

tions by the conquered city.

In the hope of scaring the city of Umma into keeping the terms of the treaty the inscription called on the god Ningirsu to capture the people in his great net and punish them if they should ever dare to cross the boundary contrary to the treaty terms. To emphasize the curse, the treaty was written on a clay cylinder shaped like a net such as hunters used to bag game.

Curse or no curse, the people of Umma rose in rebellion in a few years, and the peace treaty so cunningly drawn was discarded as a scrap of clay.

A document from a "New Deal" given to a country about 2650 B. C. is another exhibit selected from the Yale Babylonian Collection by Dr. F. J. Stephens, acting curator, to show the progress of Babylonian history from 3500 B. C. to about 150 B. C.

The New Deal was given to the city of Lagash by King Urukagina, who rose as champion of the people in a time of great unrest and corruption. He brought about changes in government which greatly improved the lot of the common people, says Dr. Stephens.

Science News Letter, June 30, 1934

MEDICINE

Arteriosclerotic Heart Disease Is On the Increase

PEOPLE today are unquestionably wearing out sooner because of the faster pace at which they are living.

So declared Dr. Fred M. Smith of Iowa City during the meeting of the American Medical Association in Cleveland. A leading cause of death today is arteriosclerotic heart disease, which is essentially a wearing out process.

He and his associates, Drs. W. D. Paul of Iowa City and H. W. Rathe of Waverly, Iowa, told the story of this disease in an exhibit at the meeting and in a report of four hundred cases to the American Heart Association, which also met in Cleveland.

The number of deaths from heart disease is much greater today and has increased much faster in the last twelve years than the numbers from either cancer, pneumonia or tuberculosis. The latter disease, in fact, has shown a decrease.

Fully half of the heart deaths are due to arteriosclerotic heart disease. In this condition the space inside the arteries of the heart itself is gradually encroached upon till it becomes so small the blood can hardly get through, or it may be entirely stopped by what physicians call an occlusion. As a result, the part of the heart muscle supplied by the diseased or occluded arteries does not get enough blood to perform its share of the heart's work.

Fortunately, the heart has a remarkable capacity to compensate for this condition, the unaffected part taking over the entire job of pumping blood out into the body. Fortunately, also,

physicians have found certain drugs which actually dilate arteries that are being closed up. Rest is also very helpful in this condition, because it reduces the amount of work the heart must do and the quantity of blood it needs.

Pain in the chest, often severe and lasting anywhere from several hours to several weeks, is the chief symptom of this heart ailment. Shortness of breath is another symptom. Angina pectoris may also be present.

The pain in arteriosclerotic heart disease is different from the pain in angina both as to location, duration and type. An important difference is that the pain in angina comes on during exercise, excitement or exertion of some kind, while the pain of arteriosclerotic heart disease frequently occurs while the patient is resting, or wakes him out of his sleep at night.

Physicians do not know how to prevent this type of heart disease, though more moderate living habits may help.

Science News Letter, June 30, 1934

ASTRONOMY

Electrical "Tides" Suggested As Cause of Sunspots

THE FAMOUS eleven-year sunspot cycle which astronomers have been observing for decades may be caused by the electrical interaction of the sun and its neighboring planets, Venus, the earth, and Mercury.

The suggestion that sunspots result from electrical "tides"—to use a moon

and earth analogy—was advanced by Fernando Sanford, emeritus professor of physics at Stanford University before the Astronomical Society of the Pacific at its meeting. The Society met in conjunction with the American Association for the Advancement of Science at the University of California.

All the planets have strong negative electric charges upon them with respect to the sun. Since the planets move in orbits which take them alternately near and away from the sun Prof. Sanford suggests that at the nearest position the increase in electric field between various solar bodies might produce the sunspots. If this situation is true, a check of sunspot activity and the proximity of the planets to the sun should show some correlation.

Studies of sunspot cycles from 1750 to 1928 show, the veteran scientist declared, the sought-after correlation between sunspots and the periods of conjunction of Venus and the earth on one hand; and Venus, Mercury and the earth on the other.

Prof. Sanford maintains that Venus and the earth are responsible for the eight-year sunspot cycle while Venus, Mercury and the earth cause the more easily recognized eleven-year cycle.

Science News Letter, June 30, 1934

ASTRONOMY

Age of Meteorites Points To Origin in Solar System

METEORITES, the bits of cosmic matter which stream about through space and sometimes fall flaming to earth, are members of the solar system which holds the sun and the earth.

Experiments using a radium time-clock to estimate the age of meteorites were reported to the American Association for the Advancement of Science by Dr. Robley D. Evans of the University of California which prove the origin of the shooting stars.

The clock used by the California scientist is the radioactive disintegration of the element uranium into lighter elements, including radium. In the process, atoms of the light gas helium are given off. When a sample of meteoric material is "new" it has little helium in it; when old it may be saturated with the gas. Determining the ratio of helium to radium in a rock sample is a check on its antiquity.

Scientists all over the world, declared Dr. Evans, have now checked the age

of about 200 samples of meteorite material. Their age agrees with that of terrestrial rocks—between 100 and 3,000 million years. This shows that earth-originated and cosmic materials both have their origin in the solar system.

