

CHEMISTRY

Big Lead Chloride Crystal Grown by Army Chemists

► ARMY CHEMISTS claim to have produced the biggest lead chloride crystal ever grown by man. It is over an inch and a third long and nearly an inch thick. It was prepared in a furnace used for growing rare crystals for high-precision equipment.

Small lead chloride crystals are common. In ordinary laboratory experiments they are made by cooling a hot-water saturated solution of lead chloride. This chemical compound is readily soluble in hot but not in cold water. When the hot-water solution cools, shining crystals are deposited.

The large crystal grown was produced by Dr. Joseph M. Ashcroft and Dr. A. Smakula, both Engineer Corps chemists at Fort Belvoir, Va. In the process a melt of purified commercial lead chloride crystals was lowered in a glass crucible through increasing temperatures by slow degrees, at a rate of less than half an inch a day. This was found necessary in order to produce a single crystal instead of a crystalline mass of small ones.

Science News Letter, November 27, 1948

AERONAUTICS

No Atomic-Powered Planes Seen For Next Few Years

► DON'T EXPECT any atomic-powered planes in the next few years, "even if further work does indicate that it is feasible," Dr. Robert F. Bacher of the U. S. Atomic Energy Commission cautioned the Washington Academy of Sciences.

Denying a published statement that 99% of the theoretical work for such was completed, the scientist-member of the Commission conceded that the main problems are technical and engineering, not scientific. But, he pointed out, the B-29 bomber took as long from design to production as did the atomic bomb.

Science News Letter, November 27, 1948

PUBLIC HEALTH

1948 Sets Record Low for Deaths from Many Diseases

► A RECORD LOW mortality with new low death records for influenza, pneumonia, tuberculosis, syphilis, appendicitis and diseases of childbirth is predicted for 1948 on the basis of figures through the first nine months of the year.

The healthy-year prediction comes from statisticians of the Metropolitan Life Insurance Company based on experience among the company's industrial policyholders.

The year has been particularly healthy for

white women and girls, the mortality figures show.

Three out of the four principal "catching" diseases of childhood, scarlet fever, whooping cough and diphtheria, show minimal death records. The death rate for measles is up, because this has been a measles year with about three times as many cases as last year.

Cancer, the principal chronic diseases of heart, kidneys and blood vessels, and infantile paralysis show higher death rates than for last year.

The homicide rate remained the same as in 1947 but the rates for suicides and all forms of accidents are down.

Science News Letter, November 27, 1948

GENERAL SCIENCE

Wartime Typhus Conqueror Awarded Gorgas Medal

► HAILED as a conquering hero of one of man's dread wartime enemies—typhus—Brig. Gen. Edgar Erskine Hume received the Gorgas Award at the annual dinner of the Association of Military Surgeons in San Antonio, Texas.

The presentation of the medal and \$500 cash award was made by Everett V. Scott, executive of Wyeth Incorporated, biological and pharmaceutical house. General Hume was cited as the man who first used DDT on a mass scale to check the typhus epidemic raging in Naples, thus protecting our GI's and millions of Italians.

Science News Letter, November 27, 1948

GENERAL SCIENCE

Japan's Scientists Will Elect Science Council

► WHEN 40,000 Japanese scientists on Dec. 20 elect 210 members of the country's first national science council, it will be the first attempt of any country to elect by scientific vote the members of its ranking science organization.

Five American scientists selected by the National Academy of Sciences will arrive in Japan late in November to consult with Japanese scientists in the development of that country's new "Democratic National Organizations for Scientific Activity."

The mission is headed by Dr. Detlev W. Bronk, president-elect of Johns Hopkins University, and other members are Drs. E. C. Stakman, University of Minnesota plant pathologist, Dr. Zay Jeffries, General Electric vice-president, Dr. I. I. Rabi, Columbia University Nobelist, and Dr. Roger Adams, University of Illinois chemist.

