

SCIENCE NEWS - LETTER

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MORE CHANCE OF WORLD ENDING
UNDER EINSTEIN THEORY

Belfast, Ireland. .- If Einstein's law of relativity is correct, there are more chances of the world coming to an end than under the old theories. Prof. R. B. Morton of Queen's University, Belfast, has worked out the astronomical consequences of the famous scientifically revolutionary Einstein theory and he suspects that the tremendous occurrences sometimes observed at distant regions of the heavens may be the result of collisions which take place in accordance with the new theory.

Ever since it became known that the earth is round, and revolved about the sun, the human mind has asked the anxious question, "Will the earth ever fall into the sun?" There has also always been the apprehension that some visitor would come plunging in from space and rearrange the present solar system in a fashion which will eliminate man and all of his works. Mathematical studies made in the past have been reassuring but the perennial millennialists are now more justified in predicting doom than they were in the past. Prof. Morton's analysis of the effects of the Einstein theory increases the scientific interest in the tests that British and American astronomers are going to make of the theory at the coming total solar eclipse in September.

According to the new theory if two bodies, a large and a small one, were present in space, instead of always moving in ellipses and never coming in contact, they would under certain conditions collide, and this would take place even if the sizes of the bodies were reduced until they were mere points. Likewise, similar changes must be considered where more than two bodies are concerned, as for instance our own group of

the sun and planets, and collisions may take place. The paths along which such collisions occur are called captured orbits.

In the case of the earth the velocity is too great for a captured orbit. If its present velocity were reduced to about 12 meters or 13 meters a second, the earth would move along a path passing through the center of the sun. This is $1/2500$ of the present velocity.

This theory showing that collisions may occur has an important bearing on the subject of new stars, or nova, as they are generally called, which now and then blaze forth in the sky. Their cause has always been a mystery, they occur far too frequently to be explained on the theory of random collisions to which they would be limited by the older theories. However, they appear in the region of the milky way, a portion of the heavens characterized by stars possessing low velocities which according to the new theory would be particularly favorable for producing captured orbits and collisions, and these great explosions of light observed by astronomers as new stars may be the result of such collisions.

It also appears that the velocity required to carry a body entirely out of the solar system never to come back is not quite as great as for the old theory. According to the old theory an object falling from a very remote distance in space would travel in a parabola, a form of curve which never crosses itself, while according to the new theory one of the possible paths could cross itself and form a looped shape figure.

Another peculiar orbit possible according to the new theory is a spiral which winds inwards like a clock spring and approaches as the final form of its path a circle of definite radius.

Whether or not the Einstein theory of relativity is in course of time disproved, remains to be seen. It may be confessed that many astronomers would greet with sincere relief positive evidence that it was all untrue. However, the theory has gained a formidable place in present scientific thought, and is being used to reconcile at the same time the features respecting the movements of heavenly bodies and the vibrations of the electrons which go to make up the tiny atoms of matter; and the peculiar and weird conceptions of motion, time, and space may actually represent the universe in which we live.

FISH ON FRIDAY
PREVENTS GOITER

Minneapolis, Minn. Eating sea food on Friday and spending holidays at the sea shore help to prevent goiter, Dr. J. F. McClendon, professor of physiological chemistry in the University of Minnesota Medical School, told the Western Society of Naturalists meeting.

"The amount of iodine in our diet," he claims, "is of considerable importance in preventing goiter and this has been proved by experiments on animals and children. We know definitely that all marine animals and plants contain this element and that when these are taken a supply of iodine is obtained.

"Iodine has been found in the igneous, sedimentary, and metamorphic rocks and coal in traces, but the iodides being the most soluble salts derived from the disintegration of rocks have quickly leached out by rain and washed in the sea."

Most of the land surfaces of the earth have weathered a hundred million years and disintegrated to the depth of one and one half miles. The store of iodine which this layer contained has been liberated and carried into the sea which as a result contains sixty-six billion metric tons, chiefly as iodate.

As the sea is thrown into spray in storms, water is carried in the air and dried and the salt is blown over the land. This salt is then brought down by rain and is the source of iodine in drinking water and supplies the soil. The amount of salt rapidly decreases as we go inland.

