Boni grows desperate as his meal ticket vanishes. Do you know what an "id-determin-

ant-biophole hypothesis" is? Neither Now is the time for the patient Fil-

ipinos to turn the other cheek to the sugar trust. It was poor management to pull off

a total eclipse where hardly anybody could see it. With what is left of the million dol-

lars, doubtless the earl of Yarmouth will be able to get on for awhile without a wife.

Nearly three billion people were carried by the railroads in 1907, some of them were delivered undamaged at their destinations.

A Denver girl has become the bride of a Pueblo chief who cannot speak English. Perhaps she will have a title among the Indians.

not to trim their hats with the plumage of birds. That is a lucky number for the feathered songsters. The Japanese have all they can do

Thirteen women's clubs have voted

to look after their lives at home in a time of profound peace. They are getting automobiles by the cargo.

Argentine farmers just now are busy hauling a big wheat crop to mar-ket. Automobile drummers should pack their grips for South America.

A French inventor now claims to be able to send photographs by wireless telegraphy. What would a sudden wind storm do to Gov. Hughes' whiskers?

About the nearest thing we remem ber to living music heretofore has been the crying of a baby at 2 a. m. as the patient father walked the chilly floor.

Really, Count Boni is a man of spirit. He will make faces at the prince or do something equally dreadful if the latter dares to marry his former wife.

A moving-picture machine exploded in Canton and 300 Chinese lost their lives in the resulting panic. Civilization is dangerous unless one knows how to hande it.

If Prince Helie de Sagan proves as costly a piece of bric-a-brac as did his. cousin, the count, it will keep the Western Union and the Wabash humping to run the show.

The Chinese imperial telegraphs had net earnings during 1906 of \$645,537 on a working capital of \$1,232,000. Evidently the Standard Oil Company isn't the only thing on earth, after all.

Sixteen soldiers in Spain were arrested as plotters against Alfonso because they visited a newspaper office. They will get off scot free, of course, if they declare they called to whip the editor.

Ocean-going ships soon will be fitted with all the comforts of home. About the only thing that will be missed is the village feud and maybe steamship proprietors will be drag ging that in next.

A Newark man was fined \$20 for laughing at a policeman. In most cities the majesty of the law considers itself sufficiently vindicated when it has beaten the mirthful one over the head with a club.

There is in Berlin an artist who is going to marry a widow with \$5,000,-This is excellent. Now let some delightful heiress add to the gayety by bestowing her hand and fortune upon some struggling poet.

A California architect predicts that we shall soon have 100-story buildings. If his prediction is verified it will be necessary for our fellow citizen to build some pretty tall stacks if they expect to keep us choking with smoke.

Science has harnessed the potato bug, as it were, and is making it do stunts in the interests of humanity. That is grand, sweet revenge for all the miserable hours it has brought to boys who had to ."bug 'taters' when the fishing in the branch was

Defects of speech such as stammering are so prevalent in Germany that the government is said to have instituted a campaign against them by establishing a special department in the medical college of the University of Berlin, both for the cure of such impediments and for educating doctors how to treat them. Perhaps the suggestion is unkind, says the Baltimore American, but would not the trouble be more readily disposed of by going to the root of the matter and adopting a new language-one easier to get the tongue around?

Bee-stings, mustard-packs, and other uncommon remedies for rheumatism will have to take second place, in the matter of oddity, to a cure discovered in Australia. A whale, stranded on the beach at a health resort, had been cut open, and a freakish invalid plunged into the mass of blubber, remained there two hours, and found himself free from rheumatism when he crawled out. The incident seems to be vouched for, and although the prescription is more novel than enticing, probably many sufferers would like to catch a whale and try it.

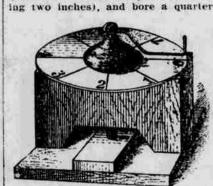


A MICROMETER.

Instrument for Delicate Measurements Which You Can Make.

It often becomes necessary for the experimenter or practical worker to find the thickness of material so thin, or inconvenient to measure, that the thickness cannot be found by means of foot rule or other common measuring device. A simple, fairly accurate and easily made apparatus of the micrometer form may be constructed as follows, explains Dr. Thomas R. Baker in Scientific American.

