

A NATURAL PUZZLE

One of the Great Mysteries That Confound Science.

THE FORCE OF GRAVITATION.

This Wonderful Power That Keeps Suns and Planets in Their Courses May Be Waves in the Ether That Push All Bodies Toward Each Other.

The mystery of mysteries in science is the attraction of gravitation—that very force of nature that is the most familiar to us all. It seems strange that the most familiar thing in the world should be at the same time the most inexplicable, but so it is. In order to see clearly wherein the mystery consists let us first consider what gravitation appears to be. It is gravitation that gives the property of weight to all bodies. If there were no gravitation we could float in the air. It is gravitation that brings a cannon ball eventually to the earth, no matter how swiftly it may be projected. The faster it starts the farther it will go, but during every second of its flight it drops the same distance vertically toward the earth, whether the speed imparted to it by the powder is 500 or 3,000 feet per second. Gravitation acts on a moving body exactly as well as on one at rest.

It is gravitation that curbs the motion of the moon and keeps it in an orbit of which the earth is the active focus.

So, too, it is gravitation that governs the earth in its motion around the sun, preventing it from flying away into boundless space. Astronomy shows that gravitation acts between all the planets and all the stars and controls their motions with respect to one another.

Now, this mysterious force appears to be an attraction as if there were elastic cords connecting all the bodies in space and tending to draw them to gether. But space, as far as our senses can detect, is empty. How, then, can there be an attraction?

A body may be attracted or drawn toward another by something to draw it. Gravitation does the trick, but completely hides from us the mechanism through which it acts. We can discover no mechanism at all.

When an unfortunate aeroplanist drops from his machine he begins at once to fall toward the earth. As if it were pulling him. But how can it pull? If it has nothing to pull with? You may think at first that it is the air which acts as an intermediary, but that is not so, because the earth and the moon "pull" upon one another with a force equal to the strength of a steel cable 500 miles in diameter, but there is no air and no other tangible thing in the open space, 240,000 miles across, that acts between the moon and the earth.

Then gravitation exerts the same force at every instant. No matter how fast the falling aeroplanist may be descending at any moment, gravitation will keep on adding speed as if he had just started. Disregarding the slight retardation produced by the resistance of the air, he will fall sixteen feet in the first second, forty-eight feet in the second second, eighty feet in the third second, gaining thirty-two feet in his velocity during every second after the first. From a height of 10,000 feet he would fall in about twenty-five seconds and would strike with a velocity of 400 feet per second.

The same kind of calculation can be applied to the gravitation between the earth and the moon. If the moon were not in motion across the direction of the earth's "pull" it would fall to the earth in about 116 hours.

Now, to return to the mystery, how is this force exerted? Is it really a pull, as it seems to be? The answer to which science is tending is that, instead of being a pull, gravitation is a push—in other words, that the falling aeroplanist is pushed toward the ground, and the moon is pushed toward the earth.

On the face of it one might think that nothing was gained by this theory, because it seems as impossible that a push should be exerted without a tangible connection as a pull. But the clue is found in the supposed properties of that invisible, intangible, all-pervading medium called the ether. This, to be sure, is explaining one mystery by another, for we know nothing about the ether except that it conveys the waves of light and electricity; but, at any rate, it affords a conceivable explanation of gravitation.

Garrett P. Serviss in New York Journal

Japanese Festivals.

The Japanese festivals are easily remembered. First of first month, the new year; third of third month, feast of dolls, for girls; fifth of fifth month, feast of flags, for boys; seventh of seventh month, the day for the god and goddess of love, Tanabata; ninth of ninth month, the "escape of the moon rains," the feast of chrysanthemums. The latter is not now generally observed.

A Diplomatist.

"I am amazed, sir, that you should propose to my daughter. You have not known her a week."
"True, madam, but I have known you for some time, and everybody says your daughter takes after you." He cut the girl.

A tactful man can pull a stinger from a bee without getting stung.—G. H. Lortimer.

Fowls Need Animal Feeds To Produce Eggs Profitably

For fall and winter egg production the need of animal protein has been thoroughly tested. Four experiments were recently conducted for a year at the Indiana station with single comb White Leghorn pullets, says the Country Gentleman. The object was to determine the value of animal protein in rations for laying pullets. The materials used were meat scrap, fish scrap and skim milk. The pullets were fed a basal ration of two parts each of corn and wheat and one part each of oats, bran and middlings. In addition one lot of pullets received 3.5 parts of fish scrap, another lot from fifty to sixty-two parts of skim milk, while one lot used as a check received none of these animal protein feeds.

