

ASTRONOMY

Astronomers Find Pluto As Massive As Earth

THE planet Pluto, most distant known member of the Solar System, is of approximately the same mass as the Earth. Dr. Seth B. Nicholson and Nicholas U. Mayall, of the Mt. Wilson Observatory, have ascertained this fact by studying the way that Neptune, second most distant planet, is pulled out of its proper path by the Plutonian attraction. It was by a method similar to this that Neptune itself was discovered from its effect on the motion of Uranus.

Pluto was discovered last spring by astronomers at the Lowell Observatory in Arizona, but it turned out to be much fainter than had been expected. The new work shows that it is more similar to the inner, or minor, planets, Mercury, Venus, Earth and Mars, than to its nearer neighbors, the major planets, Jupiter, Saturn, Uranus and Neptune. According to Dr. Nicholson's figures, Pluto is now about three and a half billion miles from the earth, but it is gradually coming a little closer.

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FORESTRY

Holly Can Send Today's Babies to College

IF YOU have a baby who is going to college some day, and also some cut-over woodland that isn't good for farming, the planting of a crop of holly now may provide a good slice of the necessary school expenses sixteen or eighteen years hence.

Holly is a profitable crop, and is going to be more profitable, in the opinion of P. L. Ricker of the Wild Flower Preservation Society. Our native American holly, once abundant from Florida to Cape Cod, is now hardly to be found north of the New Jersey line, thanks to the unrestricted depredations of commercial holly gatherers. In their eagerness to realize a cash return now they have been sacrificing the next generation's Christmas decorations, and there is not much prospect of any effective check on their operations until they themselves have killed their goose that lays golden eggs.

The foresighted owner of waste land in any region where holly grows naturally can take advantage of the shortage that is sure to come by planting holly now. It takes about eighteen years for a holly plantation to come into best bearing, but after that, with decently

conservative cutting, it will be good indefinitely.

The best method of propagating holly, Mr. Ricker says, is by cuttings. They should always be made from the best berry-producing trees. Production from seeds is hardly practicable, for holly seeds are uncertain and slow to germinate, produce only about ten per cent. of female, or berry-bearing plants, and even these are of uncertain productivity. Cuttings insure a continuance of the same qualities in the offspring that are found in the parent tree.

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ICHTHYOLOGY

Fish That Hates Water Lives On Australian Reef

A FISH that seems to dislike getting wet is the exceedingly curious creature described by an Australian zoologist, Melbourne Ward, who described some of the wonders of the life of the Great Barrier Reef in a lecture in Washington.

The fish is known locally as the walking fish, Mr. Ward said. It belongs to the goby family, and like gobies the world over it prefers the very shallow waters of the tide pools to the greater depths that most fishes find necessary for comfort. Like other gobies, it is able to use its lower fins as legs, getting about with almost reptilian agility.

Only it carries its preferences for a shallow-water habitat to the point of remaining at least half out of the water all the time. It sticks its head above the surface, or even lies entirely out of the water, on the mud among the mangrove bushes.

If alarmed, it flees at a surprising speed. But instead of plunging at once into the depths, it skitters along the surface for a long distance, apparently disliking to get itself wet.

The Great Barrier Reef is a vast mass of coral stretching in a line off the eastern coast of Australia. It emerges above the surface as little islands which serve as breeding places for countless flocks of birds, and lately as points of vantage for human visitors who wish to study the amazing array of life with which the whole place swarms. A few years ago the reef was an unknown land, but it is now being scientifically explored and its plants and animals carefully catalogued. Australian scientists and teachers go there in increasing numbers, and foreign visitors, especially Americans, are being encouraged.

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IN SCIENCE

NATURE STUDY

Arachne Provides Lovelier Festoons for Christmas Tree

See Front Cover

CHRISTMAS trees, with their exotic and ephemeral flowing of tinsel and bright paper, are apt to arouse in moralizing adults sentiments of vague regret that all this splendor is for a few hours only. Children, fortunately, are spared such thoughts: for them the hours of Christmas are long and glorious.

But even the tinsel and bright paper are solid and enduring compared with festoons that the Christmas tree may have worn when the year was younger. The cover picture of this issue of the SCIENCE NEWS LETTER shows superbly the bright but brief glory that belonged to a few twigs of one little tree, through the conspiracy of Arachne and Aurora. It is only a spiderweb beaded with big drops of dew, which the first half-hour of sun dispersed; but while it lasted the tree wore a snare of silver threaded with pearls.

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CHEMISTRY

Light Accelerates Spoiling of Fats

A CAREFUL study of the chemistry of the spoilage of fats by C. H. Lea, of the Low Temperature Station, Cambridge, England, has revealed the fact that light plays an important part in its development.

Mr. Lea found that under ordinary conditions fresh beef kidney fat keeps well for a certain initial period, and then quickly becomes rancid. When the fat is kept in darkness, there is a longer initial safe period before it begins to spoil.

Bright light has the opposite effect. If the fat is exposed to direct sunlight on a hot day, rancidity sets in very rapidly, and the initial safe period may be almost completely eliminated. If the fat is placed in sunlight long enough for spoilage to start, even subsequent removal to a dark place will not improve matters very much.

