

PUBLIC HEALTH

Birds, Not Horses, May Spread New Disease

MIGRATORY birds, not horses, may be the means of distributing so-called horse sleeping sickness, widespread ailment recently discovered to have killed several children and suspected of being fairly widespread among humans as well as horses.

The discovery of the virus of the disease in the brains of pheasants that died after a paralyzing ailment is reported by Drs. Ernest Edward Tyzzer, Andrew Watson Sellards and Byron L. Bennett, of the Harvard Schools of Medicine and Public Health. In their report (*Science* Nov. 25) the Harvard scientists state that the pheasants were sent them for diagnosis by Edward H. Mulliken of Connecticut who found them in "a more or less helpless or partially paralyzed condition."

It is probably wrong to call this ailment a "horse" or "equine" disease, the Harvard scientists suggest in the light of recent findings.

"Indeed, it may be seriously questioned," they state, "whether the horse or any other domestic animals play any essential role in assuring the perpetuation of this disease."

From their findings and those of other scientists it looks as if the ailment were a bird ailment which at times overflows to the horse and human populations. Laboratory tests by other scientists have shown that migratory birds can get the disease. The Harvard scientists say that extensive surveys should be made to determine whether migratory birds have the ailment under natural as well as laboratory conditions, and if so, how widespread the disease is among such birds.

Science News Letter, December 10, 1938

CHEMISTRY

Silica and Boron Match Carbon's Ring Structure

THE versatility of carbon is proverbial among all the elements found in nature. Carbon's Dr. Jekyll and Mr. Hyde ability to combine with itself in two ways—either in rings or in chains—accounts for its creation of hundreds of thousands of chemical compounds.

Arranged in chains, carbon makes possible petroleum, rubber, fats, the natural oils and the solvents. When the chains are turned around and form a ring, the chemicals typified by dyes, explosives, drugs and the synthetic resins result.

Chemists have long sought to make other elements duplicate the unusual and extremely valuable type of bonding which carbon can achieve. The Industrial Bulletin of Arthur D. Little Inc., reports that they are gaining their goal in this respect; at least in some cases.

The best success has come with elements, like silicon, which are closest to carbon in chemical characteristics. Silicon, like carbon, has the ability to join up with four hydrogen atoms in a molecule. And, like carbon also, it has the power to form compounds with itself known as silanes. These silanes are analogous to the carbon compounds, methane and ethane, found in natural gas.

Boron too, is another element which can form compounds with its own atoms. Boranes may have as many as ten boron atoms linked in a chain. Both silanes and boranes ignite in air, sometimes with violent explosions.

By joining nitrogen and boron, chemists have succeeded in making a ring compound which is extraordinarily like benzene. In fact, the compound is called inorganic benzene.

It has practical significance in that, like real benzene, it is a liquid and a solvent for oils and fats. While it is not all that one desires even as a benzene analogue it may be a step on the way to improvements that will have important industrial applications. German chemists have been working in this field and it is comforting to note that American chemists, too, are studying the reactions.

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ASTRONOMY

Urges Naming Observatory After Dr. George E. Hale

NAMING the California Institute of Technology observatory on Palomar Mountain, site of the 200-inch telescope, in honor of the late Dr. George Ellery Hale, world renowned astronomer, is being considered seriously.

Dr. Hale's name will form the permanent name for the observatory, hopes Capt. Clyde S. McDowell, supervising engineer, who held it only just that the man who envisioned the giant project be so honored.

Capt. McDowell said that no formal action as to the selection of a name has been taken, however.

At the time of his death Dr. Hale was in charge of the observatory enterprise, and wrote the magazine article which resulted in the project's endowment.

Science News Letter, December 10, 1938

IN SCIENCE

PHYSICS—PHOTOGRAPHY

Camera Shows Glass Cracks At Mile a Second Speed

See Front Cover

THE stop-action camera of Prof. Harold E. Edgerton and Frederick E. Barstow, of Massachusetts Institute of Technology, shows that when glass breaks, it cracks at a speed of nearly a mile a second.

The illustration on the front cover of this week's *SCIENCE NEWS LETTER* shows what happened to a piece of tempered glass at the moment that it was struck by a metal plunger, the dark spot at the center of the picture.

The pattern of the cracks forms a perfect circle, visual proof that all the cracks grow at the same velocity.

Science News Letter, December 10, 1938

PHYSICS

Air-Conditioning Increases Ionization of Atmosphere

AIR in an air-conditioned building contains twice as many ions as air out in the open, a study reported in *Nature* (Nov. 26) indicates.

Besides increasing the number of ions, the balance between positive and negatively charged particles in the atmosphere is changed, the report, prepared by F. Behounek of the State Radiological Institute of Prague and J. Kletschka of the Prague Municipal Electric Works, declares.

Though no study as to what this does to people working in such an atmosphere has been undertaken, "permanently increased ionization of air in an air-conditioned building may have a certain physiological influence," the scientists indicate.

Open air contains 300 positive ions per cubic centimeter and 260 negative ions, while air in the middle of an air-conditioned room contains 775 positive ions and 895 negative ions per c. c., the two scientists have learned.