The results show that the pullets fed skim milk laid slightly better than the other lots during December and January. The pen fed meat scrap averaged 135 eggs a pullet in the year; the pen fed fish scrap, 128 eggs a pullet, and the pen fed skim milk 135 eggs a pullet. But the pen which received the grain ration laid an average of only thirty-two and one-half eggs a pullet a year. But this plan of feeding had an important bearing on the cost of production. The pens fed fish scrap and skim milk cost an average of 82 cents to produce a dozen eggs; in the pen fed meat scrap and skim milk it cost 97 cents each to produce a dozen eggs.

The profit in the pen fed meat scrap was \$1.55 a pullet; in the pen fed fish scrap, \$1.56 a pullet, and in the pen fed skim milk, \$1.62 a pullet. But the pullets that did not receive any animal protein feeds were kept at a loss.

HOUSEHOLD HINTS.

If labels won't stick on your glass fruit jars scratch the metal tops of the jars and paste the labels there.

When it is difficult to turn ice cream out of its can allow cold water to run over the outside of the can.

Water can be softened by boiling a little borax or baking soda added to the water will also soften it.

When the head feels congested or try holding the hands and wrists in hot water as long as you can stand it.

A small ironing board about the size of a bread board can be made and will be found exceedingly convenient.

To destroy moths in carpets or curtains spread a damp cloth over the part and iron thoroughly with a hot iron. The steam will destroy any eggs, and the moths will not attack the place again.

Homemade Polish For Auto

For furniture or automobile bodies an excellent polish can be made by thinning down boiled linseed oil with turpentine. This should be applied sparingly to the clean surface with a cloth and should be rubbed briskly with a soft dry cloth or cotton waste. It is best not to use body polish on a car until the glass has become dull. Another polish recommended by automobile experts is made from one part of turpentine, three and one-half parts of kerosene, one part of paraffine oil or light cylinder oil and one and one-half ounces of oil of cedar. When the polish on a car has become very dull the appearance can be greatly improved by rubbing with a mixture of cylinder oil and kerosene.

Senator Page of Vermont Has a Unique Record

Senator Carroll Smalley Page of Vermont, who was recently renominated to succeed himself in the upper house of congress, bears a unique distinction.



Photo by American Press Association. CARROLL S. PAGE.

He was first elected to his present position to fill a vacancy in 1908. In 1910 he was re-elected for the full term of six years as a Republican, although receiving every vote of the Democratic members of the Vermont legislature. Senator Page had served in the state legislature and as governor before going to the national congress.

She Overreached Herself

By ESTHER VANDEVEER

When Thomas Deane was an old man his wife died, and he became dependent upon his daughter, Hester, for care and companionship. Unluckily at this very time Hester fell in love with a man of whom her father did not approve.

When Hester Deane married George Martindale without her father's consent Mr. Deane took into his home Edna Tiernan, a niece of his wife's about his daughter's age, and turned over to her his household affairs. Mr. Deane soon became so dependent upon Edna that despite the fact of his being three times her age he was wanted her to marry him, for he was a widower and Hester was his only child.

Now, Edna was in love with a man who was paying her a great deal of attention, but did not propose to her. If he would marry her she might tell her aged lover that she was already spoken for, but if she told him that she was free, but would not marry him, she might lose her home, and she had nothing to live upon. The man she wanted, Edgar Thorne, was well to do and could give her a good home. But from all appearance he had no intention of making her his wife.

Edna endeavored to steer a middle course between the two men, but one evening Mr. Deane, entering a room, suddenly where she and Thorne were together found them locked in each other's arms. Thorne in order to protect the girl told Deane that she was his wife.

Deane, after Thorne had left the house, questioned Edna about the situation. She confirmed Thorne's statement, claiming that Thorne was not able to support her, and they were waiting till he was in a better financial condition to acknowledge the marriage and live together.

Deane was perplexed to know what to do. He was inclined to forgive his daughter, but hesitated when his consent, bring her back with her hands and still give her the care of his household. He said nothing to Edna about this, but when she saw a letter she had written to Hester on his desk she surmised what it meant. Seeing him commit the letter to a maid to be mailed Edna took it from the maid's hand, saying that she would attend to its posting. The letter never reached its destination, but in due time a reply was received by Mr. Deane from his daughter stating that she would not forgive her father for his treatment of her and she and her husband would continue to live where they were. This letter was forged by Edna.

Deane fell sick after this, and Edna took care of him, he being entirely dependent upon her ministrations. During his illness he was obliged to rely upon her for assistance in the execution of certain papers, whereby it became evident that he possessed a considerable property.

At once it became Edna's object to induce him to make her his heir. He was gradually sinking, and she dominated him in his weakness. A few days before his death she induced him to permit her to send for a lawyer to make a will. Mr. Deane gave orders when the man arrived that he be shown to the sick-room and no one else be admitted. The will was executed and Edna informed that all the property had been willed to her. But the attorney was instructed to retain possession of the document. Being assured by both men of the truth of this statement, Edna was satisfied and content to wait for the end, which was a matter of only a few days.