As radioactive elements break down into lighter ones, Dr. Evans indicated, heat is generated. This source of heat, he declared, "is more than adequate to supply all the heat lost from the earth

by conduction through its crust, as well as to supply the energy for all mountain building processes, including earthquakes and volcanoes; to supply an excess of heat sufficient to cause convection heat currents in the underlying rocks and hence to provide the energy and mechanical requirements needed to make possible the gradual drift or motion of continents across the earth's surface."

Science News Letter, June 30, 1934

PSYCHOLOGY

Value of Advertisement Increases With Size

THAT the value of an advertisement increases with size, but that the increase in value is not in direct proportion to the increase in area, was confirmed in tests reported by Leonard W. Ferguson, of the Psychology Department, Stanford University, to members of the American Association for the Advancement of Science.

Three methods were used in the tests: the subjects were allowed to look through a magazine and then try to remember advertisements seen; the number of inquiries in proportion to size of advertisement was computed; and, third, the subjects were required to pick out from a group of advertisements those he had previously seen in a magazine through which he had been asked to look. An average of all three methods indicated a direct increase in value in proportion to size, but the inquiry and recognition methods indicated that the value increases more nearly in proportion to the square root of the area. An average of 22 other ratios, previously reported by scientists, confirmed the square-root ratio result.

Science News Letter, June 30, 1934

AVIATION

Smoke and Soot Reveal Air Currents on Airplane

THIN fleecy layers of white smoke, the same kind as that used in sky writing and smoke screens, are being used to permit scientists actually to see the otherwise invisible air currents and eddies around the wings, body, and tail of airplanes, during both flight and in experiments in wind tunnels.

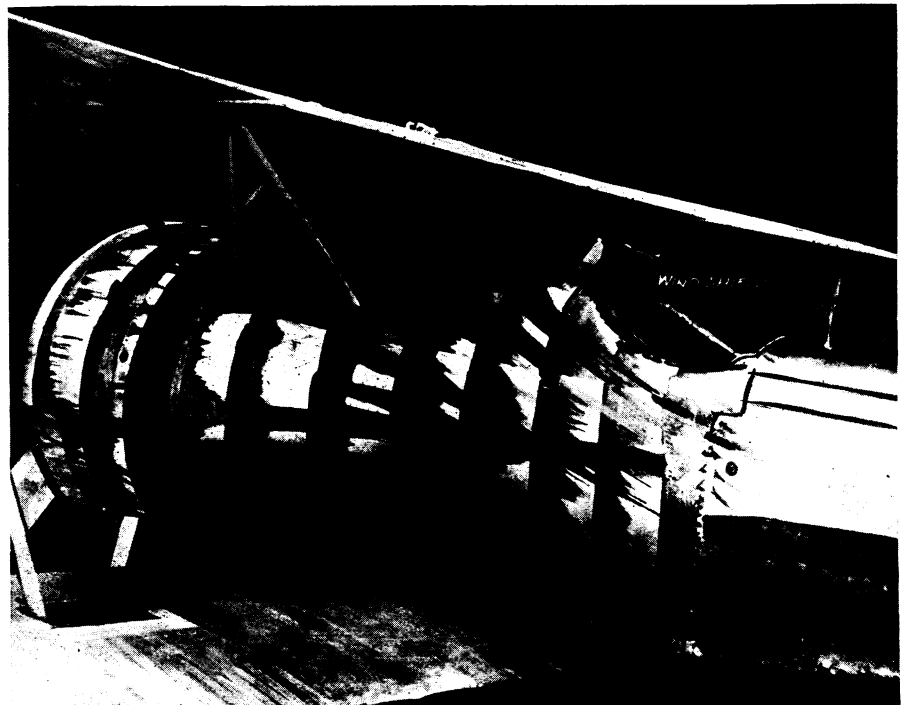
In other tests conducted at Langley Field, Virginia, under the National Advisory Committee for Aeronautics, airplanes take on the appearance of having just come through a blizzard, except that the tell-tale marks left by wind whistling through struts and over ailerons are black streaks of soot instead of trails of white snow. Streamers of fine silk threads are also used, and photographs are taken during different maneuvers to show what happens close to a wing surface during a bank, stall, or glide.

The forces which various parts of an airplane must resist in flight and maneuver can easily be measured in a laboratory. Data taken in tests on small-scale models or even full-sized airplanes are useful in designing new features, but these experiments are of the trial-and-error variety. The scientist finds out what the result will be although he can not see what takes place. However, by shooting thin sheets of dense white smoke through a wind tunnel it is possible to discover what happens, since all the small whirlpools and cross-currents of air give a startling smoke-picture of what occurs in an ordinarily invisible medium.

The soot for discovering air-channels

is a paste made up of lampblack and kerosene. This is painted zebra-like on the various surfaces in streaks at right angles to the direction from which the wind is expected to come. The plane is subjected to a gale, either in the wind tunnel or in actual flight. The mixture, streaked away by the wind from the original lines, is allowed to dry. Resembling a smudged ink line, the daubed surfaces indicate the curving streams of air.

Science News Letter, June 30, 1934



"SEEING" INVISIBLE AIR CURRENTS

A plane flown after mixture of soot and kerosene has been painted in vertical strips on wings and body. The streaking of soot indicates downward currents acting on airplane.