotron at General Electric Company; a 50,000,000-volt betatron for the National Bureau of Standards to develop standards for X-ray dosage; a 300,000,000-volt betratron for the University of Illinois; a 300,000,000-volt synchrotron for Purdue University; a 3,500,000-electron-volt electrostatic accelerator for Brookhaven National Laboratory; a baby 9,000,000-electron-volt betatron for Holland; and an "in-between" 125,000,000-electron-volt synchro-cyclotron for Harvard.

News was received in the United States of an atomic explosion in Russia.

An instrument for detecting air-borne contaminants was developed, consisting of a jet through which air samples are drawn and their particles deposited on a revolving glass disk.

Creation of mesons by radiation in the 300,000,000-electron-volt synchrotron was first direct evidence that these cosmic ray particles can be made from electromagnetic radiation, as well as by high-speed alpha particles.

Immense explosive showers of atomic fragments a mile across, each thought to be caused by a single atomic bullet from outer space, were discovered in the earth's atmosphere.

Nearly a third of the total mass of the projectiles in the cosmic rays from outer space consist of hearts of heavy atoms ranging from carbon to molybdenum, stripped of their electrons.

Superballoons of welded polyethylene plastic