

SCIENCE NEWS - LETTER

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SOLVES MYSTERY OF LIGHTNING LENGTH

Stanford, Calif

Much of the mystery of the long travel of lightning flashes and the supposedly high voltage necessary to produce them has been solved by Prof. Harris J. Ryan at Stanford University here.

Science has had to assume trillions and quadrillions of volts difference in potential between clouds or between clouds and earth according to its old rule for the power behind Jove's thunderbolts, but Prof. Ryan says that the relation is logarithmic, which means greatly increased length of discharge for a given difference in voltage when the voltage is high.

In other words, 600,000 volts will cause a discharge of 90 inches but a million volts is sufficient to discharge 435 inches. When two million volts is reached the current will jump with "seven-league boots" for a distance of 22,000 inches, and with three million volts 18 miles can be covered in the discharge through the air. Under the old idea of how far electric sparks or lightning could jump the rule was ten thousand volts per inch of discharge.

Even with this new understanding there is little temptation to play with lightning for it is well known that three or four hundred volts is generally fatal if the current passes directly through the body and even as low a voltage as the ordinary lighting current at 110 volts may kill if conditions are just right or if the heart of the person shocked happens to be weak.

RADIO NEWS OF THE WEEKSCHENECTADY SOURCE OF
MARCONI'S MESSAGE FROM MARS

Schenectady, N.Y. July 00.- The "messages from Mars" received by Senator Guglielmo Marconi while cruising in the Mediterranean sea have been explained. The source of the extremely long radio waves, impossible of location then, has been announced as Schenectady, the home of the General Electric Company.

As a part of his visit in this country Senator Marconi visited the laboratories of the General Electric company recently. There Dr. Irving Langmuir of the research laboratory told the wireless inventor of the experiments he had conducted with a wave length of 150,000 meters, five times as long as any previously obtained. It was at the time of these experiments that Marconi announced the reception of regular beats of an extremely long wave length. The report that the wireless genius had received signals from Mars was the result.

The current of this wave length was sent by Dr. Langmuir over the trolley wires between Schenectady and the famed Saratoga Springs, eighteen miles north of the Electric City. The experiment was unannounced, and the powerful current evidently spread itself over the world.

Senator Marconi denied the report that he had been in communication with Mars, and now proof is offered of the source of the "signals".

O O O O O O

TRY TRANS-CONTINENTAL
DAYLIGHT RADIO RELAY

(By Science Service)

Hartford, Conn. July 00.- Radio amateurs will attempt relaying messages across the continent in daylight. On July 4 and 9 a message from a Maine station will start on its way to the Coast, and simultaneously a California station will initiate one for Hiram Percy Maxim, president of the American Radio Relay League, here.

Most radio relaying is done at night as the sending ranges are greater, although reduction of static during daylight favors day sending. Getting the message across the Rockies will be the hardest link in the relay, as amateur stations there are hundreds of miles apart. During the dark hours, relays of 500 to 1000 miles are now comparatively simple but great difficulty will probably be experienced during daytime in covering over 200 miles at a stretch. O O O O O O

AMATEURS LAYING PLANS
FOR WORLD-WIDE RADIO

Hartford, Conn. - During next winter radio amateurs expect to lengthen their radio relay traffic lines to all parts of the world. For several years messages each night have been flashed from amateur station to amateur station in all parts of this country and Canada. With the increased use and efficiency of continuous wave telegraphy and the interest and energy that radio amateurs in China, Japan, Hawaii and European countries are showing, officials of the American Radio Relay League believe that when the summer's static storms and interfering vacation trips are over duplications of amateur short wave length spanning of the Atlantic which was accomplished in February will be nearly a nightly occurrence.

The announcement of E. H. Armstrong, developer of the regenerative circuit, that he has an improvement on this system, about 10,000 times greater in signal strength with practically the same apparatus and number of electron tubes, has brought the realization of world-wide amateur radio closer.

