METEOROLOGY

Make Dishpan Models Of World's Weather

➤ MODELS of the world's weather made in rotating dishpans suggest that the main patterns are not directly caused by large bursts of solar radiation.

Dr. Dave Fultz of the University of Chicago said his measurements of the dishpan's swirling waters indicate it would take a tremendous bombardment of solar radiation on the earth's atmosphere to produce a large, sudden effect.

Reporting to the American Meteorological Society meeting at the University of Colorado, Boulder, Colo., Dr. Fultz stressed his experiments seemed to show that changes in large-scale weather patterns are determined by internal, not external conditions.

This is the heart of the problem discussed by meteorologists, geophysicists and astronomers at the three-day meeting. No conclusions have been reached. Some presented evidence supporting the view that giant flares exploding on the sun trigger changes in the earth's outer atmosphere that spread downward, resulting in abrupt changes in worldwide weather patterns.

Others reported evidence that such factors as mountains or the temperature differences between land and ocean areas could account for large-scale weather changes.

Science News Letter, August 11, 1956

GENETICS

Propose New Heredity Theory for Rare Disease

➤ A THEORY for inheritance of a rare disorder leading to arthritis was proposed by an American father and son team, Drs. Robert Austin Milch and Henry Milch of New York, at the International Congress of Human Geneticists in Copenhagen.

The disease is alcaptonuria. It is apparently "the only known hereditary disorder which practically always leads ultimately to arthritis."

The arthritis is a degenerative joint disease known as osteoarthritis, but this hereditary disorder is not the only or even a common cause of arthritis.

About 300 cases of alcaptonuria have been reported.

People with alcaptonuria are born with an error of body chemistry characterized by an inability to disrupt the benzene ring of homogentisic acid. Starting in babyhood, their excretions turn dark brown or black on standing.

When they reach their teens or twenties, a bluish-black pigment is deposited in cartilages, tendons and other types of connective tissue. Patches of light brown or slate gray color appear in the whites of the eyes. The ears turn blue and are opaque to light. Brown spots appear on skin and nails.

In middle age, pigment deposits in the joint cartilages lead to degenerative changes and arthritis, usually in the hips, knees, shoulder and spine.

The disease does not seem to decrease life expectancy.

Studying the pattern of inheritance of this disease, the Drs. Milch propose that the disease is not genetically determined by a single, autosomal recessive gene as previously suggested. Instead, they think it may be determined by an incompletely penetrant dominant gene that co-exists with at least one other pair of modifying gene factors.

Their theory, they said, would adequately account for the recorded instances of apparently incongruous dominant transmission and for the more often seen apparently recessive mode of inheritance.

Science News Letter, August 11, 1956

PHYSIOLOGY

Blood Platelet Counts Aid in Sterility Cases

➤ COUNT of the platelets in the woman's blood may in future help childless couples achieve the parenthood they desire.

The blood platelet count would help by showing the woman's most fertile days each month, when attempts to start a baby would be most likely to succeed. At present, daily body temperature readings are widely used to determine this, but the blood platelet count promises to be of greater value.

This likely future method comes from a discovery by Drs. Herman Pepper of Sequoia Hospital, Redwood City, Calif., and Dr. Stuart Lindsay of the University of California School of Medicine, San Francisco, reported in *Science* (July 27).

The number of platelets in a woman's blood, they discovered, goes up sharply at the time of ovulation each month. This is when the eggs starts its course down to the uterus, or womb.

Because the peak in the rise in number of platelets is sharp and sudden in a 24-hour period, the scientists think platelet counts may be of greater value than basal temperature graphs in establishing the time of ovulation. This is especially likely to be the case when the temperature shift is gradual and prolonged for several days.

The two doctors are now determining platelet levels in a number of sterile patients with the idea of setting a date for intercourse or artificial insemination to coincide with the platelet peaks in the middle of the woman's monthly cycle.

Platelets are colorless cells in the blood and are involved in blood clotting. Discovery that they could be a guide to a woman's most fertile period each month came when the doctors were making platelet counts over a long period in a woman with the severe hemorrhagic disorder called thrombocytopenic purpura, in which there is a marked reduction in number of blood platelets.

The few platelets in this patient's blood consistently reached their largest number during ovulation each month.