"From the standpoint of water supply it seems that where surface water is drunk that the further we get from the sea either horizontally or vertically the less should be the iodine supply in drinking water," Prof. McClendon says. "In fact, there is some correlation between goiter and the distance from the sea. The Alps, Great Lakes region and Rocky Mountains region are goitrous sections."

Give the children a little powdered kelp, seaweed, or some other iodine containing material mixed with their food, water or salt, is Dr. McClendon's advice to those who live in goitrous regions.

MYSTERY OF STERILE
TWIN HEIFER SOLVED

Woods Hole, Mass.

Since the days of ancient Greece and Rome, farmers have been puzzled by the fact that a heifer born twin with a bull is sterile in seven cases out of eight. Now Dr. Frank R. Lillie, just selected to head the division of biology and agriculture of the National Research Council, has traced the free-martin, this apparent freak of nature, to the same kind of cells as are concerned in the recent experiments in making old men young again.

In the case of twins in cattle, he explains, the membranes of the developing twin embryos fuse and the blood vessels of the twins run into one another. Tiny cells within the tissue of the male sex gland manufacture and pour out an infinitely small amount of substance into the blood of both. This substance called a hormone, from the Greek word which means to excite, suppresses the normal development of the reproductive organs of the unborn female and transforms them partially into the male type. If this running together of the blood vessels of the unborn twins fails to take place, the female is normal.

The reason that the male blood affects the female and that the female glands do not have a like effect on the male glands is that the cells which manufacture the secretions are developed much sooner in the male than in the female. In the male they appear when the embryo is less than three centimeters long and do not appear in the female until about the time of birth.

Twins in cattle may be about two per cent of all births in some breeds and the two-sexed twins form about half of the total twin births, making the matter of sterile cows that produce no milk of economic importance in the dairy industry.

Dr. Lillie believes his experiments with twin cattle confirm the belief that it is really the interstitial cells within the sex glands which secrete the sexually exciting substance.

SCIENTISTS TO SAVE COUNTRY FROM PRINT PAPER SHORTAGE

Washington. With American forests thinning like the hairs on a head growing bald and the diminishing timber supply threatening the future of print paper made from wood pulp, scientists of the U. S. Department of Agriculture are working to see to it that we get our newspapers with our coffee in the morning.

From the forest products laboratory at Madison, Wisconsin, comes word of the invention of a new process of de-inking old newspapers for re-use and from Utah is reported the possibility of using timber heretofore found unfit to make wood pulp.

The de-inking process involves the use of bentonite, a clay-like substance formed from a volcanic ash found in Wyoming. A Minnesota paper tested out this process under commercial conditions, de-inking 1,500 tons of old newspapers, which were then remade into news print of desired strength and color and accepted by publishers as standard news stock. As 2,200,200 tons of newsprint paper are consumed annually in this country, it is pointed out, the new process gives promise of decreasing the demand on the forests by salvaging much of this waste.

Dr. E. P. Meineke, Department of Agriculture pathologist, from Utah proposes the use of quaking aspen of that State in the manufacture of wood pulp. Decay caused by forest fire wounds has heretofore prevented the raising of aspen trees of merchantable size. By elimination of infected trees and control of forest fires, he believes, that this quaking aspen may be used to help meet the growing scarcity of pulpwood.

CITIES ANXIOUS TO GET CHILD HEALTH SURVEY

Washington. Competitive bids have already been received from twelve cities in the upper Mississippi Valley which desire to be the first of the three representative cities to be selected for demonstration and experiment in the \$250,000 comprehensive child health survey which has been inaugurated by the Commonwealth Fund and will be carried out under the direction of the American Child Hygiene Association and the Child Health Organization of America. These organizations will have the cooperation of physicians, public health nurses, teachers, and other agencies interested in health and child welfare.

The survey will last for five years and will be conducted in some town of from 15,000 to 25,000 in population and having an infant mortality of approximately 100 to 1,000 live births or greater.

NEWS OF THE STARSCLOUDS ON MARS

By Isabel M. Lewis
of U.S. Naval Observatory

A great white area, brilliant and conspicuous, on Mars has been discovered by Lowell Observatory at Flagstaff, Arizona, according to their telegraphic reports to Harvard College Observatory. It has appeared over the region of Margaritifer Sinus covering 300,000 square miles of surface in longitude 20 degrees, latitude 20 degrees south.

