AERONAUTICS

New Airplane Hangar Folds Like Accordion

➤ A NEW TYPE dismountable airplane hangar that can be constructed in record time by unskilled labor has been designed for the U. S. Air Force at the Institute of Design of Illinois Institute of Technology, Chicago.

The proposed structure, comparable in size to two city blocks, would accommodate six B-36 bombers for maintenance or eight for storage, plus space for a variety of smaller aircraft.

The hangar design features a double cantilever and is based on "space frame" construction principles. Structural elements of the web-like system consist of tubular shapes integrated with a new type of connector joint, creating a three-dimensional, triangulated space frame unit.

The structure permits mass-production and prefabrication of hangar parts for permanent or temporary structures of the highest degree of standardization.

Prefabricated units can be folded like an accordion and shipped to the construction site where they can be locked into the final position quickly by unskilled labor.

There are no key structural points in the design. Bombing the hangar would be like poking a hole in a spider web. Parts damaged by explosions could be replaced quickly without disabling the hangar while repairs are being made.

Science News Letter, November 13, 1954

MEDICINE

New Arthritis Drugs Seen Promising

➤ PROMISING RESULTS in first trials of two new, partially synthetic drugs for arthritis were reported by Dr. Joseph J. Bunim, clinical director of the National Institute of Arthritis and Metabolic Diseases, at the American Rheumatism Association meeting held at the Institute, Bethesda, Md.

The drugs are called metacortandralone and metacortandrosin. They are steroid chemicals and were developed by the Schering Corporation of Bloomfield, N. J. The first patient to get either of them got his first dose on Aug. 4.

"Both drugs," Dr. Bunim said, "on the basis of relatively short term trials appear to be more satisfactory anti-rheumatic agents than any other compounds thus far known. They are effective anti-rheumatic and anti-inflammatory agents.

"They are three to four times more potent than cortisone and two to three times more potent than hydrocortisone. Observations indicate this higher potency is not accompanied by increased side effects. In fact, the reverse is true.

"The increased potency makes possible a smaller dose. The dose is sufficient to satisfactorily control the arthritis and yet small enough to avoid undesirable side effects. In this way, the new drugs are able to demonstrate a higher therapeutic ratio than cortisone and also hydrocortisone."

Although the drugs as yet have not caused any of the undesirable side effects common to cortisone, it is not as yet known whether they will in time show some of the limitations of the hormone.

For example, it is yet to be demonstrated whether prolonged use of the drugs will develop a tolerance to them or any side effects not as yet apparent.

"Neither of these drugs," Dr. Bunim said, "is a cure for arthritis, nor are they completely satisfactory; certainly not good enough to encourage complacency.

"All that can be said at this point is that on the basis of these short-term trials on a limited number of patients, these new steroids appear to be better than anything else now available."

Dr. Bunim in these trials was assisted by Dr. Alfred J. Bollet, also of the National Institute of Arthritis and Metabolic Diseases and by Dr. Maurice M. Pechet of the National Heart Institute.

Science News Letter, November 13, 1954

GENERAL SCIENCE

Urge Halt in H-Bomb Tests

➤ A BAN on H-bomb tests as the first step toward disarmament has been urged by Dr. David R. Inglis, physicist at the Argonne National Laboratory, Lemont, Ill.

The ban would be effective, Dr. Inglis said, because an international monitoring agency could "guarantee that any violation would be unequivocally announced to the world."

Chief value of the proposed ban is that it would slow down the rate of development of new techniques of offense and allow the techniques of defense to come closer to catching up.

Monitoring the air for the radioactive particles that give clues to H-bomb explosions should be by an international agency to prevent propaganda claims. Such an agency would not have to be located in a country where it was not wanted, Dr. Inglis states in the *Bulletin of the Atomic Scientists* (Nov.).

Any violation of the proposed test ban would put other countries on notice that an unlimited arms race would be on again, but while in effect, it would reduce the "attractiveness of sudden aggression."

Offensive weapons are now so far ahead of defensive ones, Dr. Inglis said, that an aggressor could annihilate an enemy country before a retaliatory attack could be launched.

His proposed cessation of H-bomb tests would give scientists some time to work on more effective defense measures. It would also prevent the H-bomb race "from becoming a many-sided affair, for no other powers can independently develop H-bombs without making tests." It would take only "one mistake to destroy civilization as we know it," Dr. Inglis warned.

