

PHYSIOLOGY

Male Rats Partly Turned Into Females Before Birth

SEX CONTROL, the pre-birth determination whether the expected offspring shall be male or female, has been partially accomplished with young rats by Drs. R. R. Greene, M. W. Burrill, and A. C. Ivy of Northwestern University Medical School.

They report (*Science*, Aug. 5) that after injecting heavy doses of a female sex hormone, estradione, into pregnant rats, young male animals were born that were partly feminized; that is, certain of their masculine characters were underdeveloped, while female sex organs appeared in some of the animals. Female animals in the same litters had sex organs in an exaggerated state of development.

Previous experiments in the same laboratory had produced partially masculinized female rats by similar treatment of their mothers with male sex hormone injections.

Science News Letter, August 20, 1938

PSYCHOLOGY—ENGINEERING

Car of Tomorrow Pictured By Student of Driver-Mind

A GLASS-enclosed car, with engine in the rear, an emergency exit for use in case of overturn, and a governor-controlled light to blaze a warning when speeds are excessive—those are some of the specifications of the car of tomorrow as visioned by psychologists.

The automobile of the future has often been pictured by the engineer, who has listed possible improvements leading to technical perfection.

But behind tomorrow's wheel will sit essentially the same old driver with all his mental quirks, his faults, and his human weaknesses. So tomorrow's car must be fashioned to fit the psychology of driver.

Such a car is described by Dr. Herbert A. Toops, of Ohio State University, he of trade test and intelligence test fame, and Dr. S. Edson Haven, of Wayne University, Detroit. These scientists are the authors of a new book, *Psychology and the Motorist*.

The controls of a car should respond as quickly and as readily for the weak person as for the strong, they state.

Retractable running boards and door handles would eliminate many occasions for serious injury.

Greater areas of glass would not only increase visibility, but would remove the

false sense of security of today's driver within his steel stronghold. For the same reason removal of the motor from the front of the car might increase caution.

Lights in the body top, to make the car visible sooner when going over the top of a hill, a warning light automatically turned on when the speed is increased beyond the danger point, and finger-tip replacement of fuses and headlight bulbs are other safety features recommended.

Bright dash lights are condemned because of a tendency to attract the eyes, drawing them from the road or fatiguing the eye muscles and nerves and inducing sleep.

Science News Letter, August 20, 1938

PHYSICS

Cosmic Ray Balloons Returned in Record Time

TEN SELF-recording electroscopes sent aloft by Dr. Robert A. Millikan and Dr. H. Victor Neher, noted California Institute of Technology physicists, have been returned to Pasadena, setting a new record for speedy recovery of instruments. All were back home within a month after the first was released.

Each instrument was carried aloft by a tandem of 10 balloons, the highest going to 85,000 feet, with 40,000 the minimum altitude reached.

Most of the instruments went to an altitude in excess of 65,000 feet.

Each of the instruments returned brought the finder a \$5 reward.

One woman in North Dakota reported that as she sought to untangle the instrument and parachute by which it descended to the earth one of the balloons which had not burst exploded almost in her face. Her only concern, however, was her anxiety over the safety of the scientific instrument.

The instruments were sent aloft by the scientists in their campaign to secure more accurate determinations of how cosmic radiation varies with latitude.

Six cosmic ray electroscopes were released at Bismarck and four at Oklahoma City. They were sent aloft during the last week of June and first two weeks of July. Before Dr. Neher had released the last balloon at Bismarck the first instrument sent aloft had been returned to him.

Each flight provided California Institute of Technology researchers with approximately one foot of motion picture film recordings of cosmic ray activity at various elevations, in their campaign to secure information on the latitude effect.

Science News Letter, August 20, 1938

IN SCIENCE

AERONAUTICS

Polish Stratosphere Flight Planned During September

THE LARGEST manned, free balloon ever to be launched will make an ascension into the stratosphere next month, according to plans now being formulated in Poland.

A valley in southwestern Poland, near the Czechoslovakian border, will be the scene of take-off of the aerial giant. Captain Zbigniew Burzynski and Capt. F. R. Hynek, both of the Polish army, and Dr. Yodko Narkiewicz, Polish explorer and alpinist, will comprise the stratosphere party.

The Polish balloon will be made of rubberized silk. It will weigh only a little over half as much as the bag of the Explorer II of the National Geographic Army ascension in 1935.

The volume of the Polish bag will be more than 4,800,000 cubic feet as against 3,700,000 cubic feet for the Explorer II. Its height at take-off will be 459 feet, compared with 315 feet for the American balloon, and its greatest diameter will be 209 feet as against 192 for the Explorer II.

Its greater volume and lighter weight give the Polish balloon a potential ceiling of 81,000 feet as contrasted with the world record of 72,395 feet made by Explorer II.

Science News Letter, August 20, 1938

ASTRONOMY

Sunspots Brought Indoors At Hayden Planetarium

See Front Cover

SUNSPOT numbers are diminishing now, astronomers report, but there are still enough of them (there almost always are) to make observations interesting. Sunspot studies are made easier for the public at the Hayden Planetarium in New York City, where the staff astronomers have designed what they call a solar periscope, which brings the sun indoors and projects its immense image on the dome. The spots, barely visible on ordinary low-magnification images of the sun, show up as much as two feet across.