That this conspicuous white covering over an area nearly twice as great as that of the state of California, or as great as Texas and Ohio combined, is in reality an extensive canopy of clouds one finds little reason for doubt. This is by no means the first time that experienced observers of Mars have reported the presence of a white haze or mist more or less completely obliterating temporarily familiar Martian features.

At the opposition of 1920 many observers recorded a noticeable change in the appearance of the Syrtis Major, the most conspicuous and best-known of all the Martian markings. At times this familiar marking was so obliterated by a white mist that it could not be recognized. For over two months this region was more or less masked by this white obscuring haze, finally to reappear as before without a vestige of its former covering remaining. Dr. E. C. Slipher of the Lowell Observatory described and illustrated with a number of remarkably fine photographs and drawings these noticeable changes in the Syrtis Major during the last opposition in Popular Astronomy for February, 1921. He noted as a significant and notable fact that the disappearance of the mist-like covering of the Syrtis Major at that time was coincident with the appearance of what seemed to be cloud and frost about the north polar regions of the planet. That these cloud-like areas appeared in the past to have been most prominent at the time of the greatest melting of the polar cap in the summer hemisphere, was also noted.

As far back as October 3, 1862, Sir Norman Lockyer recorded an obscuration of the

Syrtis Major by a cloud-like formation.

Other observations of similar obscurations were made by Dr. Percival Lowell at the oppositions of 1903, 1905 and 1909, by Dr. E. C. Slipher in 1907, 1909, 1911, 1918 and 1920, by G. H. Hamilton, by W. F. Denning, the English astronomer, by Prof. W. H. Pickering repeatedly, and by many independent observers. In spite of this accumulation of evidence one continually meets with astronomers who state that clouds have never as yet been seen on Mars.

Though there is the possibility that these extensive white coverings that temporarily obliterate many familiar Martian markings may be deposits of snow or frost it seems very improbable that when the polar caps are rapidly melting or have dwindled to their smallest extent that frost or snow should form in dark regions, presumably covered with vegetation, in the planet's tropical regions. Also it has been noted that these white areas frequently hang over the disk at the terminator, even extending beyond it, while the surface markings seem to slip under them as the planet rotates. It has been noted, moreover, that in some instances canals bordering upon the obscured regions have become broader and more intense as if recording the effects of an inundation, and rapid increase of vegetational growth.

All evidence considered, it seems more reasonable to assume that the extensive white areas that appear at times over the Martian surface are cloud formations due to the presence of water vapor in the atmosphere of the planet rather than deposits of hoar-frost or snow.

ARE YOUR STOCKINGS
"APPROVED U.S."

Washington.

- Girls and men! Your hosiery and under-

wear may be made in the future with the aid and approval of the experts of the National Bureau of Standards. This government research laboratory has told the National Association of Hosiery and Underwear Manufacturers that it can help in six projects:

1. the development of a standard form of contract for the purchase of yarns used in the manufacture of hosiery;
2. standard method for measuring the sizes of hosiery;
3. correction of mill practice of knitting to actual half sizes;
4. the development of tests and testing methods;
5. the standardization of specifications for hosiery purchased by the government, and,
6. the standardization of nomenclature.

(A Chat on Science)

GIVE US SHORT NAMES

By Dr. Edwin E. Slosson

When a man makes a new invention his work is not done. He should invent a new name for it. Here he is apt to fail for, being more of a mechanic than a philologist, he turns over the job to the Greek professor who manufactures one out of old roots. So it happens that many a handy little pocket tool is handicapped by a name that wraps three times around the tongue. But the people refuse to stand for it.

Consider what a Babel-like botch has been made of the job of naming the new art of photographing action. Rival inventors, rival word-wrights, and rival systems of Greek transliteration precipitated a war of words in which the chief belligerents were animatograph, animatoscope, biograph, bioscope, chronophotography, cinema, cinematograph, cinematoscope, cineograph, cineoscope, electrograph, electroscope, kinema, kinemacolor, kinematograph, kinematoscope, kineograph, kineoscope, kinetoscope, motion pictures, moving pictures, photo plays, tachyscope, veriscope, vitagraph, vitascope, zootrope, zoogyrograph, zoogyroscope, and zoopraxiscope.