Science News Letter, November 13, 1954

IN SCIEN

VETERINARY MEDICINE

Detect Tumors in Living Chickens

➤ DETECTION IN living chickens of a highly infectious, cancerous disease is now possible.

Heretofore, detection of visceral lymphomatosis, also known as "big-liver disease," has been possible only by post-mortem examination.

The discovery resulted from work being done at Duke University where scientists had found that the virus that causes leukemia in chickens contained an enzyme that would react with the chemical, adenosine triphosphate.

Scientists at the U. S. Department of Agriculture's regional poultry disease laboratory, East Lansing, Mich., found that amounts of this same enzyme increased greatly in the plasma of a chicken during growth of lymphomatous tumors. They were then able to measure this increase by reacting the enzyme, adenosine triphosphatase, with its chemical namesake.

In laboratory tests with healthy looking, but tumorous chickens, the enzyme-activity test gave a correct diagnosis in 40 out of 42 cases. Nearly 300 healthy chickens tested gave negative results.

Like human cancer, visceral lymphomatosis has resisted man's research efforts to find a cure. It is now hoped that the new discovery will help scientists to identify the disease's presence in a chicken to be used in disease-transmission and immunity studies.

It is also hoped that the test will lead to the development of an effective warning device to aid flock owners.

Science News Letter, November 13, 1954

MEDICINE

Anti-Black Eye Enzyme Helps Other Ailments

➤ "GOOD TO dramatic" results in treating various acute inflammatory disorders with the anti-black eye enzyme, trypsin, are reported by Dr. Harold T. Golden of Herkimer Memorial Hospital, Herkimer, N. Y., in the *Delaware State Medical Journal* (Oct.).

The patients treated suffered from such ailments as acute bronchitis, acute bronchial asthma, bursitis, psoriasis and thrombophlebitis. Dr. Golden reports good results in 81 of 83 patients. The two failures were in the middle ear infection, otitis media, and the kidney inflammation, chronic pyelitis.

He used the enzyme in a solution of purified crystalline trypsin marketed by the National Drug Co. under the name, Parenzyme.

Science News Letter, November 13, 1954

CE FIELDS

PARASITOLOGY

Preserve Malaria Germs In Test Tube by Freezing

➤ MALARIA GERMS can be kept alive without benefit of humans or mosquitoes by low temperature freezing, Drs. Geoffrey M. Jeffery and Robert C. Rendtorff of the U. S. National Institutes of Health, Bethesda, Md., announced at the meeting of the American Society of Tropical Medicine and Hygiene in Memphis.

Malaria parasites have been successfully preserved for as long as 110 days by use of their method. It involves sterile dissection of infected mosquito glands, suspension in sterile saline or serum, and rapid freezing by immersion of vials in a solid carbon dioxide-alcohol bath. The frozen samples are maintained at about minus 70 degrees centigrade.

Of 29 such samples that have been tested, 24 produced infections, indicating that the malaria parasites remain alive and capable of causing disease. All failures could be explained by low-grade mosquito gland infections, immune status of recipient, or defective sample container.

Science News Letter, November 13, 1954

ORNITHOLOGY

Wildlife Research Aid: Leg Bands for Birds

➤ THAT METAL band around the leg of a wild game bird brought to bag this fall is a valuable aid to research on wildlife.

The Fish and Wildlife Service expects hunters to mail in recovered bands from wild game or other migratory birds, along with information about where and when the birds were shot.

A typical metal band reads: AVISE, Fish & Wildlife Service, Write Washington, D. C., USA, 527-18799.

The word AVISE, explained Allen J. Duvall, an ornithologist with the Service, is Spanish for "notify." It is also close enough in pronunciation for the same word in French, "avis." This is necessary because migratory birds are often found from French-speaking Canada to countries in the West Indies and Central America where both these languages are spoken.

The word AVISE has caused many persons in the United States to write to the Fish and Wildlife Service informing them that they have misspelled the word "advise."

Before the word write was put on the metal bands, Mr. Duvall said, it was feared that many persons from as far away as northern South America would telephone or telegraph collect that they had recovered a band.

The numerals are the particular bird's serial number. All bands put on birds in the United States, Canada, and West Indies and in many of the Central and South American countries are catalogued.