The thrill of long distance transmission alone does not urge the amateurs on. They hope to put their carefully worked out radio relays to practical use. The American Radio Relay League has just been approached by a Buffalo Athletic organization with the hope that a long distance radio swimming meet with a Hawaiian swimming club could be arranged. All results, times and events both ways would be reported by amateur radio. This scheme will not be worked out now because of the poor sending conditions of summer and the fact that many of the relay operators are taking their vacations. The water contest by radio is scheduled for the fall.

FRENCH INSECT KILLS MOSQUITOES

Lyons, France. The ploiére is man's friend. Profs. Riel and Bonamour, scientists here, have re-discovered the fact that this common insect pursues the dread mosquito across walls and ceiling and eats it. A scientist named Scopoli knew this in 1788, but nothing came of the knowledge. Now the Lyons scientists warn people that if they wish to enjoy sleep free from the saw-mill buzz of the mosquitoes they should refrain from killing the insect which feeds upon them.

LOCUSTS, PUBLICITY EXPERTS, PAY
USUAL 17 YEAR VISIT

Washington. The seventeen year locust is with us again. Thick colonies of this peculiar insect, whose curious life cycle periodically brings publicity to it far out of proportion to its importance as a pest, have made their appearance in southern Wisconsin, eastern Iowa, northern Illinois, northwestern Indiana and southern Michigan, according to entomologists of the U.S. Department of Agriculture.

A few broods have also been discovered in Kentucky, West Virginia, Pennsylvania, Maryland and one in Virginia, but it is probable that they will hardly be noticed.

Life for the locust is not what it used to be. Born in trees after seventeen years life underground they head for trees in their four to six weeks of life above ground. But forests have become thinner and their chief enemy, the English sparrow, more plentiful. They can not blame man for not conserving the trees, however, as the female of their species damages trees by slitting the twigs in which she lays her eggs.

This damage that is done is not so great as many other insect pests which are not feared so much. For not only has the popular imagination been caught by the periodical appearance, but closer study shows some equally surprising things about this species of cicada. It digs a hole without throwing out any earth. It will change its clothes in public. When the body is broken open, it appears to be just one big air chamber. The male is very noisy, but no one seems to know why he sings or drums. The female makes no noise and no one has ever discovered that the female has any ears to hear the music.

The internal organs are crowded into a small space and the big air chamber is believed to be nature's provision for flying. The transformation which causes the skins of the pupa to split and the mature insect to emerge is similar to that which happens to other insects, but the seventeen year locust is more easily observed than others. In its silent toil in its long underground home it digs a hole by crowding the dirt back into the surrounding earth with its legs.

The seventeen year locust appears in scattered broods or colonies, all of which do not come out the same year. In the southern states, this insect spends thirteen years in the ground instead of seventeen.

The Department of Agriculture will observe the intensity and distribution of the locust colonies. The damage caused by this cicada is not expected to be serious, and what damage is done will be largely of a temporary character.

PUPIL'S MENTAL AGE SHOULD
DETERMINE SCHOOL WORK

Boston. July 6.- That the school child should be permitted to develop the full range of his possible individual abilities and that the scientific method of determining whether he is doing this is by interpreting the work he actually does in terms of his mental age, was emphasized at this afternoon's session of the National Educational Association.

"The age of opinion in education is past," declared Miss Jessica Marshall, principal of the Newton School, Toledo, Ohio, the first speaker on the program. Both teachers and pupils are anxious to have some scientific method of measuring progress, she said, in pointing out that the combined use of intelligence and educational tests provide the means of measuring the success with which we are solving the great problem of giving every child the education best suited to his needs.

Albion U. Jenkins, Principal of School No. 2, Paterson, New Jersey, said that the present standards are for the grade only. There are no standards for pupils mentally younger or older than the grade average. A very bright pupil can make the grade average without exerting himself, while a slow pupil who has worked diligently, may be regarded as a failure because he has not reached the grade standard. It is evident that this is unfair to both pupils. The present standard is the average for thousands of children of the same grade, and such a test shows what the child does in relation to the average child, but it does not show how much he should have done.

