

## HOW SCIENTISTS EXPLAIN THE RIDDLE OF THE TIDES.

It is said that Newton got his idea of gravitation from an apple which fell and struck him on the head. The apple simply fell like a stone or any other body might fall. It became detached from its support and took the shortest path toward the center of the earth. Newton's head intervened, and hence our knowledge of those forces which guide the movements of the planetary system. Newton successfully applied his idea of gravitation to the solution of many problems, among which was the explanation of oceanic tides. He showed that these were principally due to the attraction of the moon. The attraction of the earth holds water on its surface, but the moon, with the assistance of the sun, pulls this out of shape. The resultant distortion is exhibited to us in the form of tides.

Not only are the waters pulled out of shape, but the world is itself distorted. The amount of distortion is very, very little, but, all the same, it has quite recently been measured by Dr. Hecker, of Potsdam. Whether the world behaves like the indestructible indiarubber ball which is the pet dog's toy and yields as a whole, whether it is only a superficial cover like that of the corred golf ball which moves, or whether it is the movement of a something beneath the crust of our world which causes the same to rise and fall as if it were a raft actuated by an ocean swell—to get an answer ask the nursemaid on the pebbly beach. These changes in shape of water and land are due to attractive influences, and twice a day oceans and continents alter their configuration with chronometer-like precision.

Could we remain stationary at a great height and gaze at our earth through a telescope with a very high magnifying power, we should see it both smile and frown. As it turned round to face the sun not only would flowers open and leaves uncurl, but birds would sing, lamp-posts and chimneys would straighten up to attention, and valleys would expand. From 10 a. m. to 2 p. m. the place we were looking at would beam with smiles! As this same place turned away from the sun towards darkness, that which was animate would become drowsy, flowers would close their petals, lamp-posts and towers would stand at ease, while valleys would gently close. The smile on the earth's face would become a frown. We should have witnessed a tide in organic and inorganic nature.

Weight or load depresses every surface on which it rests. A man who leans against a lamp-post does not realize that he deflects it. Two persons standing in the street do not imagine that they are producing two overlapping dimples. Were streets covered with soft rubber they would readily estimate each other's weight. When the barometer rises over a country it puts on a load and a very big dimple is produced on the surface of the same. When the barometer falls the load is taken away and the normal surface is restored. This means that changes in barometric pressure give rise to changes in surface inclination, the ground slopes downward toward the area of greatest pressure. If, therefore, we can measure these changes at the place where we happen to be located we are in possession of information of barometrical effects extending over large areas.

Now if the changes in the weight of the atmosphere will produce measurable deflections, let us ask ourselves what happens when the tide rises on a coast line. Its mass will attract things while its weight will depress the bed on which it rests. When the tide rises in the Irish Sea it will produce an effect similar to that which is produced by a man when he sits on a plank supported at its two ends. The plank sags downward, and so does the bed of the Irish Sea when it is sat upon by the tide.

When the tide rises in the Irish Sea the bottom of that sea is depressed, and the houses in Liverpool bow to those in Dublin. What happens in the Irish Sea happens twice a day in the English Channel and along every coast in the world where oceanic waters rise and fall. Lamp-posts come to attention and salute the rising sun, while cities bow their heads to rising tides.

That the weight of a tide should produce some sort of an effect has long been recognized, and calculations respecting its magnitude have been made. At one place it has now been measured, and its magnitude has turned out to be very much greater than was expected. The instrument employed may be described as a mast with a boom. When the ship rolls to port the boom rolls to port, and vice versa. All that has to be done when our terrafirma rolls is to keep a record of the movement of the boom. To give an idea of the sensitiveness of this type of instrument I may mention that between July 1 and December 31 last year they recorded in the Isle of Wight 279 earthquakes, each of which was confirmed by records from other countries working with similar apparatus.

When the tide rises on the strand two miles from Bidston the boom swings over towards the advancing weight, and as the tide runs out the

boom swings back. If the tide is very high and flows quickly, the pendulum moves far and keeps pace with the deflection due to the increasing load. The amount of the deflection due to the weight of the tide off the mouth of the Mersey is, on the average, about one inch in sixteen miles. If the instrument were placed nearer to the strand, the change in inclination would be greater. It weighs the tide, gives a measure of the elasticity of a certain small section of the earth's crust, shows that all observatories should not be too near the sea, while what it or similar installations may teach us about tidal irregularities remains to be seen.