But the people - they call it "the movies". It is not a great name, but it is better than some at least of those listed above.

If, instead of trying to load the new machine with a name implying that it had been invented in Athens or Rome, its godfathers had given it a respectable convenient name of one or two syllables like "kodak", "volt", "velox", or "viscose" much of this confusion might have been saved. Think how many millions of dollars, years of time, barrels of ink and cubic miles of hot air would have been saved if "electricity" had been named in one syllable instead of five. We might even now cut it down to "el" except that by popular vote the six syllables of "elevated railroad" has been reduced to that handy term. So, too, the people have found a way to reduce "radiotelephony" to a single mouthful, "radio".

The lesson of it is that if the father of a new invention does not want to have his child called by a nickname let him give it a short and snappy name on the start.

MEXICO'S OLDEST TREE SHOWING AGE

Mexico City, Mexico's largest tree, the venerable cypress in the churchyard at Tule, which foresters say was standing 1,000 years before Columbus discovered America, is beginning to show the weight of years.

The giant tree is a *Taxodium distichum* and its Aztec name is *ahuehuatl*. It was so well grown 400 years ago that it sheltered under its generous spread of branches Hernan Cortez and his followers on their ill-fated expedition to Honduras, and was at that time a source of astonishment to those hardy and hardened conquistadores.

Today it is about 160 feet high and four feet from the ground; its trunk is 160 feet in circumference. Its branches have a spread of 140 feet.

Recently the great trunk has shown sign of splitting. Reports from the state of Oaxaca, to which many tourists have gone in years past for a sight of the "great tree of Tule", are that age is at last putting its mark on this representative of the forest family commercial lumber interests have exploited as "the wood eternal."

In size it resembles the great Banyan (*Ficus Indica*) in the botanical garden at Calcutta and the Chestnut Tree of 100 Horses, said to be the largest tree in the world, at the foot of Mt. Etna.

Baron von Humboldt was so impressed by the gigantic proportions of this great savin, which he considered a worthy rival of the huge baobab (*Adansonia digitata*) of Africa, believed to be the oldest organic monument on the globe, that he inscribed his name on the trunk, an inscription now nearly overgrown by the bark.

GOLD RUSH STARTS IN CANADIAN WILDS

"Gold! Gold! Gold! Gold".

Bright and yellow

Hard and cold."

The glint is in the old prospector's eyes which presages another rush to stake claims in northern Ontario. Since January 1, nearly 1,500 gold claims have been recorded. And this in spite of the fact that the Ontario Department of Mines doubts that there will be found any placer gold, the prospector's dream. The district is glaciated and placer mines do not occur in such regions. Ontario, it is urged, is the only important country in the world whose gold production has increased in the last four years. The Hollinger mine at Porcupine is said to be world's greatest gold mine; having paid \$16,000,000 in dividends and produced \$48,000,000 in gold within the last ten years. In the single year of 1921 \$10,000,000 of the yellow metal was produced at a net profit of over \$4,000,000.

RADIO NEWS OF THE WEEKHOW TO SOUND-PROOF
YOUR RADIO ROOM

Urbana, Ill. With the advent of the wide-spread use of radio, we are gradually approaching the state of living by our ears instead of our eyes. We want quiet when we listen over our radio sets. Prof. F. R. Watson of the Engineering Experiment Station of the University of Illinois here has made an exhaustive study of soundproofing and is able to give advice on the best methods of sound insulation that can be applied to the rooms in which the receiving set is placed.

"The ventilation system and other air passages such as doors and windows are most important in the transmission of sound," says Prof. Watson. "Cases of efficient sound insulations either omit the ventilation entirely or else guard it in special ways. Next in importance come the walls, floors and ceilings. These should be as rigid as possible with pipes and conduits placed in outside or corridor walls where a leakage of sound will not be so objectionable."

Absorption of sound is an essential feature in soundproofing. This absorption is accomplished by the introduction of compressible, porous materials like carpets, heavy curtains and hairfelt which convert the sound energy into heat by friction in the porous channels. Reflecting sound and scattering it still leaves it with noise producing energy.

When soundproofing a building, all details should be considered with respect to the likelihood of transmission of sound. Each room, as far as possible, should be made an insulated unit by means of air spaces or air-filled materials that separate it from surrounding walls.