These tests should be used jointly with the intelligence tests to determine the pupil's efficiency. If a pupil with a capacity of 80 makes a score of 80 in arithmetic, the result is very different from a score of 80 by a capacity of 110. The first pupil is working at full capacity, the second at only 73 per cent of his normal ability. The pupil of a capacity of 110 should be required to do enough more than the average to bring his score up to 110.

In many of his classes, said Benjamin B. Greenberg, principal of the William T. Harris School, New York City, the brightest boys were five or six years above the dullest in mental age.

TRY THIS NEW HISTORY
TEST ON YOURSELF

Boston. July 00.- Here is a new school test. All the pupil has to do is to put down a cross, a dash or a zero for his answer. Can you pass this informal examination in history proposed to the National Educational Association by William F. Butler of Worcester, Massachusetts?

American History Test

Mark correct statements x

Mark incorrect statements -

Mark statements you do not know about 0

1. Columbus discovered America in 1492.
2. De Soto was a French explorer.
3. John Cabot was sent by Portugal.
4. Eli Whitney invented the cotton gin.
5. De Soto discovered the Mississippi River.
6. Samuel Adams was a President of the United States.
7. The Battle of Gettysburg was fought July 3, 1875.
8. The Battle of Bunker Hill was fought April 19, 1775.
9. The Constitution was adopted in 1787.
10. The French and Indian War was fought before Washington was born.
11. Washington was inaugurated in 1789.
12. Thomas Jefferson believed in the right of all men to vote.
13. The War of 1812 was caused by English trying to tax the colonies.
14. The Stamp Act was passed to help the colonies.
15. Dred Scott was a famous explorer.
16. Magellan was the first to circumnavigate the globe.
17. The Mexican War was caused by a dispute over slavery.
18. Samuel F. B. Morse invented the telephone.
19. Andrew Jackson was the American Commander at the Battle of New Orleans.
20. Benedict Arnold fought bravely at Saratoga.

BALLOON TEAMS OFF FOR
INTERNATIONAL RACE

Washington. July 00.- (Science Service) On July 12 three American balloon teams will sail for Europe where they will represent this country in the Gordon-Bennett International cup race to be held in Geneva, Switzerland, August 2. This is the long distance contest for which the elimination race was held with Milwaukee May 31.

The three United States balloons will be manned by Army, Navy and civilian pilots respectively. They will compete with seventeen other bags from seven or eight of the leading European nations for the world championship and 10,000 French francs prize money. The Army balloon will be piloted by Capt. Oscar Westover, winner in the recent national competition, with Lieut. Carleton F. Bond, as his aide. Lieut. W. F. Reed will pilot the Navy balloon, Ward Officer James Shade, aide; and H. E. Honeywell of St. Louis will pilot the civilian gas bag.

NEW PRINCE OF MONACO LACKS INTEREST IN SCIENCE

Washington. - Prince Louis, who will ascend to the throne of the eight-square mile principality of Monaco, has little interest in science, although his father, Prince Albert of Monaco, who recently died at Paris, was recognized for his researches in oceanography and the history of the human life.

Only last year when he visited America, Prince Albert received from the National Academy of Sciences its highest medal in recognition of his study of the life, tides, currents and other features of the ocean, and he has been prominent in the international organizations of science. The new Prince is a soldier by profession, serving with the French army, and in addition to his lack of scientific aspirations, it is rumored that he may abolish the famous gambling resort of Monte Carlo, which furnished the revenue for Prince Albert's scientific work.

Scientific circles fear the decline of Monaco's scientific work under the new reign, although Prince Albert had the foresight to endow and perpetuate a large part of his work by founding an independent Institute of Oceanography, which includes the famous Monaco museum and the Paris establishment for the teaching of oceanographic science, as well as a Museum of Human Paleontology in Paris.

MILK MAKES GOOD TEETH, SAYS DENTAL EXPERT

Boston. July 5.- More extensive use of milk, green raw vegetables and fresh foods will help prevent tooth decay, Dr. Percy C. Howe, chief of the research laboratory of the Forsythe Dental Infirmary for Children, told the National Education Association meeting here this morning.

