

GENETICS

Tendency to Lung Cancer May Be Inherited

► THE TENDENCY to lung cancer may be inherited.

Lung cancer victims tend to come from families where lung cancer has struck before, Dr. George K. Tokuhata of the U. S. Public Health Service, Washington, D. C., and Dr. A. M. Lilienfeld of the Johns Hopkins School of Hygiene and Public Health, Baltimore, have found.

The families of 361 lung cancer patients at the Roswell Park Memorial Institute, Buffalo, were compared with the families of 722 patients who were hospitalized for other diseases. Sixteen relatives of lung cancer patients had died from lung cancer. Their death rate from lung cancer was significantly higher than the rate found for the families of non-cancer patients, the scientists said.

Female relatives, particularly sisters of the patients, accounted for most of the differences between the families, they stated in *Public Health Reports*, 78:277, 1963.

The effect of cigarette smoking was not considered in the study.

• *Science News Letter*, 84:24 July 13, 1963

ANIMAL HUSBANDRY

Clipped Turkey Wings Cause Infections

► TURKEY GROWERS are advised not to clip wings of their birds, as the damage decreases the value of the turkeys.

Cropped wings often become infected and never completely heal, Byron W. Moore, poultry specialist at West Virginia University at Morgantown, W. Va., reported.

When one wing is clipped, turkeys often lose their balance and severely bruise themselves jumping from roosts. Breast blisters form from this bruising.

Birds with infected areas or breast blisters cannot pass inspection for wholesomeness unless the inflamed area is removed. Trimming such carcasses is time-consuming and often results in giving the turkey a poorer grade, thus making the turkey more difficult to sell.

The loss is usually borne by the grower, who may not even realize it.

• *Science News Letter*, 84:24 July 13, 1963

MEDICINE

Measles Virus Related To Animal Diseases

► THE VIRUSES causing measles, rinderpest and distemper are all related, scientists have found.

Experiments involving human children with measles, dogs with distemper, and cows and goats with rinderpest revealed that the three diseases are cross-immunizing. Inoculation against or recovery from one of these virus diseases provides immunity against not only that disease but against the others as well.

The antibodies formed to protect against measles are also effective against distemper and rinderpest. Likewise, immunity to either of these two diseases will protect against the other and against measles.

These conclusions, reported in *Agricultural Research*, 12:7, 1963, were based on observations made in the U. S. and in Africa. Research in this field is being conducted by Nobel Prize winner Dr. J. F. Enders and Drs. S. L. Katz at Children's Hospital in Boston; P. D. DeLay and S. S. Stone at the Plum Island Animal Disease Laboratory, Greenport, N. Y., with Dr. D. T. Karzon at Children's Hospital, Buffalo, N. Y.

• *Science News Letter*, 84:24 July 13, 1963

BIOCHEMISTRY

Radioactive Hormone Used in Thyroid Test

► A NEW TEST for measuring thyroid function uses a small blood sample from which proteins are separated. Then radioactive hormone is added in the laboratory to find out whether the thyroid is normal or not.

An accurate and simple test such as this is of great value in tracing the cause of worrisome and difficult-to-diagnose troubles associated with over- or under-function of the thyroid gland.

If you are sluggish, mentally or physically, it can mean your thyroid is not producing enough hormone. If you are jittery, it may be because your thyroid is overactive.

Drs. Manuel Nava and Leslie J. DeGroot developed the new test at Harvard Medical School and Massachusetts General Hospital, Boston. Dr. Nava is now in San Luis Potosi, Mexico.

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GEOLOGY

Conical Chromatography Separates Natural Oils

► FILTER PAPER folded into cones has helped scientists separate for analysis the natural oils and substances from rocks, a British geologist reported in London.

Chromatography is a method of chemical analysis in which a solution is poured into a tube filled with absorbent material. Different compounds in the solution separate out and leave bands of color in the column. In paper chromatography, filter paper is substituted for the vertical tube.

Conical paper chromatography is a new method of separating the substances that requires less pressure. The substances separate and narrow as they rise to the top of the cone, forming concentrated zones for study.

This technique is especially useful in separating antibacterial ingredients from coal, and studying the fluorescence and absorption qualities of a substance left behind on the filter paper. It was reported in *Nature*, 198:1330, 1963, by Dr. W. D. Evans of the University of Nottingham.