Sound may be transmitted from one side of a partition to the other in three ways. It may progress through continuous air passages, it may pass as an elastic wave through the solid structure of the partition, or, by setting the partition in vibration, it may originate sound waves on the further side. People outside of music studios and other rooms where disturbing sounds are produced, and those in hospitals, hotels, and office buildings, as well as radio fans, will benefit by Prof. Watson's investigations. Architects and engineers are furnished information that they have lacked in the past.

COMMITTEE ADVISES
GOVERNMENT BROADCASTING

Washington, - Ten government departments have appointed representatives on an advisory committee on governmental radio broadcasting formed at the request of Secretary Hoover to make recommendations on the distribution of government information by radio. A preliminary classification of the kind of information that should be broadcasted from various stations is being made. The committee will meet at frequent intervals to consider the questions that arise through the progress of radio. Dr. S. W. Stratton, director of the Bureau of Standards, is chairman.

TO ENLIST NATURE
IN INSECT WAR

Albany, N.Y. Holding out hope of victory in the great war being waged against insect pests, Dr. E. P. Felt, State Entomologist, points out that it is not necessary to kill the last insect in order to exterminate the species, but that nature will help when the percentage is so reduced that conditions of life are changed for the surviving pests.

The gipsy moth and the boll weevil may go the same route taken by the buffalo, the wild pigeon, the great auk and other forms once abundant but now past or passing, he claims. Very efficient control can be obtained by simply reducing the numbers of the pests to such an extent that those remaining will be unable to overcome the natural resistance of the plant. It has been shown that in the case of the tsetse fly that it is only necessary to reduce the infestation of this pest to moderate limits in order to secure a high degree of freedom from the deadly sleeping sickness.

The mere fact that a species occur in immense numbers does not make extermination impossible. Systematic, well-organized attacks may reduce the pests to such an extent that the operation of natural causes will complete the extermination.

BITES INTO RACIAL PROBLEM
IN STUDY OF UNSOUND TEETH

Cold Spring Harbor, N.Y. . . . Do poor teeth run in races? According to a report made by Dr. A. W. Schoenleber of the Medical department of the Standard Oil Company to the Eugenic Research Association there is a racial difference in resistance to dental decay as shown by an examination of 2,758 men of various nationalities.

The gleaming whiteness of the negro's teeth is not just contrast with his black skin, these figures show, as the greatest proportion of perfect teeth was found among the Afro-Americans. Polish and Austrian Jews showed the next highest percentage of excellent teeth, while English, German, Danish, Norwegian, and Swedish subjects showed very feeble resistance to decay. The Irish had the worst teeth of all.

This, it is claimed, may throw some light on the fact that the native American mouths compare so unfavorably in dental equipment with those of immigrants to this country. The earlier native American is largely of Nordic stock while the recent immigrants with which they have been compared come mostly from Italy, Albania, Jugoslavia, Sicily, Austria, and Lithuania. This difference has formerly been attributed largely to greater amount of sweets and soft food in the American diet, but it seems more likely that race is responsible for it.

TASMANIAN ABORIGINES
TOTALLY EXTINCT

Sydney, Australia. . . . It has always been supposed that the last full-blooded member of the Aboriginal race of Tasmania, the one distinct species of man which has become completely extinct in modern times, was Trucannini, who died at Hobart, Tasmania, in 1876, at the age of 73.

Recent inquiries, however, show that Trucannini was not the last of her race. This distinction belongs to Mrs. Seymour, who died at a great age at Hog Bay, Kangaroo Island, South Australia, in 1909, or 33 years later than Trucannini. Mrs. Seymour was one of several Tasmanian women who were as girls either bought or stolen from their tribes by the white sealers, and taken to Kangaroo Island over 80 years ago.

EDITORIALTHE ADVANTAGE OF BEING YOUNG

It is amazing to the ordinary father to hear his knickerbockered boy speak familiarly of "statics" and "electron streams" and "inductance" and "360 meter waves". And when he comes to quiz his son, he finds that the boy can not only talk about these strange things but use them.