Modern foods are more likely to be deficient in calcium, which is contained in milk, than in any inorganic factor, he said. They are also apt to be deficient in vitamins. Animals fed on diets lacking these substances develop soft, loose, irregular teeth identical with the decayed teeth conditions in humans.

Decay of the teeth is probably the most common pathological condition that exists in civilized life and more individuals are engaged in the repair of teeth than in dealing with any other single human disturbance, he stated.

(A Chat on Science)

GASOLINE AND ALCOHOL

By Dr. Edwin E. Slosson

Before prohibition the per capita consumption of gasoline and alcoholic beverages was about the same, twenty gallons a year. Now the consumption of alcoholic beverages is theoretically reduced to zero while the consumption of gasoline has risen to seventy-seven gallons per capita.

But we may live to see these ratios reversed and gasoline decline while alcohol rises until vastly more alcohol is manufactured. For if alcohol comes into general use for fuel purposes vastly more must be manufactured than in the days when it was thought fit to drink. Nobody takes to gasoline as a beverage except the Russians to whom it seems mild and pleasant-flavored compared with vodka. But the two fluids come into competition for satiating the thirst of the carbureter.

Now that the law will not allow us to drink liquor we have alcohol to burn. And so soon as men get accustomed to regard alcohol as fuel instead of as food the vexatious restrictions that have been imposed upon its manufacture and sale for the last five hundred years may be removed. When that day comes the Government will be urging people to set up home stills instead of confiscating them, and this will enable spoiled grain, unsalable fruit, sawdust, and all sorts of wasted stuff to be converted into power on the spot.

For alcohol can be made out of more different things than almost anything else in the world, as those who have experimented with home brew have found out. Any sugary, starchy or woody material can be converted into alcohol, directly or indirectly, and there are millions of minute plants always hanging around ready to undertake the job of conversion for a bare living.

But if we have to shift from gasoline to alcohol we will have to hunt for the cheapest and most abundant material to make it from and it is high time that the hunting began. The saving of waste foodstuffs would not suffice. If we used corn it would

take more than a quarter of our corn crop to make enough alcohol to take the place of the gasoline now used and we will want to use more in the future as our desire for power increases.

Probably it will be found that the tropics will grow the largest crops of saccharine material suitable for alcoholic fermentation in a season and if so this neglected region will assume the importance that the coal field countries now possess. There will then be hot strife for hot territory and the alcohol power will rule the world. Dr. Diesel, believing that his engine using heavy oils - mineral or vegetable - would take the place of the gasoline engines burning light fluids like gasoline or alcohol, foresaw the time when palm, peanut or some other tropical oil would be the motive power on which civilization would depend.

There are, of course, many other conceivable possibilities. We may distill cellulose directly instead of converting it into sugar and then fermenting it to alcohol. The chemist may get up some carbon chain or ring with all the hydrogen it can hold that will make a better fuel than anything found in nature, but he will have to have something to make it out of and that something will have to be grown. Unless we find some other source of power than combustion we must eventually grow our fuel as we use it for fossil fuel will not last forever. We must find a way of using the sunshine of today instead of that which fell upon the earth in the Carboniferous Era.

BILL PROVIDES MINIATURE MAN-MADE RIVER FOR TESTS

Washington. - A small river upon which engineering tests can be performed will be created here by government engineers if a bill introduced in Congress by Senator Ransdell of Louisiana is passed. Engineers believe that the scientific side of river hydraulics has not kept pace with the research and experimentation which has accompanied other branches of engineering, and they are urging the establishment of a national hydraulic laboratory as provided in the Ransdell bill. The recent disastrous floods of the lower Mississippi, the threatening attitude of the Colorado River, and other periodic floods in this country are factors that are calling attention

NEWS OF THE STARSAn Astronomical Anti-Fat Cure

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

A dieting fat lady often stands on the scales and frowns. Then she may try another weighing machine. She might get more consolation by picking out the proper planet and weighing herself on it. But it is not necessary for her to visit the other celestial spheres in order to find out what she would weigh on them. Their size and densities are known. It is merely a matter of a few figures to beat the guessing expert at a county fair in telling the solar, lunar, Martian, Venusian or any other weight in reference to what the scales tell you here.