After the death of Mr. Deane Edna called on the lawyer who had drawn the will and asked to see it. It was shown her, and she read that all the testator's property was willed to Edna Tiernan Thorne.

Edna was not so dull as to suppose she could inherit under this will unless married to Thorne, and even then, the property having been left to her as Edna Thorne when she was Edna Tiernan, she doubted if the will would hold good. Without a word to the lawyer she went away to find Thorne. On meeting him she told him of the situation. On hearing it his face fell. He had married another woman, keeping his marriage a secret from Edna, fearing that she would make trouble for him. Being a grasping man, he regretted his marriage, for Edna now gave him to understand that the Deane property was considerable.

Edna was crushed at the failure of her efforts. She confessed to the attorney for the estate that she was Edna Tiernan, but not Edna Tiernan Thorne. He told her at once that the will was void and that if no valid will was found Hester Deane Martindale being heir at law, would come into possession of the estate.

No other will was found, but Hester had no difficulty in proving her claim to her father's fortune as his only child. It turned out a surprise to every one, it having been supposed that Mr. Deane was in very moderate circumstances.

The only offset to Edna's crime was her confession to Hester that she had destroyed her father's letter forgiving and recalling her and had written him a forged reply.

Wilhelmina of Holland Firm For Neutrality

Queen Wilhelmina of the Netherlands (or Holland, as it is commonly known) celebrated her thirty-sixth birthday on Aug. 31 last. About that time she observed the occasion by taking an un-

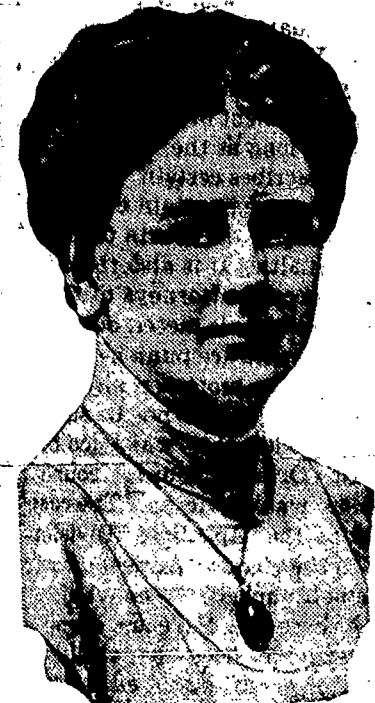


Photo by American Press Association. QUEEN WILHELMINA.

Herse trip in a submarine. Since the outbreak of the European war Wilhelmina has been neutral and has warned the belligerent powers that any violation of Holland's neutrality would be forcibly resisted. She is of German blood, her mother being a German princess, and her husband, Prince Henry, duke of Mecklenburg, is also a German prince. Princess Juliana of Orange, her only child and heir apparent to the throne, is in her eighth year.

GOD'S VOICE.

God is not dumb that He should speak no more. If thou hast wanderings In the wilderness And findst not Sinai, 'Tis thy soul is poor. There thou'rt the mountain Of the voice no less. Which whom seeks shall find. But he who bends Intent on riches still And mortal ends, Sees it not neither hears Its words nor its will. —Lowell.

The Children's Play Corner

Meaning of Names.

Perhaps you will be satisfied with the name that your parents have given to you if you know that it has a meaning. Look in the list below and see if you can find it.

Abigail, a father's joy; Anne and Anna, gracious; Beatrice, happy-blessed; Blanche, very fair; Bridget, strength; Claire, bright, shining; Edith, and Ida, rich gift, happiness; Elizabeth, gift of elves; Enid, spotless purity; Esther, star; Florence, a flower; Gertrude, spear maiden; Helen, Eleanor, giver of light; Illia, battlemaid; Irene, messenger of peace; Joyce, gladness; Catherine, spotless, purity; Lillian, purity; Mabel, merry; Margaret, pearl; Nora, honor and warlike courage; Patricia, noble; Phoebe, the light of life; Rachel, gentleness; Violet, modest grace.

Game of Ghosts.

Ghosts is an interesting game calling for quick, intelligent spelling. It may be played by two or more. The players spell a word, each adding a letter. But if the player adds a letter and completes the word, then that player is for the first word completed one-quarter of a ghost; for the second, one-half a ghost; for the third, three-quarters of a ghost; for the fourth, a whole ghost. When anyone is a whole ghost, he is out of the game and he endeavors to make one of the players speak or answer a question of his. If the player does so, he is then a whole ghost. It is compulsory not to end a word when some combinations of letters are put together. Sometimes, with quick foresight, pitfalls are avoided.