• *Science News Letter*, 84:24 July 13, 1963

IN SCIENCE

MEDICINE

Scientists Isolate Virus Of Milker's Nodules Pox

► A POX VIRUS mistakenly used several centuries ago as vaccination against smallpox has been isolated for the first time from a human being by three National Institutes of Health scientists.

The virus is believed to cause the disease known as milker's nodules, an infection transmitted by milking cows infected with the disease. Edward Jenner, the man who discovered that cowpox was effective in preventing smallpox, noticed that there were two different kinds of cowpox in 1799.

Unfortunately no one believed him at that time and doctors sometimes used the tissue from milker's nodules instead of cowpox by mistake. This did not cause immunity to smallpox, and for a long time people did not believe in Jenner's ideas.

Until now no one has known what caused milker's nodules, similar to cowpox only in the way it is transmitted and its effect on cells. By experimenting with rabbits, the scientists proved that persons developing cowpox are not immune to milker's nodules and vice versa.

The virus has been named the T.J.S. strain for the boy who had been inoculated with cowpox several years earlier and developed milker's nodules. The scientists were able to isolate the virus from lesions on his arm. The seriousness of the virus remains to be determined.

The isolation of the pox virus was reported in *Science*, 140:1335, 1963, by Dr. Alvin E. Friedman-Kien and Dr. William G. Banfield of the National Cancer Institute and Dr. Wallace P. Rowe of the National Institute of Allergy and Infectious Diseases, 165 years after Jenner published his paper on smallpox vaccination on June 21, 1798.

• *Science News Letter*, 84:24 July 13, 1963

PSYCHOLOGY

Rat Supremacy Rivalled By Little Leaping Rodent

► A WIDE-EYED little leaping desert rodent is challenging the supremacy of the rat in the laboratory.

The rodent, a gerbil, outdoes the rat in laboratory experiments. It learns to avoid a shock far more quickly than the rat ever could, psychologists have found.

In one experiment, 98% of the gerbils had learned to avoid a shock after four days of testing, while only three percent of the rats had done so. Not only are gerbils smart, but they are tame and easy to care for, Gary C. Walters of the University of Portland, Jack Pearl of Sterling-Winthrop Research Institute and Judith V. Rogers of the University of Buffalo reported in *Psychological Reports*, 12:315, 1963.

• *Science News Letter*, 84:24 July 13, 1963

CE FIELDS

METEOROLOGY

Weather Analysts to Issue Blue-Sky Warnings

► BLUE-SKY air turbulence may soon be as easy to predict as regular storms.

Reports of such turbulence encountered by military pilots in apparently clear skies are being correlated with photos taken from weather satellites in order to learn more about storms as a whole. Actually, the clear-sky disturbances are part of the storm system, and are connected with it by jet streams, Sidney M. Serebreny of the Stanford Research Institute, Menlo Park, Calif., said.

He told the American Meteorological Society meeting at Stanford University that the clear turbulent areas reported by flyers at 30,000 to 45,000 feet are being studied on photographs taken from the weather satellites. From these studies, the relationship of the areas to the cloud pattern of the complete storm system can be learned.

The relationship can then be applied to areas where similar cloud patterns occur, but where reports concerning the turbulence are not available. Thus, forecasters may be able to warn pilots where to expect clear-sky turbulence.

• Science News Letter, 84:25 July 13, 1963

GENERAL SCIENCE

House Kept Too Cold Collapses in Texas

► TAKE SOME ADVICE from a Texas homeowner and do not turn the air conditioner on too cold.

The Texan in question was intent on keeping his \$150,000 house cool as could be. Six months later he had to move out, for the house was about to collapse.

Moisture, trying to get from the hot outside air to the cool air inside, condensed in the walls. The wooden structure absorbed the moisture, swelled and pushed the stones on the outer wall apart. Mold and deterioration followed the swelling, and the house fell apart.

If the house had been warmer, not as much moisture would have accumulated. The destruction could have been minimized and possibly eliminated.

Dr. H. T. Mei of Lamar State College of Technology, Beaumont, Texas, explained that the moisture collecting in the wall of the house was like drops of water forming on the outside of a cold soft drink bottle.

The Texan's desire for a cool house was only one cause of its downfall. The other, Dr. Mei told a news conference at the 1963 International Symposium on Humidity and Moisture, was a mistake in construction. The moisture could have been kept from going into the wall if a sealer of poly-

ethylene or paint had been put on the outside of the framework. Instead, it was put on the inner side, and trapped the moisture in the structure.