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IN SCIEN

ENTOMOLOGY

Biological "Clock" Controls Fruit Fly

➤ FRUIT FLIES tell time by a biological "clock" not related to temperature or humidity.

Experiments by a Princeton University biologist, reported in *Science* (July 27), indicate the insects can learn to tell, independently of environmental changes, when periods of peak activity normally occur.

Ordinarily, fruit flies of the genus *Drosophila* are most active in evening just before dark. The flies' rates of activity were measured in an artificially lighted chamber by biologist Shepherd K. de F. Roberts.

For four days, the flies were subjected to 12 hours of bright light alternating with 12 hours of darkness. Although the light was turned off abruptly at 10 p.m., the insects began their peak activity periods three hours earlier. The temperature was kept constant, so they could not have had a clue from that.

During the next three days, the flies were kept in dim light that was never turned off. There were no light and dark intervals, and, as before, no temperature changes. The active periods were similar to those of the previous four days.

"These data strongly suggest that a biological 'clock' is operative in determining the active periods for the flies," the scientist concludes.

Science News Letter, August 11, 1956

TECHNOLOGY

Seed Reclaimer Cuts Losses to Growers

➤ A DEVICE that reclaims forage crop seeds lost during combining may save seed producers $25 or more per acre of crimson clover and alta fescue seeds. Even bigger savings are expected with other grasses.

The combination vacuum cleaner and agitator is still under development by the Agricultural Research Service of the U. S. Department of Agriculture and the Oregon Agricultural Experiment Station. An experimental model has reduced shatter seed losses 75% to 95% under test conditions in Oregon.

The experimental device reclaimed a total of nearly $470 worth of sub clover seed per acre in Oregon's Willamette Valley. It salvaged 938 pounds per acre, compared with 235 pounds using conventional windrow or combine methods.

Short rotating chains attached to a cylinder loosen seeds from the ground, and they are then sucked up by the machine, designed to be attached to combines.

Science News Letter, August 11, 1956

CE FIELDS

STATISTICS

Wildcat Oil Strikes Are One in Ten Risk

➤ IF YOU are thinking of becoming a wildcat oil man in a "get-rich-quick" scheme, you had better think ten times. A study made in Dallas, Tex., shows that only one in ten wildcat drilling operations is successful.

Basing his findings on the discoveries and developmental history of wildcat drilling during the years 1945 through 1949, Frederic H. Lahee, a consulting geologist, reports the following:

Between 1944 and 1949 the number of wildcat holes drilled in 17 states in the U. S. totaled 20,478. At the close of the year of discovery, 11.2% of these were producers. After six years, out of the original 20,478 holes drilled, 18,487 or 90.4% were failures.

Among all the 20,478 new-field wildcats drilled, Mr. Lahee states, only one in 11.9 discovered any oil or gas; only one in 14.1 discovered any oil; only one in 42 discovered an oil field with as much as 1,000,000 barrels of estimated total ultimate recoverable reserves; only one in 158 discovered an oil field with 10,000,000 barrels or more of total ultimate reserves; only one in 427 with 25,000,000 or more barrels; and only one in 706 with 50,000,000 or more barrels.

Mr. Lahee says that the figures "emphasize most emphatically that the risk of failure in wildcat drilling is large, certainly not better than one chance of a commercial producer out of every 10 wildcats drilled, even including those producers later found to be extensions of old fields."

The geologist reports his study in the *Bulletin of the American Association of Petroleum Geologists* (July).

Science News Letter, August 11, 1956

PHYSIOLOGY

Avoid Wearing Sunglasses Indoors

➤ ADVICE not to wear sunglasses indoors may sound foolish to some. Many persons, however, actually wear sunglasses indoors.

They are the ones who need eyeglasses to correct some defect in vision and who get prescription ground tinted lenses. These prescription tinted lenses are useful outdoors to protect the eyes both from glare and from the fatigue that would come from not wearing the corrective lenses. Persons taking long automobile trips, for example, may need them.

Wearing them indoors at home or the office, however, is probably a mistake, Navy medical officials point out. For one thing, most indoor working conditions and homes now have illumination levels that are so low the normal eye needs all available light for comfortable seeing.