### FARM AS BIG AS A KINGDOM.

The Farmhouse Cost \$1,600,000 and Accommodates 500 Guests.

"The announcement that Mexico is about to make some effort to curb the princely aspirations of Don Luis Terrazas of the State of Chihuahua promises," says the Bookkeeper, "to bring into the public eye one of the most remarkable and at the same time one of the least known of the world's unusual men."

"Four years ago a German prince traveled 5,000 miles to visit a 'farmer.' This farmer was Don Luis, whose 'farm' Mexicans are beginning to believe is getting too large for the public health.

"In short, it is the biggest farm in the world. In area it ranks with the largest of European kingdoms and empires and would make one of the big States of the Union. It measures 150 miles from north to south and 200 miles from east to west, or 3,000,000 acres in all.

"It embraces whole ranges of mountains, entire water systems, volcanoes, mineral lands and thousands of lakes. Over it roam 1,000,000 head of cattle, 700,000 sheep and 300,000 horses. The 'farmhouse' is the most magnificent in the world—a palace costing \$1,600,000 in gold, superbly furnished and with rooms to accommodate 500 guests.

"Scattered over this vast ranch are 100 outlying stations, each of which has charge of a certain portion of the estate. The cowpunchers, line runners, shepherds and hunters numbered 3,000 mounted men last year, and the total number of employees exceeds 10,000.

"The Terrazas ranch is the only one in the world which maintains its own slaughtering and packing plant. Last year 200,000 head of cattle and 150,000 head of sheep were dressed and packed, 100,000 head of horses were sold, 600,000 tons of hay cut and stacked for use in the rainless season and 200,000 bushels of various grains harvested.

"The running of this colossal farm and ranch is not only interesting because of the magnitude of the operation, but it furnishes as well a valuable object lesson in the management of a people. The total population supported is about 50,000, and there are no happier people in Mexico than those who owe allegiance to Don Luis.

"Not long ago it was claimed by a member of the Mexican Government that if he so willed Don Luis Terrazas could raise an army of 10,000 men, and that every one of them would fight for him—and especially for his beautiful wife and twelve children. The Don's wife is considered by many the loveliest woman in Mexico today, and her five daughters are also beautiful.

"While the Terrazas family entertains hundreds of guests every year and spends thousands of dollars annually in philanthropic work every effort is made to keep out of the public eye, especially to keep out of the papers. It is always impressed upon their guests that to guard this privacy is the only way to retain the Terrazas friendship.

"It is said that no paper in Mexico City has ever published a picture of a member of the family. Guests are welcome to bring cameras, but they are not expected to use them near the Terrazas home or to include in their pictures any member of the family.

"Although the richest man in Mexico, Don Luis personally superintends the work on his huge estate. He is handsome, highly educated and with his family has traveled all over the world. His children will all have been educated in the United States. The home of the family, called Chihuahua Castle, is surrounded by magnificent gardens. When Don Luis is away one of his sons, or perhaps a daughter, takes his place."

### Chinese Proverbs.

A teacher can lead us into the porch, but culture depends on self. An image maker never worships idols.

A crow is black the world over. In beating a dog have regard for its master.

A good hearer is better than a good speaker.

Murder may be condoned, but discourtesy never.

When no money is spent there no grace is gained.

The biggest hand cannot hide the heavens.

Water may run in a thousand channels but all returns to the sea. Better be alive and poor than rich and dead.

Men's minds are as unlike as their faces.

Aims done openly will be repaid secretly.

The cabbage grub dies in the cabbage.

Rotten wood cannot be carved.

## College Course Not Sure Death

By Speaker Joseph G. Cannon



O a bright young man who has anything in him a college course is not necessarily fatal to success. That is my view of it. The college fellow becomes familiar with a great many theories from instructors, who in the main abound in theories and theories only. You do not know a great many of them who could take charge of a large business or build up one to a grand success. You could not learn to do that in any university or college in the country.