Science News Letter, August 20, 1938

E FIELDS

PLANT PHYSIOLOGY

Evaporation From Leaves Helps Keep Plants Cool

WATER cooling, used in practically all automobiles and many airplanes, is an age-old story to leaves. They make use of the principle to keep their temperatures down when the blazing summer sun shines on them, according to evidence produced in experiments by Dr. Raymond H. Wallace of Connecticut State College, Storrs, Conn., and Dr. Harold H. Clum of Hunter College, New York City.

The role of the great amounts of water evaporated by leaves has long been a moot point with plant scientists. Drs. Wallace and Clum have been able to demonstrate, through the use of a new and highly sensitive type of thermocouple designed especially for this kind of research, that leaf temperatures are 15 to 20 degrees Fahrenheit cooler when they can evaporate water freely than they are when this transpiration loss is prevented by waxing their surfaces.

Science News Letter, August 20, 1938

PSYCHIATRY

Ex-Mental Patients Form Own Alumni Organization

VETERANS' organizations have played an important part in rehabilitating the participants of those disorders of the social order that are known as wars. Alumni associations are useful institutions in our educational life.

But today's most unusual organization of a similar sort is the Association of Former Patients of the Psychiatric Institute of the University of Illinois and the State Department of Public Welfare. This alumni association of the veterans of mental illness has its own publication, appropriately entitled *Lost and Found*. Vol. 1 No. 1, just issued, tells why former patients of a mental disease hospital wished to organize and how their association functioned during its first half year.

The success of the "shock" treatments for mental disease, heroic brain-shaking doses of insulin and metrazol, increased the ranks of recovered patients so mark-

edly that both physicians and former patients found it useful to meet together regularly. Dr. A. A. Low, assistant director of the Illinois Psychiatric Institute, is president of the association, which admits physicians on an equal footing with the former patients.

Discharged patients are confronted with the stigma of having been in a mental hospital and the discrimination against those unfortunate enough to have suffered mental illness. The "alumni" are striving to remedy this condition just as Clifford Beers, the "mind that found itself", organized the mental hygiene movement that is now worldwide.

Uppermost in pages of this unique journal *Lost and Found* is the idea "things have changed". Never before had recovered mental patients come back to the hospital, not because they were required to do so but because they were invited. Never before had ex-patients themselves told the world about the changed conditions and the new hope for the mentally ill.

Science News Letter, August 20, 1938

BIOLOGY

Plant and Animal Cells Form Strange Partnership

PLANT and animal cells, that have never been acquainted in all the long course of evolutionary history, are able to form a mutually beneficial partnership, it is shown in experiments carried out by Dr. Ralph Buchsbaum of the University of Chicago.

The animal cells were those of chick embryo tissues, kept alive and growing in glass vessels by the technique developed and made famous by Dr. Alexis Carrel of the Rockefeller Institute. The plant cells were tiny one-celled green spheres found in stagnant water, known to botanists as *Chlorella*.

When *Chlorella* cells were mixed with the chick tissue cells and kept lighted and warm, both kinds thrived much better than comparison cultures in which the cells were kept separately. The plant cells were greener and healthier-looking, the animal cells multiplied faster and did not grow old and die so soon.

It is believed that the plant cells benefited by using waste products of the animal cells' life activities as food. It is significant in this connection that when the cell mixtures were kept in the dark, so that the green plants could not absorb the carbon dioxide, most of the benefits of the association were lost. The partnership is good only in the light.

Science News Letter, August 20, 1938

ETHNOLOGY

Fear Drives Ainu Women To Strange Behavior

THE HAPPY savage is not so happy, after all.

Jean Jacques Rousseau gave the world a rosy picture of primitive life. And ever since, the popular notion has persisted that primitive man has no fears and worries. At least, none worth mentioning in the same breath with the city dweller's harassed nerves.

But scientists are finding that primitive man and his wife do fret. Get close enough to some native group, and you may find ugly mental and nervous disorders preying on individuals.

What particularly interests the psychiatrist is that a primitive group has its own peculiar forms of mental and nervous abnormality.

A curious fear reaction that besets the Ainu race has been studied lately by three Japanese psychiatrists. It appears that snakes can drive some Ainu women into a jitter that makes feminine agitation over a mouse look like nothing.

Out of 17,500 Ainus, who inhabit Japan's most northerly islands, 111 women were found suffering from abnormal susceptibility to fear. Over half owed their condition to some fright over a snake, in the past.

Whatever caused the trouble—fright at a snake, frog, or other creature—the same object would at any time cause the victim to go through a routine of queer behavior. Even mentioning a serpent was enough to start an attack in some women. The terrified Ainu would grow hysterical, fall into a cataleptic fit, reduced for several minutes to automatic and abnormal behavior.

Science News Letter, August 20, 1938

BACTERIOLOGY

Bacteria in Frozen Mammoth to be Studied

BACTERIA in the trunk, mouth, digestive tract, and other parts of the frozen mammoth carcass recently found on Wrangel Island in the Arctic will be studied by Prof. Karapetev of the Soviet Academy of Sciences as soon as the great beast has been brought to Vladivostok.

Prof. Karapetev believes he can revive the microorganisms, and also parasites frozen upon the exterior of the body, as he has revived lower plant and animal forms found in the permanently frozen soil of Siberia.

Science News Letter, August 20, 1938