Your weight on the earth is determined by the same surface pull of gravity that legend tells us brought down the apple on Isaac Newton's head. The strength of that pull depends not only on the size of the earth but on its density or the amount of matter it contains in proportion to its size. The surface gravity of any other body in space relative to that of the earth is found by multiplying its density compared to the earth's density by its radius relative to the earth's radius.

The radius of the moon, for example, is a little over one-fourth that of the earth and the density of the moon is about three-fifths that of the earth so the surface gravity of the moon relative to that of the earth is the product of the two or about one-sixth. A man who weighs 160 lbs. on the earth would weigh only 27 lbs. on the moon. It can be found in the same way that the same man would weigh about two tons at the surface of the sun, since the surface gravity of the sun is about 27.6 times that of the earth. On the moon a man would spring about with the agility of a grasshopper while on the sun he would be crushed under his own weight.

On Mercury a man of 160 lbs. would weigh 50 lbs., on Venus 136 lbs., on Mars 58 lbs., on Jupiter about 400 lbs., On Saturn, Uranus and Neptune he would weigh respectively, 171 lbs., 158 lbs., and 139 lbs. In spite of the great size of these planets these weights do not differ greatly from the 160 lbs. that he would weigh on our own

planet. This is owing to the fact that the densities of these planets, which are fully as important as the radius in determining the surface gravity, are so extremely low compared to that of the earth. The density of Saturn is only six-tenths that of water while Uranus and Neptune have densities that are respectively 1.44 and 1.09 times the density of water, while the density of the earth is 5.53 times that of water.

On the largest asteroid, Ceres, which is 485 miles in diameter, the surface gravity is so low that a man would have no difficulty in throwing a stone with sufficient force to send it off into space never to return. On a small asteroid, twenty miles in diameter, he could easily jump off into space himself if he felt so inclined.

The surface gravity on Antares, the greatest of the red giant stars, we might expect to find very great since its radius is five hundred times that of the sun. Its density, however, is only one-thousandth that of the air at sea-level or one eight-hundred-thousandth that of water which gives it a surface gravity about twelve-thousandths that of the earth. So owing to the extremely low density of this star we get the surprising result that objects at its surface are held with an attractive force only twelve-thousandths of that of our own planet. A man of 160 lbs. weight on the earth would weigh, then, only about two pounds on Antares.

SEASHORE SAFE FROM SHARKS,
FISH NOT OFTEN MAN HUNGRY

Washington. Bathers at the ocean beaches need have no fear of sharks, officials of the U.S. Bureau of Fisheries say. The well-authenticated instances of these fish having attacked human beings are few and far between, they claim.

In far away Australia, it has been established that it is dangerous to get in the waters with sharks when there is a period of great scarcity of the mollusks from the rivers on which they feed. Ordinarily, however, they will not bother human beings. The same is true of the barracuda, the only other species beside certain members of the shark family, the man-eater and tiger sharks, which even infrequently dine on man meat.

The attacks by sharks reported from the New Jersey coast two years ago are believed to have been made by one shark who had developed a rare taste for summer bathers.

Years ago a reward of several thousand dollars was offered for proof that the sharks attack human beings, but the money was never claimed.---

AGRICULTURAL NEWS OF THE WEEK**CAN DOUBLE IRRIGATED LANDS
WITH SAME AMOUNT OF WATER**

Tucson, Ariz. - "More than a third of all water actually applied to irrigated lands in the Colorado River basin is worse than wasted," says Dr. Frederic E. Clements of the Carnegie Institution Desert Laboratory here. "It might be conserved to render thousands of additional acres fertile. It actually reduces the growth of the crops.

"It has been shown," he declares, "that there is a rapid reduction in bushels of wheat for each additional inch of water above seven inches and in India it has recently been demonstrated that there is frequently a larger return with one irrigation than with two. It must be realized that air is almost as important to roots as water.