The surprise is the same as when an American goes to France and hears the little children talking French and common laborers using the metric system. He got his knowledge of the French language and of the metric system - what he has of it - by hard work and much worry in school. Whenever he wants to say anything in French he thinks it out first in English and then picks out the corresponding French words, guesses at their gender, arranges them in the foreign order, and sets his speech organs so as to approximate their pronunciation. Whenever he wants to put anything into kilograms he has to think of it in tons and then multiply by 907.18.

But as the French children come naturally into a heritage of French idioms and metric measures so our children take naturally to the new ideas of science, if they have a chance at them directly without being put through the cruder conceptions of former days of ignorance. The idea of an electron stream is much easier to grasp than the old two-fluid theory of electricity that our elders were brought up on. Each generation is born free and has a right to get its science in the latest and simplest forms, unencumbered by the errors of the past.

AMERICANISTS TO MEET
IN BRAZILIAN CAPITAL

Washington. - The International Society of Americanists, which deals with all scientific questions relating to man except those of a political and economic nature, will hold its twentieth session at Rio de Janeiro from August 29 to 30. Dr. Ales Hrdlicka and Dr. Walter Hough of the Smithsonian Institution, recently appointed by Secretary of State Hughes to represent the United States at the meeting, will leave shortly for the Brazilian capital. The great South American republic was selected by the Society for this year's convention in recognition of the services of its delegates at the nineteenth session of the organization which was held in Washington in 1915.

DO YOU KNOW THAT -

There are now no trees on Spitzbergen, yet fossils in the rocks show that extensive forests of oak, beech, and other woodland trees once grew on this Arctic archipelago.

Soon 100,000 horsepower will be developed in the hydro-electric plants using the water from the Great Lake in Tasmania.

An Italian aeroplane factory is said to be designing two planes for the Danish Government which will have from two to four engines and be provided with ice runners and floats for a Polar expedition.

Ute Indian medicine men use cheerful music in the treatment of sickness.

DO YOU KNOW THAT -

Alcohol made from molasses is used for motor fuel in Cuba.

A typhoid fever epidemic in Roumania was traced to ice in which the germs had frozen eight months before.

Mt. Everest, the world's highest mountain, the summit of which a British expedition recently tried to reach, was named after Sir George Everest who in 1841 first determined its altitude.

25,000 elk of the Yellowstone Park region constitute the only large game herds left in the United States.

DO YOU KNOW THAT -

There is probably more living matter in the sea than in all the rest of the world.

Plans are being made to construct a six mile railroad tunnel under James Peak in Colorado.

The dead beat escapement and the mercurial pendulum, still used today, were invented by George Graham early in the 18th century and marked the beginning of accurate timekeeping in clocks.

\$400,000 is available for governmental research and production of helium, the new balloon gas, during this year.

DO YOU KNOW THAT -

Carbon black made from natural gas is used in the manufacture of talking machine records.

Mosquitos are very abundant in Alaska during June and July.

Ice cream may temporarily cool the throat, but it produces heat in the body.

The Republic of Columbia is organizing a national weather service with headquarters at the observatory of Bagota.

DO YOU KNOW THAT -

Twelve new stars, visible to the naked eye, were discovered between 1848 and 1921, while none had been discovered during the previous 153 years; owing, it is claimed, to the lack of capable observers.

Peanuts unknown in Senegal a few years ago now form more than 50 per cent of the total exports from that part of Africa.

A refinery has been opened in England to refine the crude oil brought from Persian fields 6,000 miles away.

Human blood contains the same salts in similar proportions as are found in sea water.

DO YOU KNOW THAT -

Although no coffee has been planted in Haiti in 120 years, the wild, weedy fields will probably produce 60,000,000 pounds of coffee this year.

London is now largely dependent upon the motor vehicle for her supply of market garden produce.

The early lighthouses were lighted with open fires and tallow candles were used in the Eddystone Light for more than a hundred years.

The whale's ancestors were land animals and the whale still has vestiges of hind legs.

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FRAGMENTS OF SCIENCE

The biggest animals in the world are found in the Pacific; and that seems as it should be and entirely proper, for is not the Pacific the biggest ocean in the world? Just how many kinds of whales and other marine mammals there are in the Pacific we really do not know; and that is highly improper, not to say disgraceful, for we surely ought to know.- Dr. Barton Warren Evermann, Director, Museum California Academy of Sciences.