The number of negative ions within the air-conditioning apparatus is much higher, they point out, but the bulk of these are absorbed by the walls, thus almost restoring the balance.

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E FIELDS

EMBRYOLOGY

World's Youngest Human And Monkey Babies Studied

THE world's smallest and youngest baby, almost nine months before birth, and the smallest and youngest monkey, too small to be seen by the unaided eye, were described by Dr. George L. Streeter of the Carnegie Institution of Washington in a lecture at the Institution.

This littlest human creature is a fertilized egg less than 13 days old. The youngest monkey is an 8-day-old egg, 24 hours younger than any previously discovered.

This 8-day-old youngster has arrived at the stage which completes the first and most fundamental chapter in the development of the egg, Dr. Streeter and associates discovered.

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PUBLIC HEALTH

New Zealand Provides Lesson On Saving Infants

FROM the other side of the world comes an object lesson for Americans on how to save infants' lives.

New Zealand, a country which is much like ours in habits, customs and general constitution of the population, is 25 years ahead of us in protecting the lives of new babies, Metropolitan Life Insurance Company statisticians point out in a comparison of the infant mortality rates of the two countries.

"Approximately two of every five deaths of white infants in the United States are unnecessary and preventable, according to the standards of New Zealand, the country with the lowest infant mortality in the world," the statistical report states. "In other words, we could save about 30,000 lives a year if we were as efficient as New Zealand is in thwarting infant mortality."

A few American cities have as low an infant mortality rate as New Zealand, but for the country as a whole the rate for white infants is 60 per cent. higher than the rate for New Zealand.

The only point on which we approach New Zealand is, strangely enough, in

the death rate for a group of conditions which are particularly hard to control. These are congenital malformations and debility and diseases peculiar to early infancy. Death rates for these causes are practically the same in the United States as in New Zealand and in four states—Minnesota, Nebraska, New Jersey and New York—are actually lower.

Deaths from injuries at birth and deaths arising in connection with premature birth, essentially preventable causes of deaths, are consistently higher in America than in New Zealand.

The infant death rate for diseases of the digestive system is almost five times that of New Zealand and the death rate for communicable diseases of childhood and respiratory diseases (pneumonia, for example) is twice that of New Zealand.

Science News Letter, December 10, 1938

PALEONTOLOGY

Mastodon Bones and Teeth Are Discovered in Ohio

A MASTODON's thighbone and eight teeth have been discovered on an Ohio farm, Prof. Karl Ver Steeg of the College of Wooster reports (*Science*, Nov. 25). The largest of the teeth weighs a little more than six pounds.

J. J. Miller, the landowner, made the find while digging a ditch. When the bones were taken out, it was found that the skeleton had been partly destroyed by an explosive blast set off in the same excavation site about ten years ago.

Science News Letter, December 10, 1938

BOTANY

Posthumous Report Shows That Pollen Grains Fly High

A POSTHUMOUS report from Dr. Fred C. Meier, Department of Agriculture scientist who was aboard the ill-fated Hawaii Clipper carrying out his researches when the flying boat disappeared, shows that airplanes aren't the only things that fly high. Pollen grains do, too, including sugar beet pollen grains.

The report, published by Dr. Meier and Dr. Ernst Artschwager, also of the Department of Agriculture, (*Science*, Nov. 25) states that sugar beet pollen grains were captured on specially prepared sticky plates at altitudes up to 5,000 feet, over an area in New Mexico where sugar beet seed is raised for market.

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PSYCHOLOGY—SOCIOLOGY

Five Brothers in Crime Subject for Research

CRIME is costing America a vast amount in damage to property, loss of life, expense of administering justice and in the toll of racketeers. Even greater is the waste of human resources diverted from creative usefulness into ways of destruction and parasitism.

In a single family five brothers who passed from a childhood of juvenile delinquency into criminal careers have cost society more than \$25,000 just for board alone in the various institutions where they have spent a total of 55 years.

And yet the reason for this particular bill against society is found right in the social conditions under which these five brothers made their start in life.

At the Institute for Juvenile Research in Chicago, Dr. Clifford R. Shaw made a scientific study of this family in crime. Criminal records were examined, family history was dug into. Individuals were interviewed. Finally, autobiographies were secured—human, frank documents telling how a boy goes wrong. In this work he was assisted by Drs. Henry D. McKay, James F. McDonald, Harold B. Hanson and Ernest W. Burgess; their findings are published in the book, *Brothers in Crime*. (University of Chicago)

The parents of these criminal brothers were not outcasts. But the father drank and the mother had to work to feed the children who were thus left to care for themselves.

First they begged—they were hungry and others were hungry at home. Their hard luck story found easy believers because it was actually true.

The next step was "junking." This meant picking up old metal and odds and ends to sell. At first they collected from dumps and vacant lots, then from deserted shacks, then from vacant houses, finally from occupied houses and automobiles. The progression from junking to larceny and burglary was an easy one that did not burden their untutored consciences.

These early beginnings were followed by institutional training in crime with hardened experts as instructors in new techniques of law breaking.

None of the five seemed to be bad at heart. He might have gone straight at any time had the path been easier and had he not been returned from correction institutions to the same bad environment and bad companions.

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