

PHYSIOLOGY

Horses Rest Better When Standing Up, Tests Show

➤ HORSES rest better on their four feet than they do lying on their sides. It has long been known that they do much of their sleeping standing up, but it has remained for a member of the University of Missouri faculty, C. F. Winchester of the animal husbandry department, to demonstrate by actual measurement that they use up fewer calories in that position than they do lying down.

Mr. Winchester used two ponies, one a three-year-old filly and the other a four-year-old mare, which had been trained to lie down at command, and which also would wear without protest the head-masks required for basal metabolism tests in animals. He found that standing had a definite advantage over the lying position both in breathing rate and in economy of oxygen use.

The experiments are reported in *Science* (Jan. 1).

Science News Letter, January 16, 1943

PUBLIC HEALTH

Overweight Unpatriotic As Well as Unhealthy

➤ TO BE OVERWEIGHT in these days when every ounce of food must be used wisely is unpatriotic as well as unhealthy and unesthetic, health authorities of the Metropolitan Life Insurance Company charge in their *Statistical Bulletin*.

Currently used tables of average weights for women are criticized for showing increases with advancing age which are neither necessary nor desirable. A large scale study by the company has "definitely shown that at the young adult ages a moderate degree of overweight was beneficial, but that beginning at about age 35, the advantage lay with women of average weight. In middle age and beyond, the underweights had the best longevity record. Frank obesity was bad at every age."

The current tables allow 13 to 14 pounds increase in weight for short women between the ages of 30 and 50, and 15 pounds or more increase for tall women at these ages. These increases, the life insurance company charges, reflect the effect of continuing to eat the same amount of food while physical activity decreases.

They propose a new set of "ideal" weight tables for women over 25 which take into account differences in body

build and height. According to these tables, women over 25 years of small frame and a height of five feet five inches, with shoes, should weigh between 119 and 128 pounds in ordinary clothing. Women of this same height of medium frame should weigh between 127 and 135 pounds. Large-framed women of the same height should weigh from 133 to 145 pounds.

Science News Letter, January 16, 1943

MEDICINE

Plasma from Large Banks Safe for Transfusion

➤ THE USE of blood plasma from large pools or banks of all four blood types for patients of any blood type is vindicated in a report by Dr. William Thalheimer, of the Public Research Institute of the City of New York, Inc. (*Journal, American Medical Association, Dec. 19*).

Several recent reports have pointed to possible danger to patients from injection of plasma from a bank, on the ground that such plasma might contain substances incompatible with the patient's blood. In transfusions of whole blood from a single donor to a patient, both patient's and donor's blood of course must be compatible. Even after careful tests for compatibility, Dr. Thalheimer points out, reactions after such transfusions do occur and apparently cannot be reduced to fewer than three reactions per 100 transfusions.

In the case of transfusions of plasma from a blood plasma bank, however, medical scientists have generally been of the opinion that the substance in one donor's blood which might cause trouble for one patient are so diluted when mixed in the bank or pool with plasma from many donors that no one patient would get enough of the incompatible substance to cause serious harm.

Dr. Thalheimer reviewed reports of English and American investigations of this point, of experience with blood plasma banks, and made tests of his own. He concludes that "in pools (banks) of a sufficient number of samples of plasma or serum obtained from donors belonging to all four blood groups the titer of both anti A and anti B agglutinins (substances which might cause reactions) is reduced to such a low level that no danger can result to patients from the injection intravenously (into a vein) of even large therapeutic doses of these pools."

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IN SCIENCE

INVENTION

Oil Density Measured From Outside the Pipe

➤ MEASURING the specific gravity or density of oil or other fluids inside a pipe without making a hole in the pipe is the feat accomplished by a method patented (No. 2,304,910) by Donald G. C. Hare, Houston, Texas. It isn't as magical as it sounds. All that is necessary is to place near the pipe a source of highly penetrating radiation, gamma rays for example, that can penetrate the metal wall. Within the pipe the radiations are intercepted and partly scattered by the oil or other contents, some of them passing back out. Here they are picked up by a suitable instrument for measuring their intensity. From known scattering effects of oil at various densities and temperatures, previously determined by experiment and calculation, the readings can be translated in terms of conditions within the pipe.

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AERONAUTICS

Flying Fortress Designer Given Sperry Award

➤ THE LAWRENCE SPERRY Award for 1942, given in recognition for high achievement in aeronautical science, has been voted to 32-year-old Edward C. Wells of the Boeing Aircraft Company, by a committee headed by Maj. Gen. James H. Doolittle. Mr. Wells has devoted practically all his efforts to the improvement of the four-engined Flying Fortress, and is credited by his colleagues with many of the advances that have made the big plane into the formidable instrument of battle that it is.

The Sperry Award was founded in memory of the late Lawrence Sperry, pioneer aviator and inventor, who was drowned at the age of 31 as the result of a forced landing in the English channel. The honor, which is intended primarily for young men in the field of aeronautical science, is accompanied by a cash gift of \$250.