The top science bodies of other nations, such as the National Academy in the U. S. A. and the Royal Society in London, elect members by vote of the existing membership, not by franchise of the population of scientists.

Science News Letter, November 27, 1948



AERONAUTICS

Carrier-Based Jet-Fighter Successfully Tested

See Front Cover

► A TYPE of flying wing jet-fighter for shipboard operation has completed initial flight tests at the Naval Air Test Center, Patuxent River, Md. It is a tail-less craft, but differs from the true flying wing in that it has a fuselage much like the familiar one on ordinary airplanes.

It has, however, the broad swept-back wings of the flying wing type which are known to be desirable in high-speed planes, as shown on the cover of this week's SCIENCE NEWS LETTER. This new plane, with two jet engines, is rated as capable of over 600 miles an hour. This means that it is potentially capable of speeds in excess of current models of operational jets, land or carrier-based.

The new plane is a product of Chance Vought Aircraft, Stratford, Conn., and will be known as the Navy XF7U-1. The unconventional appearing plane has two vertical stabilizers and rudders at the trailing edge of the wing. Longitudinal and lateral control are obtained through the use of a pair of "ailevators" which are combined ailerons and elevators.

Power plants of the new plane are two Westinghouse turbo jets. For combat performance, high bursts of speed may be obtained through after-burners. These, on the jet exhausts, give additional combustion and thrust. The air intake ducts are at the roots in the leading edge of the wings.

Science News Letter, November 27, 1948

PHYSICS

New Low Figure Set For Mesotron Mass

► A NEW bantamweight among atomic particles, that appears to have only ten times the mass of an electron, wrote its autograph on a photo-negative in the physics laboratory of the California Institute of Technology. Photograph and deductions based on it by Dr. E. W. Cowan appear in the journal SCIENCE (Nov. 12).

What the photograph actually shows are the vapor trails left by an electron and this hitherto unknown particle as they collided and violently changed courses. From what happened to the known electron Dr. Cowan calculated that the unknown stranger it ran into was a mesotron (or meson) having about ten times its mass.

Science News Letter, November 27, 1948

ICE FIELDS

MEDICINE

New Drug Shows Promise Of Relieving Muscle Spasm

➤ A DRUG even better than myanesin for relieving the muscle spasms of cerebral palsy, infantile paralysis and perhaps other conditions may be on the way. First reports of this drug, developed by Dr. F. M. Berger, University of Rochester scientist who discovered myanesin, appear in the journal, *SCIENCE* (Nov. 19).

Reporting the new drug with Dr. Berger are Drs. V. Boekelheide and D. S. Tarbell of the university.

The drug is one of a series of newly synthesized compounds known as dioxolanes. So far they have been tested only on laboratory animals. Trials on human patients will not be made for some months to come.

Among the new drugs are some with greater activity and a greater margin of safety than myanesin.

Science News Letter, November 27, 1948

ENGINEERING

Ship's Course Recorded By New Electrical Device

➤ A "SHIP steering recorder," which automatically and continuously records a ship's course, has been developed by engineers of the General Electric Company.

The new instrument marks the ship's rudder position and compass direction on a 12-inch moving roll of waxed paper, passing beneath metal points which are connected electrically with the ship's rudder and compass. The recorder calculates any deviation from the set course on the moving paper. Engineers claim that the device will detect an error in course as slight as two-tenths of a degree.

Several of the recorders are now being used experimentally by the U. S. Navy in destroyer and submarine chart rooms. No permanent installations of the equipment have been made as yet.

Science News Letter, November 27, 1948

PSYCHOLOGY

Human Beings Are Dogs In Dogs' Estimation

➤ YOU ARE a dog. At least, that's what you are in your dog's estimation.

Stated more formally: "Behavior patterns which dogs exhibit toward people are similar to those exhibited toward dogs." This is one of the conclusions reached in a

comparative study of the social behavior of dogs and wolves by Dr. J. P. Scott of the Roscoe B. Jackson Memorial Laboratory at Bar Harbor, Maine.