The common school system—the high school course—gives the average individual at least fair equipment for practical success in business or in the various callings that men follow who live by the sweat of their faces. That is about all that the average man will utilize. If he goes along four or five or six or eight or ten years getting something more he is losing a very valuable part of his life, but if he is a real student, a real specialist—and he must become a specialist if he is going to devote his life to research and investigation—the college course is necessary for him in order that he become proficient in his specialty. There is always a question as to whether the average student will survive the spoiling effects of a college course. However, you could not stop the collegiate or university course if you were to try.

A very small percentage of the people can spend the time and money necessary to go through college, but there are a great many students who go ahead and accomplish something along the specialties, as there are a great many of them who accomplish something practical in business and in politics notwithstanding the burden of bearing a collegiate course.

The human animal on the average is not worth his salt if he is incapable of making his own way. The greater rewards come in business not in politics. A good business man is much better off than a poor politician. The business man has better chances for advancement and receives greater remuneration.

## War Plans of the Nations

By John W. Foster, Ex-Secretary of State

THERE was never a time in the history of mankind when there was so much danger of universal war, such gigantic proportions and such deadly machinery. For many years the countries of Europe have been armed camps, and at present seem to have reached their limit. Germany today keeps constantly under arms one million men and has on a war footing four million, with the necessary establishment to put them in the field on notice.

France, Austria, Russia and Italy maintain armies and navies on a scarcely less formidable basis. Russia is trying to reinstate herself to a position held before the Japanese war, and our own country since it has attained the position of a world power has become inflated with the mania. Our Secretary of the Navy has called for a navy equal to the greatest and Congress is meeting his demand.

The picture is not complete without a glance at the other side of the globe. Japan has demonstrated that every able bodied male is a fighting man ready to obey the Mikado, and its large navy is still being increased. The Chinese Minister to Germany has hastened home to assume the duty of putting China on a war footing.

We have reached a time in the world's affairs when intelligent men are ignoring the principles of right and justice and are inclined to rest on brute force, but a new force is coming into the world to bring about universal peace when the organized workmen of the world decide that they will no longer go out to shoot down their fellow workmen to satisfy the greed and ambition of rulers.

## Farm Warns the City

Economic Adjustment and Closer Relations Demanded

By Senator McCumber

BY what law, God-given or man-created, have the denizens of cities a greater right to the comforts, the luxuries, the pleasures of life than have the tillers of the soil? The wonderful prosperity of the last dozen years has developed a life of reckless extravagance in this country. The great number of wealthy people now present in every large city has set a pace of high living with which the less fortunate are trying to keep up. Economy and self-denial seem almost to have become a lost art.

The city gait is entirely out of relation and proportion to the more rigid economy practiced by the rural population. There must and should be an economic adjustment upon a plane of closer equality, and this means that we must eliminate some of our most extravagant habits; that we may not satisfy all of our expensive desires.

We make living expensive because we submit to excessive charges rather than deny ourselves some useless luxury. Let us begin our economy at the right point. Let those men who need some expression for their excessive boy-croft spirit turn it toward the \$5 to \$25 a day rooms at their hotels. Let those ladies direct it toward the \$25 to \$50 hat that has not \$4 worth of actual material on it.

When they have done that they will have accomplished a double good—they will have brought these and kindred articles down to a reasonable basis, and they will have saved sufficient means to pay the farmer and the retailer fair and honest compensation for their foodstuffs. They will have given new strength and power to the principle of "live and let live."—Columbian Magazine.

## Palestine a Land of Con- trasts

By Robert Hichens

I HAVE often heard it said that Palestine is not a land of much variety, even that it is very monotonous. If one compares it with other countries, the statement may be allowed to be true; but in spring it affords delicious contrasts of cold and almost grievous sterility with soft and languorous opulence, the contrasts between the heights and the plains. Sad and stony are the hills or sometimes dull in their rounded nudity. Noble Hermon, with its glorious crest of snow, excites the spirit. But as one rides through Palestine,

the general effect of the hills is one that makes for a monotony not free from melancholy. Monotonous, too, are the plains. But therein lies for me their supreme attraction. As one slowly descends into them, picking his way among the bristling rocks, he has the sensation of being taken as by some green and tranquil sea, full of lulling murmurs, and of movements that suggest passivity to the mind. The wild flowers stir in the breeze, the prairies of corn turn to a delicate pallor as the silken wind bends each ear.—The Century.