Science News Letter, January 16, 1943

CE FIELDS

METEOROLOGY

Winter Floods on Ohio Follow Weather Pattern

➤ WINTER FLOODS in the Ohio valley, annual dangers that sometimes build up into disasters, always follow the same general pattern in antecedent weather setups, meteorologists of the U. S. Weather Bureau state. A warm, moist mass of air moves up from over the Gulf of Mexico, strikes a cold air mass somewhere over the upper Ohio region, and gets the water wrung out of it onto steep-sided hills that pour it down into the tributary streams in their V-shaped valleys like so many roofs with brimming gutterspouts. If there happens to be snow on the ground, that gets washed down, too, and adds to the engorged rivers' burden.

The flood may be only a flash affair, if the rainstorm engendered by the clash of warm southern and cold northern air masses over the Monongahela and Alleghany watersheds is a rapidly moving one. If the situation stagnates, the clouds may hang for several days, persistently pouring out their contents. Then the situation may become very bad, like the flood that drowned out Pittsburgh in 1936 and the even greater one that was a major disaster along the middle and lower Ohio course in 1937.

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PSYCHOLOGY

Radio Soap Operas Can Be War Information Source

➤ SOAP OPERA should go to war, according to Dr. Paul Lazarsfeld, Director of the Office of Radio Research at Columbia University. These daytime radio serials beloved by some 20,000,000, or nearly half of all American women, can and should mobilize for war education, he says.

Although they deal with many real-life problems of the average middle-class listener, the serials do not go far enough in helping people to understand our present society or world problems, says Dr. Lazarsfeld.

About 40% of the women listeners

say that the soap opera helps them solve their own problems, according to studies made by the Office of Radio Research. One woman had become reconciled to her son going off to the war; another felt she understood her husband better; another was inspired by the example of a middle-aged heroine in meeting old age gracefully.

But since the problems confronted by radio characters are always too personalized (disasters are the result of personal villains, not social forces), Dr. Lazarsfeld feels the war is in danger of being presented merely as a backdrop to the plot, not an integral part of the story. He commends two experimental series put out by OWI and believes that the daytime serial can and should be used for war education.

It is easy to experiment with new types of program, he says, because 80% of the women who listen to one serial also listen to the next one on the same station. A new serial, sandwiched in between old favorites, could catch on and become popular, says Dr. Lazarsfeld.

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METEOROLOGY

Average U. S. A. Snowfall Is Twenty-Eight Inches

➤ SNOWFALL for the United States as a whole averages 28 inches per winter, meteorologists of the U. S. Weather Bureau have determined. Curiously enough, 28 inches also represents the average total precipitation, in which rain and snow are lumped together. Since an inch of snow melts down to form a tenth of an inch of water, this means that on the whole one-tenth of the country's water supply falls in the form of snow.

In this reckoning, Florida and California are purposely omitted; Florida because the few flakes of snow that fall there in "exceptional" years don't count, California because of extreme variability in conditions, from no snow at all along the southern coast to many feet in the high Sierra.

The thickest mantle of snow ever recorded for one spot in the United States was 884 inches (more than 73 feet) measured at Tamarack, Calif., in the winter of 1906-07.

Other notable snowfalls include 60 inches at Giant Forest, Calif., in one day; 42 inches at Angola, N. Y., in two days, 54 inches at The Dalles, Ore., in three days, and 96 inches at Vanceboro, Maine, in four days.

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PHARMACY

Parkinson's Disease Helped By Drug from Coral Tree

➤ RELIEF of muscular rigidity or spasm and cramps in patients suffering with Parkinson's disease or other spastic conditions can be achieved with a drug from a home-grown plant, the coral tree, Dr. Richard W. Harvey, of the University of California Medical School, has found.

The coral tree, a native of the tropics which has become a garden shrub in Florida and California, thus provides a substitute for curare, South American arrow poison which is more difficult to obtain. The drug from the coral tree is scientifically known as erythroidine.

No ill effects from the drug have been noted, Dr. Harvey declared, and any symptoms of overdosage can easily be overcome by administering prostigmin, an erythroidine antagonist.

"Patients state they feel a little less stiff, or the cramps are relieved," he reported. "While the effects are largely subjective, our experience with erythroidine in spastic conditions is so encouraging that we plan to use this drug in the treatment of spastics as they present themselves."

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PHYSICS

Amber-Colored Diamonds Changed to Green

➤ BEAUTY CHANGES in colored diamonds seem to be only skin deep, experiments by Prof. J. M. Cork of the University of Michigan indicate (*Physical Review*, Nov. 1 and 15).

Prof. Cork had discovered that amber-colored diamonds turned green upon being bombarded with high-velocity streams of deuteron (double-weight hydrogen) atoms. He then subjected two virtually identical stones to the bombardment, but protected all but one face of one of them with wax, which the deuterons could not penetrate. This surface was placed in contact with the corresponding surface of the other stone.

Despite the close contact of the two diamonds, only the unwaxed one turned green; the protected one remained unchanged. For this reason, Prof. Cork concludes: "This indicates that the alteration in color probably is produced only as deep as the penetration of the energetic deuterons."

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