"Apart from the great saving made possible in this way, one nearly as great may be brought about by recognizing that rainfall fluctuates in more or less definite cycles and by constructing reclamation and irrigation systems on the expansion-contraction basis to take care of this fluctuation. The only time to prepare for a period of rainfall deficit is during a period of excess. If further investigation confirms the theory that rainfall bears a relation to sunspots and that drouth may be expected at sunspot maxima and wet periods at the minima, it will be possible to predict the major variations in rainfall and to base the use of water upon such knowledge."

**U. S. COAL TRUCKS NOW
SAVE ONE-FOURTH GASOLINE**

Washington. The U. S. Bureau of Mines here has charge of hauling all the coal used by government departments and it also has fuel experts on its staff. The experts have been adjusting the truck carburetors with the result that the gasoline consumption has been cut one-quarter. The trucks have been using too rich a mixture. The volume of gasoline consumption is considered to be affected one-third by machine, one-third by carburetor adjustment, and one-third by driver.

WEATHER'S HARM SPEEDED UP
IN TESTING OF PAINTS

Philadelphia, - The way to test paints which are intended for use on the outside of a house where they are exposed to light, moisture, heat and cold and other weather conditions is to submit them to a speeded-up imitation of the leisurely processes of nature, thinks Harley A. Nelson, of the Research Laboratory of the New Jersey Zinc Company, who has reported to the American Society for Testing Materials his methods for making such tests.

The exposure tank is constructed so as to facilitate simulation of various possible weather conditions. Panels of pine wood with three coats of paint are suspended in this tank. Artificial sunlight and heat are furnished by a mercury arc light. A revolving water spray, artificially produces a beating rain and a fine fog or mist is created by an atomizer. An ordinary variable-speed electric fan serves to cool the mercury arc and maintain a uniform temperature.

Exposures of 80 to 90 days to this artificial weather are required to produce cracking of the paint. No satisfactory method has been devised to produce the effects of cold weather variations, but Mr. Nelson claims that it is a mark of progress to know that at least some of the physical changes that characterize complicated weathering can be reproduced on an accelerated scale.

DO SCHOOLS DISABLE MIND
OF CHILD? ASKS PSYCHOLOGIST

Boston, July 5.- "Is the school of today unconsciously an agency in promoting mental disability? In its mad rush for a mastery of facts is it neglecting the development of wholesome attitudes toward school work and life?" asked Dr. J. Mace Andress, head of the department of psychology and child study of the Boston Normal School in an address to the National Education Association meeting this afternoon.

"Thousands of mentally disabled once passed through our public schools without their weaknesses of mind being discovered and without anything been done to prevent life's tragedies," he said. "We now know that often this mental disorder begins in children and that much of it could be prevented by sound training in mental habits."

EDITORIALJOHNNY AND WILLY

Johnny Jones, age 12 and Willy Smith, age 12, are not the same age so far as their ability to do school work is concerned. Johnny has a hard time keeping up with his grade. Work as hard as he may, he can only keep his head above the educational flood. Willy has a much easier time of it. He does not seem to have to spend much time getting his lessons. He is a star pupil at school. In spite of these differences, in most schools, Johnny and Willy are expected to do the same amount of work equally as well. They are graded by the same standards.

Educators are now realizing that all of the youth of our country are not equal in innate ability and that the schools must take this into consideration. With the aid of psychologists they are using intelligence tests to determine how much work a pupil is capable of doing. If Johnny gets a low rating in these tests, and Willy stands high, the progressive teacher will see to it that Johnny is not crowded and burdened too much with work, while Willy will find that he must do much more work than Johnny in order to get the same high grade.

Johnny and Willy are both 12 years old, but Johnny's mental age may be 8 years while Willy may have the intelligence of an average boy of 14 years. How can they be expected to keep step?

ARMY ENTERS HELICOPTER RACE

Washington. - The United States Army has entered the race for the honor of being the first to construct and fly a practical helicopter, it has been learned here on high authority.