In effect, the band gives a bird's biography. They are used to learn more about the habits and movements of migratory birds.

It has been estimated that 500,000 birds are banded each year, and that a total of 7,000,000 birds have been tagged to date.

The bands often reveal much about the bird's traveling habits. A young pintail, for example, was banded in Labrador on Sept. 7, 1951, and was caught in England two weeks later on Sept. 25, 1951.

The oldest record of longevity, determined by leg bands, was a Caspian tern that was banded in Michigan in the summer of 1925 and taken as a scientific specimen in Ohio in 1951, 26 years later.

Each band returned to the U. S. Fish and Wildlife Service is answered with a letter telling of the bird's banding and any additional biography that may have been collected from other reports of the leg bands.

Science News Letter, November 13, 1954

MEDICINE

High Blood Pressure Among Non-Smokers

➤ MORE HIGH blood pressure patients have been discovered in non-smokers and non-salters than in fellow employees of similar age.

The finding came in a study of some 800 employees over the age 40 in the Wilmington office of E. I. du Pont de Nemours and Company. The study was made by Dr. C. A. D'Alonzo, assistant medical director of the company, and Dr. P. M. Densen of the Health Insurance Plan of New York, and Miss Mary Grace Munn of the University of Pittsburgh Graduate School of Public Health.

The non-salters were those who had decreased their salt intake for the 10 years prior to the study. Whether they had reduced their salt intake after they had developed high blood pressure was not learned from the study. Neither is there any clear explanation for more non-smokers having high blood pressure. It may be that these employees, also, had stopped smoking when high blood pressure developed.

Object of the study was to see whether any factors in an employee's past history and family history at the time of first employment would point to possible future development of high blood pressure.

The family history does have a bearing, the study showed. A person is more likely to develop high blood pressure if one or both parents have it than when neither parent has it. High blood pressure in the mother increases the chances of high blood pressure in the children slightly more than high blood pressure in the father does.

The study is reported in *Industrial Medicine and Surgery* (Nov.).

Science News Letter, November 13, 1954

AERONAUTICS

Floating Heliport Rests on Water

➤ QUICK, CONVENIENT air service from the heart of your home town is seen in the floating heliport.

It has been built atop a six-story flat-roofed office building in Phoenix, Ariz., and consists of an aluminum platform floating in two inches of water. The building has not been re-stressed for its heliport role, yet the roof has not caved in. Allen C. Thomson, 34-year-old aeronautical inventor, explains that the 11-by-16-foot float distributes the landing shock from the helicopter to the entire roof area covered by the diked-in water. This eliminates pinpoint stresses that, in the past, have required extensive changes in the very frame of buildings receiving concrete heliports on their roofs.

Although the honeycombed aluminum platform weighs only 800 pounds, it is capable of handling 30,000 pounds per square foot in the Phoenix installation. The biggest landing platform would require a water depth of only four inches, Mr. Thomson declared.

When a helicopter lands upon it, the floating helicopter station applies uniform pressures of five to 20 pounds per square foot to the building roof. Since most buildings are already stressed for about 40 pounds per square foot, no additional stress capacity need be installed.

Even the largest helicopter, which weighs about 50,000 pounds, could land safely on the floating platforms.

Mr. Thomson described a "typical" heliport installation as measuring 100 by 200 feet. It would weigh 50 tons. An equivalent concrete landing strip would weigh 1,400 tons and cost $22 per square foot. The Phoenix installation, which was custom built, cost only $10 a square foot. Mass produced, the heliports should cost only $5 per square foot, the inventor estimated.

Science News Letter, November 13, 1954

CHEMISTRY

Long-Lived Radioactive Aluminum Manufactured

➤ A LONG-LIVED radioactive isotope of aluminum has been manufactured by scientists at the Carnegie Institute of Technology in Pittsburgh.

The new isotope, aluminum 26, takes about a million years to lose half its radioactivity. Previously known isotopes of aluminum had lifetimes of only a few minutes.

Discovery of aluminum 26 will allow it to be used in radioactive tracer studies, and makes possible the application of isotopic tracing to all known chemical elements.

The ordinary metal used for construction materials and household utensils is aluminum 27. Aluminum 26 was made by atomic bombardment of a magnesium target. Dr. Truman P. Kohman headed the group of Carnegie scientists working on the project.

Science News Letter, November 13, 1954