Air, Earth and Water.

This may be played in the parlor or out of doors. Players are seated in a circle. One player stands in the center and calls out to some one in the circle, "air, earth or water—bird" and then counts to ten. If the player in the circle does not answer "air" before the center player counts ten he must take the place of the center player, and the game goes on, objects found on earth, air and in water being mentioned in the same manner.

Headings.

Sehead a fruit and find a pronoun; another kind of fruit and find a useful part of one's head; a blossom and find something less elevated; something not think and find something not young. Answers—Peach; p-ear; flower; p-oid.

PLEA FOR A HALF-NICKEL.

It Would Be Handy in Making Change and Might Reduce Prices.

The ham sandwich, which was once 5 cents, now frequently costs a dime. The same disturbing truth applies to other things in common life, both inside and outside of lunch rooms. There is no need of statistics from economists to inform us that the cost of living has advanced. Every spender of money knows it. Retailers are more reluctant to put prices up than is generally realized. They know that consumption decreases as prices advance. That means less business, and profits depend partly on large business. When more than the traffic will bear is charged the traffic falls off.

Change making is one of the items in up to date retailing. It must be done quickly if expenses are to be kept down. The young woman at the lunch room desk has not time to count pennies. She must deal in nickels, dimes and quarters if she is to maintain her astonishing speed and accuracy.

We need another coin. Three cent pieces were confused with dimes and were hard to use because they were not fractions of other currency. No one but a statistician thinks in decimals. The rest of us do our sums in fractions. Four three-cent pieces make 12 cents, but there is no such coin. Eight of them make 24 cents, but the coin almost corresponding in worth is a cent more. If three cent pieces were again issued they would not fill the bill.

With a half-nickel it would be different. Half a nickel is a fraction of every coin from the mint. Were there such a coin 5 cent rates would not have been so common. If there should be such a coin many prices would come down.—Boston Globe.

SAVING THE RUG.

Tale of a Bottle of Ink, a Quick Witted Friend and Some Salt.

While stopping at a new and expensively furnished hotel a guest spilled a bottle of ink on a costly velvet rug, light blue and pink in color. A friend who was calling on her at the time quieted her fears by assuring her that she would fix it so that not the slightest stain would be left.

First she had a quart of fine table salt sent up at once. Sifting the salt through her fingers, she covered the ink spot entirely. To all appearances there was nothing but a pile of fine table salt on the rug.

Over this she placed a heavy chair, cautioning the guest not to disturb it nor to allow the maid to do so. After promising to return the next afternoon to finish the job she went cheerfully about her own affairs.

True to her word, she made her appearance the following afternoon and removed the salt. There was not the slightest stain of ink on the rug. The salt, having carefully sifted on the spot, had slipped into the pile and absorbed all the ink. Of course the salt, except a thin layer on the outside of the pile, was as black as ink could make it. This method of preventing ink stains is as effective as it is simple. The secret of success lies in acting promptly, having the salt, sifting it on the spot so slowly and gently that it slips into the goods and allowing it to remain undisturbed until it is bone dry. Then it may be safely removed with a whisk broom and dustpan.—New York Sun.

The Seismograph.

Though the man in the street might easily mistake a seismic disturbance for the rumbling of a traction engine or an explosion, the marvelously delicate instruments which record earthquake shocks are immune from such delusions. The recording pen of the seismometer ignores any local tremblings which have not a seismic origin, but the faintest real earth quakings, though they have traveled thousands of miles through the earth, set the pen tracing the telltale graph by means of which the seismologist calculates the place, time and magnitude of the happening.—London Chronicle.

Our First Tariff.

The first tariff act in our country was signed by President Washington on July 4, 1789, near the very beginning of his first administration. Hamilton was the author of the measure, which provided for specific duty on some forty-seven articles and ad valorem rates on other groups of articles. The second tariff act was approved by the president in August, 1790.—New York American.

An Old Superstition.

It was a common superstition in ancient Italy that if a woman were found spinning on a highroad the crops would be ruined for that year. In most sections of Italy a woman was forbidden by law thus to spin or even to carry an uncovered spindle on the highway.

Heard in Court.

"Your honor, I acknowledged the reference of the opposing counsel to my gray hair. My hair is gray, and it will continue to be gray as long as I live.—The hair of that gentleman is black and will continue to be black as long as he lives."—Boston Transcript.

An Originator.

"I never saw a sunset look like that." "Well, what do you think I am—a mere copyist?"—Louisville Courier-Journal.

Picking a Pocket.

"Isn't pocket picking a difficult and dangerous art?" "Yes, till you get your hand in."—Amb.



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