Other conclusions are that social organization among both animal groups is largely connected with the food supply, and that there are almost no behavior patterns in dogs which are not also seen in wolves. However, in the domesticated dogs certain traits have been suppressed, others exaggerated, as the result of selection.

Wolves are relatively easy to domesticate, Dr. Scott stated, partly because they are by nature social animals and partly because their long puppyhood makes them dependent on help from their parents. A human foster-parent, fitting himself into this dependency pattern, has plenty of time to gain the young wolf's confidence and become accepted as just another wolf.

Dr. Scott presented the results of his researches before a special conference on methodology and techniques for the study of animal societies in New York.

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GEOLOGY

Atom-Powered Blisters Made Mountain Systems

➤ ATOMIC ENERGY, working slowly through millions of years instead of in a flash as in the man-made atom bomb, makes mountain systems by bulging the earth's crust up into immense blisters, which then collapse and let the heated rock beneath escape as magma or lava.

This "blister" hypothesis of mountain origin was presented before the meeting of the Geological Society of America in New York by Dr. C. W. Wolfe of Boston University.

A rough model of what happens can be seen in any pan of cooking breakfast cereal as it gets stiff and thick, except that the big, blister-like bubbles that swell up, burst and collapse are filled merely with steam instead of potentially liquid rock.

Heat, largely from atomic disintegration, accumulates in a zone not more than 50 miles deep below the earth's surface. This causes the overlying crust to bulge up into the blister, Dr. Wolfe stated. Around the margin of the blister a trough-like depression develops, technically known as a geosyncline. This is a zone of weakness, and the escape of the magma may take place either here or through the weakening, domed top of the blister itself.

Among other geologic phenomena which could be explained on the basis of the blister hypothesis, the speaker suggested, are changes in sea level, which have long been a sore puzzle to students of earth history. Formation of suboceanic blisters would account for a rhythmic rise and fall in sea level.

Science News Letter, November 27, 1948

ARCHAEOLOGY

California Inhabited by Humans During Ice Age

➤ WHEN ICE gripped the earth about 50,000 years ago, California was inhabited by some sort of human beings.

The remains of fires, tools and discarded shells of many ancient dinners have been found in shore deposits near what is now La Jolla, the Geological Society of America was told in New York by Dr. George F. Carter, geologist of Johns Hopkins University, Baltimore, Md.

When these La Jolla men lived the sea level was lower than now and now the ocean is rapidly eroding the buried evidence of these very early Californians whose skeletons have not been discovered.

Science News Letter, November 27, 1948

ENGINEERING

Automatic Dispatching Controls Elevator System

➤ RAPID SERVICE at timed intervals, due to automatic dispatching, features the "elevator of tomorrow" revealed in New York by the Otis Elevator Company. It is a system for a bank of elevators in a large business building in which regulated up-and-down service is provided by controls activated by electronic devices.

There are six traffic patterns experienced daily in most busy buildings: morning, noon and evening rush periods with heavy traffic either up or down, in-between two-way traffic periods, and night and holiday service. Two dials on the starter's panel can be set to meet these patterns.

One is a traffic-flow dial, with six positions to meet the six traffic patterns. The other is a dispatching-interval dial which can be set to dispatch elevators at regular intervals to handle most efficiently the traffic in the pattern period. The system has been dubbed "autotronic elevating" because dispatching, car spacing and passenger waiting time are controlled automatically and electronically. All manual adjustments are taken out of the hands of the starter.

The system offers particular advantage during rush-hour down-traffic at the end of a day for passengers on lower floors for whom elevators fail to stop because already loaded at higher floors. During this period, passenger-waiting time is automatically measured by electric condensers. If the voltage of a single condenser builds up to a pre-determined point, it activates an electronic tube which operates controls to cause an up-elevator to stop at the floor to take the passenger down. What actually happens is that some cars become diverted to pick up passengers in the low zones while others serve the higher floors. When the calls drop off, the system automatically readjusts itself to normal.

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