## FOR BOYS AND GIRLS

Listen, LIT Lady. Ter de dappin' or de dew; Gwina ter Rn de dowers. An' sweeten 'em fer you!

Listen, LIT Lady. Ter a souz dat's fresh an' new; Win' is got a fiddle, A-playin' tunes fer you!

Listen, LIT Lady. Ter de word dat's f'm de akies; De angle wants ter fin' you. Fer de light dat's in yo' eyes!—Frank L. Stanton, in the Atlanta Constitution.

A Clever Colonel. I have a pet cat at my home whose name is Colonel. He knocks at the door when he wants to come in and if no one lets him in he stands upon his hind legs and shakes the door-knob so hard that if the door is not locked he can walk in. But one day the door was locked and when Colonel found that he couldn't get in the usual way he threw himself against it. Clinging with his claws he rattled the key so hard we thought it was a burglar. While we are used to that noise now it still frightens any one who happens to be visiting us.—James H. Newton in the New York Tribune.

Spider Changes His Dress. It is an interesting sight indeed to watch a spider change its skin, and one that will repay anyone for the time taken up waiting for the little known—generally speaking—even to take place. When preparing for the change the spider stops eating for several days and makes his preliminary arrangements by fastening himself by a short thread of web to one of the main lines of his snare, this to hold him firmly while he proceeds to undress.

First the skin cracks all round the thorax being held only by the fore part. Next the lower part of the body is uncovered and then comes the struggle to free the legs. He works and kicks vigorously, seeming to have a very hard time of it. Fifteen minutes of continued perseverance, however, brings him out of his old dress, the struggle causing him to appear limp and lifeless for some time after it is finished.—Geneva News.

### Selecting a Vocation.

It has been estimated that a considerable proportion of those who fail in life are square pegs that have been forced into round holes, or round pegs that have been driven by circumstances into square holes. Many an excellent farmer has been spoiled by his going into the law. Many a good blacksmith has been lost to the demands of industry by going into the pulpit. Many an able writer has been lost because circumstances forced him into a freight-handling office. There are many practitioners of medicine who would have made better locomotive engineers. And the reverse of all these propositions is true. Nor is there disparagement of any calling in making the statement. The fact simply is that environment and the necessities of earning a livelihood frequently militate to the effect of placing a young man into a position for which he is poorly fitted or not fitted at all.

Specialization is the order of modern progress. The very best can be derived from the efforts of men and women only when they have been specially instructed and trained along the lines of their natural inclination. A homely old proverb says that you can't make a silk purse out of a sow's ear. By the same token, you can't make a first-class doctor out of a youth whose devotion is to steam and wheels and electricity, nor can you make a first-class farmer out of a youth who is more interested in the circulation of the blood and the radii of the nerve centres than he is in legumes and the soil value of phosphoric acid.—Savannah News.

### Home of the Shetland Pony.

Just off the coast of Scotland there is a group of islands called the Shetland Islands. On one of this group of Shetlands the men are so large that they are almost giants, for they are tall, strong and broad-shouldered.

Their wives and children, too, are fine looking and intelligent. Only 25 miles away from this island of Fetlar is one called Muckle Roe. There the men are small, ill-shaped, homely, and in fact, look almost like queer little dwarfs. These people are so very loyal to each other that they do not like to welcome any of their neighboring islanders to live in Muckle Roe. For this reason these queer people make very little progress. When the people of Shetland Islands reach the age of twenty they feel rather sure of a long life, for over half of the population live to be seventy years old and many of the people lead vigorous out-of-door lives until they are past eighty years of age.

The Shetland ponies are known the world over. They are shaggy little animals weighing only about one hundred pounds, but they are hardy, sure-footed and sensible. Their coats are usually some shade of brown, though some are of such a rich black that they are considered very beautiful. For this reason the black ponies are the most valuable. The sheep of Shetland are small, having short tails and short horns. Some are white, others gray white; still others are brown or black. Because the wool grown on the native sheep of Shetland is finer than that on any other sheep, Shetland wools are sold a great deal in their natural colors for fancy work. The wool is so fine that it can be spun into threads finer

than lace threads. It is a Shetlander's boast that a stocking made of the wool of one of these native sheep may be drawn through a lady's ring. The cows of these islands are small, and usually marked with several colors. The native pigs of Shetland are unlike the porkers we are used to seeing for they are quite slim on account of being fed on fish. Their meat, too, has a different flavor, for the taste of fish is even in the pork.—Washington Star.