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E FIELDS

RECREATION

National Beaches Advocated For Recreation and Science

A SERIES of national beaches, analogous to the national parks, was advocated by J. Spencer Smith, president of the American Shore and Beach Preservation Association, in an address before its annual meeting at the National Research Council in Washington last week.

The association exists for the study of the opportunities presented by the shore and beach lines of America, and for the recommendation of means of solving the problems to be faced in preserving suitable beach areas for public recreation and scientific study.

Mr. Smith advocated the acquisition of such areas by local interests and their assignment to the Federal government for administration and development.

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BACTERIOLOGY

Dish Invention Speeds Lock Jaw Diagnosis

A SIMPLE glass dish, the use of which will facilitate and speed up diagnoses of cases of persons suffering from lock jaw or gas gangrene, such as were common during the World War, has been developed by Dr. Robb S. Spray, professor of bacteriology of West Virginia University. The dish is described in detail in the current number of the *Journal of Laboratory and Clinical Medicine*.

The new dish may be "caviar to the general" but it is just the dish for the anaerobe. The anaerobe is a particular sort of bacteria which is not a lover of the great outdoors at all and will live only in a place devoid of oxygen, as in a deep cut or inside the body. To grow these anaerobes in a laboratory in order to isolate them, examine them, and use them in preparation of antitoxins means that they must be housed in an oxygenless container.

Dr. Spray has devised a glass dish with a ridge in the bottom of it. In the two recesses formed by the ridge he places an alkali and an acid which in

combining absorb oxygen. The ridge keeps the solutions apart until the anaerobes are placed on the inside of the lid which is then sealed on the dish. Then by shaking the vessel the solutions mix, absorbing the oxygen in the container.

Heretofore expensive apparatus including huge jars with electric heating coils, vacuum pumps and other devices requiring hours to manipulate were used. The huge jars hindered the examination of the cultures, while with Dr. Spray's dish, about the size of a large, flat measuring cup, the cultures can be readily examined or photographed.

Cultivation of this type of bacteria is a routine procedure in hospital and commercial laboratories. The organisms are isolated in pure cultures for diagnosis of diseases in order that the proper antitoxin may be administered early.

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PSYCHOLOGY

Picture of Perfect Nurse Revealed By Doctors

THE nurse the doctor wants for his patients must have good breeding and an attractive personality and know how to handle people, besides being competent in her strictly professional duties.

The doctor's idea of what a nurse should be is revealed by a questionnaire answered by more than 4,000 physicians in all parts of the country for the Committee on the Grading of Nursing Schools.

Skill in making patients comfortable and in general care tied for first place in the list of virtues set down for nurses by the medical vote.

Next in esteem were skill in observing and reporting symptoms, care in following medical orders, good breeding and attractive personality, and skill in handling people.

Specialists dealing with nervous cases, doctors handling children's diseases and obstetricians particularly emphasized the importance of good breeding and personality. The nerve specialists were by far the most interested in having for their patients nurses who can handle people.

How well nurses succeed in living up to the doctors' ideal was revealed by the fact that nine out of ten physicians reported that they were getting the nurses they want and would be glad to recommend the nurse employed on their last case to their next patient.

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ARCHAEOLOGY

How Shepherds Counted Sheep Shown by Rare Relic

HOW the shepherds of the East kept count of their flocks 3,500 years ago is shown by a relic just received in Philadelphia from Mesopotamia, by the University of Pennsylvania Museum. The ancient relic is among a collection of objects recently discovered by the archaeological expedition from the Harvard-Baghdad School and the University of Pennsylvania Museum.

The sheep-counter is a hollow clay cylinder containing 49 pebbles. A long cuneiform inscription on the cylinder tells that it belonged to a shepherd named Zakaru and that the pebbles represented 49 sheep entrusted to his care. By preserving a proper balance between the size of his flock and the pebbles in the cylinder Zakaru could render an accounting of his flock at any time.

The collection of objects received at the Museum is from northern Mesopotamia where the expedition has spent three years excavating a deserted mound. This site was once the city of Nuzi, a community noted for its art and its trade.

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PUBLIC HEALTH

High Cost of Rabbits Astounds Congress

CONGRESSMEN who remember their boyhood days when they used to catch wild rabbits and sell them for fifteen cents apiece are staggered at the cost of pedigreed white rabbits needed for public health investigations.

Dr. L. R. Thompson of the U. S. Public Health Service told members of the House Appropriations Committee that approximately \$17,278.00 will be needed for purchasing laboratory animals for the National Institute of Health in 1931.

Wild rabbits cannot be used, he told the committee, because they are apt to have many different intestinal parasites, as well as tularemia (rabbit disease).

Guinea pigs for laboratory purposes cost around 90 cents apiece; rabbits, \$1.35; white mice, 17 cents; monkeys, \$16.00; chickens, \$1.85; pigeons, 35 cents; white rats, 50 cents; frogs, 11 cents; and cats, 50 cents.

The establishment of an animal farm where the Health Service can raise its own animals was suggested.

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