The problem is greatest in climates that are hot for months at a stretch, Dr. Mei said. In northern climates the hot season is short and marked by temperature irregularities. Moisture does not accumulate to such a dangerous degree.

• Science News Letter, 84:25 July 13, 1963

ZOOLOGY

Octopus Grotto, Dolphins Steinhart Attractions

► TROPICAL INLETS, salt water tide-pools, an octopus grotto and an alligator swamp were some of the attractions at the Steinhart Aquarium in Golden Gate Park at San Francisco when its doors opened after a two-year renovation period.

A part of the California Academy of Sciences, the Steinhart has added many new and unusual fish and aquatic animals to its collection. The living gifts represent countries all over the world, such as Burma, Thailand, Ceylon, Norway, Nicaragua, the Congo, Monaco, Japan and Brazil.

The marine residents are seen in their natural habitat. Recurrent waves splash against the glass in the tidepool displays, while catfish and eels "electrify" viewers in others. Two dolphins perform acrobatics in their 63,000-gallon tank, and alligators and snapping turtles gaze at visitors from their enclosed three-island tropical swamp.

Large reptiles such as boas, anacondas and pythons occupy certain tanks, while other tanks with especially-designed 45-degree-angle walls give visitors the impression of being submerged in the ocean.

Donated by Ignatz and Sigmund Steinhart in 1917, the Steinhart Aquarium opened in 1923. It was not closed before 1961, when the two-year renovation period was undertaken by San Franciscans.

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HORTICULTURE

"Wake-up Waves" Being Used on Bulbs

► GLADIOLUS bulbs have been made to grow using radio waves of a certain frequency.

Formerly, dormant bulbs had to be kept in cold storage for long periods before they would sprout because they are conditioned by nature to expect a "winter" before spring.

However, it has now been discovered that by exposing the bulbs for a few minutes to a special type of radio wave, they can be tricked into sprouting immediately, without the long wait.

The discovery, reported to the Society of Agricultural Engineers meeting in Miami Beach, Fla., by Drs. George H. Mickey and John H. Heller of the New England Institute for Medical Research, Ridgefield, Conn., will be a boon to all gardeners, and especially to professional plant growers who often have to deal with thousands of bulbs.

• Science News Letter, 84:25 July 13, 1963

PSYCHOLOGY

Stress Helps Monkeys Fight Polio Infection

► STRESS AND STRAIN may raise resistance to polio, at least in monkeys.

Undergoing a period of stress may have a "protective effect," University of California, Los Angeles, investigators report as a result of research on monkeys.

Monkeys all developed polio after they had been injected with the virus.

Seven out of 11 monkeys who had been put through a 24-hour period of stress survived the infection. Only one of 12 monkeys left to their own devices recovered from the infection.

Stressed monkeys, those who learned to press a lever to avoid getting electric shocks, took longer to develop the polio symptoms than untrained monkeys.

The scientists also noted an immediate decline in the infection-fighting lymphocyte cells of the stressed monkeys, while in untrained monkeys, this reaction to the stress of infection was slower in getting started.

The difference in the lymphocyte counts of the two groups of monkeys, the investigators said, appears to be the reason for the stress-trained monkeys' resistance to polio.

Drs. James T. Marsh, John F. Lavender, Shueh-Shen Chang and A. F. Rasmussen reported their research in *Science*, 140:1414, 1963.

• Science News Letter, 84:25 July 13, 1963

CHEMISTRY

Gold Used to Measure Amount of Water in Soil

► THERE'S GOLD in California soil again!

But it neither glitters, nor can it be panned out.

This gold is a radioactive isotope of that precious metal, which caused a stampede of people toward California over a century ago.

Called gold-198, it is used by irrigation specialists to measure the amount of water entering the soil.

In the California experiments, scientists added gold-198 to irrigation water and then measured the amount of gold in soil samples taken from irrigated plots.

The amount of radioactive tracer in the top two or three inches of soil was in direct proportion to the amount of water entering the soil.

This technique of tracing radioactive gold should be useful in evaluating soil and water management practices, said B. D. Meek, A. J. MacKenzie and K. R. Stockinger, soil scientists who tested the procedure at the Southwest Irrigation Field Station in Brawley, Calif., part of the U. S. Department of Agriculture.

Gold-198 was selected for the tracer work for a surprising reason: it is low in cost. In addition, gold-198 is strongly absorbed by soil. It also has a short half-life of only 2.7 days, which means that its radioactivity is short lived.

• Science News Letter, 84:25 July 13, 1963