### Pays to be Polite.

It costs nothing to be polite, and the man, woman or child who makes politeness a specialty is not likely to lose anything by the operation. Some six years ago a Breckenridge county boy, Roy Wright by name, decided to try his fortune in the west. He went to San Francisco and secured a position as bell-boy at one of the leading hotels. Recently two wealthy men of Cleveland on their way to the Orient on a leisurely semi-scientific tour, were guests of the hotel where young Wright was employed. They were at the hotel for a week or more, during which time Wright was answering the bell in their apartments. He always appeared promptly when the bell sounded. He responded politely when addressed and he was faithful and expeditious in carrying out orders.

The two Cleveland men liked Wright's appearance and they were pleased with his attention to business and his unstudied courtesy. They concluded they could use a boy of that kind on their Oriental tour to look after their mail and baggage and attend to other odd jobs. They inquired of the hotel manager and he gave Wright a first-class recommendation. The manager said he would regret to lose Wright's services, but would not stand in the way of any opportunity the lad might have of bettering his condition. That settled the question and young Mr. Wright has been engaged to accompany the Ohioans on a tour which will last nearly a year. He is to get a salary which is somewhat of an advance on the wages he was receiving at the hotel and all his expenses are to be paid. It will be a valuable experience for the young Kentuckian and the chances are that his belated days are over. It is pretty certain he will make himself useful and that his employers will see that he is comfortably placed when the Oriental journey is completed.

This little story, which comes to light through the medium of a San Francisco newspaper, shows that it pays to be polite and attentive to business. The boy who pursues a policy will win his way and command respect, whether he is born in the royal purple or next-door to a Kentucky tobacco patch.—Louisville Courier-Journal.

### Blind Boy as Judge.

"Some day I am going to be a real judge—yes, a Supreme Court Judge!" declares Benjamin Apicello, bravely. He is the little blind boy, whom 2,500 pupils of Public School No. 110, at Broome and Cannon streets, have elected supreme judge in their system of school government. Benjamin lives in a little three-room tenement, two flights up, at 125 1-2 Thompson street. He is fourteen years old, tall for his age and would be a handsome little chap, with his mop of curly black hair and straight regular features, if it were not for the half-closed sightless eyes.

Despite his handicap, his school principal, Miss Adeline E. Simpson, says he is one of the very brightest pupils under her charge. Last year he was promoted directly from grade 4 to grade 6. He is an expert typist. Of course his reading is all done in Braille, but he is in the same class with the others in arithmetic, history, geography—everything except actual reading. That he is one of the most popular boys in the school is proved by the fact that he was elected judge without a dissenting vote and a whirlwind of cheers followed the announcement of his election.

"Yes, it made me feel pretty good," he admitted recently in his slow, soft voice. "You see, I wasn't always like this. Until three years ago I could see just like other fellows. And then one day I came out of the school—same school I go to now—and right close to it on the sidewalk I saw three of four brownish looking sticks all wound round with what looked like string. I was a child—I didn't know. And the boy that was with me—he didn't know, either. And he said, 'You take those sticks home and burn off the string and you can sell them and make much money.'"

"I went home. I lived at 93 Thompson street then. My mother, she was in the kitchen but she didn't know either. And I opened the stove cover and I dropped in those sticks. There was an explosion. They blew all into my eyes. And they hurt my mother's ear. And the stove was all smashed and there was an awful noise. And I never can see any more."

The boy's voice had got suspiciously low and shaky. His big brother who was lounging on the arm of the chair, impulsively bent over and swept back the tumbled dark hair with a caressing gesture almost motherly. Then Benjamin smiled. "They are all awful good to me," he continued. "My teacher, Miss Simpson, she is good to me, too. She knows I am especially interested in the study of law."—New York World.