Besides this reason, the Navy doctors point out that the eye has a "habit-forming characteristic." Through continued use of dark lenses, it has been found that the eye becomes more or less used to a lower level of illumination to about the same extent as if no glasses had ever been worn.

On the other hand, if a person spends a major part of the time out of doors in sunlight, the eye becomes accustomed to the higher illumination so that it may be possible to see comfortably without any glasses.

However, most of us need protection during those times when we are outside in bright sunlight because the greater part of our lives is spent indoors under a lower level of natural or artificial illumination.

This habit-forming characteristic of the eye can be controlled to a certain extent, the doctors say, by guarding against the use of shaded lenses of any kind while indoors or under conditions of similar low illumination. Some cases of disease may be exceptions.

So, if you have prescription ground tinted lenses, have another pair for indoor use. Or use the commercially available "clip on" lenses. Those who do not use or need corrective lenses can select by trial a glass that eliminates snow and sun glare out of doors, the Navy medical men suggest.

Science News Letter, August 11, 1956

MEDICINE

Wean Polio Patients From Iron Lung Life

➤ SUCCESS in weaning polio patients from life in the iron lung, or respirator, that saved their lives when polio paralyzed their breathing functions was reported by Dr. W. Kenneth Lane of the National Foundation for Infantile Paralysis, New York, at the Eighth International Congress of Pediatrics in Copenhagen.

The weaning is done at 15 regional respiratory centers in the United States.

Of 35 patients who had been in respirators for a long time when first admitted to one of these centers, 18 have been completely weaned from all respirator aid, Dr. Lane reported.

The average stay at the respirator center was five and one-half months. Thirty-four of the 35 are now able to be at home, 16 of them using a rocking bed or chest respirator or both. Only one of the 35 still must be in an iron lung all the time.

Of the 35, Dr. Lane reported, 29 are able to feed themselves and write, six are back at work and another five are expected to be able to go back to work eventually. Ten of the discharged patients are mothers and homemakers, all now managing their homes, although eight require some domestic help.

Of the five school age children, three are back in school and two are receiving organized instruction at home. One of these is expected to return to school next year.

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PUBLIC HEALTH

All Ages Now Can Get Polio Vaccine

➤ ANYONE of any age who wants to reduce his chances of getting polio can now do so. He or she can get vaccinated at the doctor's office.

This is the meaning for the average person of the announcement that allocations of polio vaccine have been lifted.

Polio vaccine purchased with the aid of Federal funds, however, will still be limited to children under 20 and pregnant women. This vaccine is allocated through health departments and usually given at health department clinics, or, in some cases, at private doctors' offices.

Whether removal of allocations will have any effect in stopping the Chicago outbreak is doubtful. There, many who could have been vaccinated even when allocations were in effect failed to go to the doctor or the clinic for the vaccine.

Authorities noted that the hotbed of the Chicago outbreak has been in a slum area where most of the inhabitants are either foreign-born or of foreign extraction. They apparently have not yet been sufficiently assimilated into the U. S. pattern of living to take advantage of opportunities to get the vaccine even through free clinics.

If the rest of Chicago inhabitants get vaccinated, now that allocations are off, the outbreak may be kept from spreading throughout the city and suburbs.

Export of vaccine abroad, now under tight control, might also start.

Science News Letter, August 11, 1956

INVENTION

President Washington Issued First Patent

➤ PRESIDENT GEORGE WASHINGTON issued the first patent in the history of the United States on July 31, 1790. It was awarded to Samuel Hopkins of Philadelphia, Pa.

Mr. Hopkins was granted the patent for "an improvement not known or used before, such discovery in the making of Potash and Pearl-ash by a new apparatus and process."

As required by Federal law, the patent was approved by the President; the Secretary of State, Thomas Jefferson; the Secretary of War, Henry Knox, and the Attorney General, Edmond Randolph.

Mr. Hopkins, as holder of the patent, had exclusive rights for 17 years, including the right to license his patent. After 17 years, Mr. Hopkins' invention became public property. The inventor was awarded patent No. 1.

Potash, which is pearlash in its purified state, is still known by the same name today. Chemically called potassium carbonate, anhydrous, it is a white, odorless substance used in the manufacture of soap, glass, pottery, and in tanning and engraving.

Science News Letter, August 11, 1956