Work on this machine designed for vertical flight is surrounded with greatest secrecy, and an aviation officer states that only about twenty high War Department officials have seen the craft. How soon it will be ready to fly can not be learned. Maj.-Gen. M. M. Patrick, chief of army aviation, will make no statement other than to reluctantly admit that the shops at McCook Field, Dayton, Ohio are working on a helicopter. Air service officials say that there is little probability of the Army entering its helicopter in the competition of the British air ministry for the 50,000 pounds sterling prize.

DO YOU KNOW THAT -

Tasmania is to-day the largest producer of the natural alloy osmiridium or iridosmine used for the points of gold nibs for fountain pens.

It has been estimated that on a mature maple tree of vigorous growth there is one half acre of leaf surface exposed to the sun.

A low temperature research station, claimed to be the first of its kind in the world, has just been completed at Cambridge, England. Studies in food refrigeration and the effects of low temperature on plant life will be made.

Blood transfusion first performed in man in 1667 is referred to in Samuel Pepys diary for November 21 and 30 of that year.

DO YOU KNOW THAT -

Although the lantern of the Tillamook lighthouse, south of the mouth of the Columbia River, is 133 feet above the sea, in severe storms rocks have been thrown through the lantern glass.

In March of this year there were 1,135 known cases of leprosy in the city of Para, Brazil.

Manganese steel, with its extraordinary ductibility and non-magnetic qualities, was found unexpectedly while its discoverer was trying to make a hard steel for other purposes.

Talc, the soft rock used in making talcum powder, may also be contained in the paper of your magazine, the rubber in your auto tires, and the china on your table.

DO YOU KNOW THAT -

Modern safety devices and higher factors of safety for cables have practically eliminated falling elevator cars as a source of accidents, not over six percent being due to this cause.

True isinglass is a soluble combustible material made from the air bladders of certain fish.

Buffalo bones have recently been found in a cave in Malheur County, Oregon, 100 miles further west than any other authoritative evidence of the occurrence of Buffalo heretofore.

French scientists claim that there is only about one-fourth the loss of electric energy through creosoted wooden poles which occurs through the untreated poles.

DO YOU KNOW THAT -

An examination of the peat bogs of Wisconsin has recently been made by engineers of the Bureau of Mines with the object of discovering their relation to coal formation

An average of more than eight days is lost each year by the 42,000,000 men and women gainfully employed in the United States on account of illness.

The fresh water spider lives underneath the water but doesn't get wet.

The first clock of which there is authentic record was constructed by Henry de Vick, at the command of Charles V for the Palace of Justice of Paris in 1364.

DO YOU KNOW THAT -

Omar Khayyam, the Persian poet-philosopher, author of the Rubaiyat, who died in 1123, was known in his own day as a great mathematician and astronomer, and was the author of a standard work on algebra.

The horse is estimated to be about 2,500,000 years older than man.

The use of the telephone is six times more highly developed in the United States than in Great Britain.

Arrangements have been made by the United States Bureau of Mines for the Air Service to furnish planes to carry rescue apparatus and crews in case of mine disasters.

DO YOU KNOW THAT -

Only thirty percent of the wood in a forest now gets into the form of seasoned unplanned lumber. Of this an additional ten to twenty-five percent is lost in the process of manufacture.

According to the American Consul at Marseilles, France, there has recently been a remarkable invasion of Moroccan grass-hoppers in the region east of the mouth of the Rhone River.

Dr. Stephen Smith, the 99-year old founder of the American Public Health Association, claims that man's natural term of life is one hundred, instead of seventy years.

Chickens have no ring fingers. The bones of the bird's hand or wing are three in number; those corresponding to the little finger and the ring finger of the human hand being absent.

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FRAGMENTS OF SCIENCE

In making new experiments, all kinds of obstacles and new effects arise which we cannot foresee, and from that and other causes, such as our limited means of detecting effects, we rarely obtain from such experiments the expected results.- G. Gore.

There is no such thing as the ether.- Dr. Charles P. Steinmetz.

Ignoring of science by one generation bars the door of progress and the next generation suffers accordingly.- Prof. W. C. Curtis.