Get a common iron or brass bolt about one-quarter of an inch in diameter and 21/2 inches long, with as fine a thread as possible, and the thread cut to within a short distance of the head of the bolt. A bolt with a cut in the head for a screw driver should be used. Clamp together two blocks of wood with square corners about one inch wide, three-quarters of an inch thick and 21/2 inches long with their narrower faces in contact (the width of the clamped blocks be



A Home-Made Micrometer.

inch hole through the center of the blocks in the two-inch direction. Now remove the clamp and let the nut of the bolt into one of the blocks so that its hole will be continuous with the hole in the wood, then glue the blocks together with the nut between them Cut out a piece from the block combination, leaving it shaped somewhat like a bench, and glue the bottoms of the legs to a piece of thin board about 21/2 inches square for a support. Solder one end of a stiff wire about two inches long to the head of the bolt at right angles to the shaft and fix a disk of heavy pasteboard with a radius equal to the length of the wire, and with its circumference graduated into equal spaces, to serve in measuring revolutions and parts of revolutions of the end of the wire, to the top of the bench; put the bolt in the hole, serewing it through the nut, and the onstruction is complete.

The base is improved for the measuring work by gluing to a central sec tion of it, covering the place where the end of the bolt meets it, a small piece of stiff metal; and it is convenient to have the graduated disk capable of rotating, so that its zero line may be made to coincide with the wire.

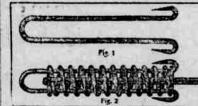
Find the number of threads of the screw to the inch by placing the bolt on a measuring rule and counting the threads in an inch or half an inch of its length. The bolt in making one revolution will descend a distance equal to the distance between the threads.

To use the apparatus out the object whose thickness is to be measured on the base under the bolt, and screw the bolt down until its end just touches the object, then remove the object and screw the bolt down until its end just touches the base, carefully noting while doing so the distance that the end of the wire moves over the scale. The part of a rotation of the bolt, or the number of rotations with any additional parts of a rotation added, divided by the number of threads to the inch, will be the thickness of the object. Quite accurate measurements may be made with this instrument, and in the absence of the expensive micrometer it serves a very useful purpose. I have used it in the beginning classes in electricity for measuring the diameter of wire, for finding the numbers of wires from reference tables and for making various other measurements.

HOME-MADE DRAFT SPRING.

How One Can Be Made from Old Machinery Spring.

A draft spring for are on the evener or tongue of agricultural implements. to relieve the jerk on the horses' shoulders, may be made from any old



The Draft Spring.

corn-plow or machinery spring. Two loops are formed as shown in Fig. 1 from 38-inch round fron, Insert one loop from each end of the spring as in Fig. 2. The clevis or pulling trace may be fastened in either end.

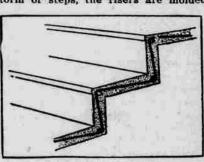
Smallest Electric Motor. smallest motor in the world. It is of rubber country is being worked unused as a scarf pin and is run by a der a concession granted by the Natal battery in his pocket. He keeps it in government, and regular shipments constant operation.

TO MAKE CONCRETE STEPS.

Directions for Putting in a Permanent Improvement.

Concrete may be used in the construction of steps, particularly in damp places, and in the open or where the ground is terraced, concrete steps and walks can be made exceedingly attractive. Where the ground is firm it may be cut away in the form of steps, with each step cut two or three inches lower than its finished level.

When the nature of the ground will not admit of its being cut away in the form of steps, the risers are molded



Reinforced Concrete Steps.

between two vertical forms. The front one may be a smooth board, but the other should be a thin piece of sheet metal, which is more easily removed after the earth has been tamped in behind it, says the Concrete Review. A simple method of reinforcing concrete steps is to place a half-inch steel rod in each corner, and thread these with quarter-inch rods bent to the shape of the steps, as shown in the sketch, placing them about two feet apart. For this class of work a rich Portland cement concrete is recommended. with the use of stone or gravel under one-half inch in size. Steps may be given one-half inch wearing surface of cement mortar mixed in the proportion of one part cement to two parts sand. This system is well adapted for stairways in houses.

SCOOP THAT WEIGHS.

Does Away with the Necessity of Employing Counter Scales.

Every grocer can scoop up sugar or coffee, etc., from the storage bin and very closely gauge the correct quantity. Yet he would not be willing to give it to the customer as the full weight to be purchased without first testing it on the scales. A Texas man has hit upon the idea of having the scoop indicate the weight of the contents, eliminating the necessity of transferring it to scales. His weighing scoop is shown in the accompany-



Scoop Which Indicates Weight.

ing illustration. The pan for gathering up the article to be weighed is pivoted to the handle and operates a pointer, which indicates the weight of the contents on a scale. If a pound of sugar is wanted the grocer dips enough out of the bin to swing the pointer to the pound mark. The sugar is then transferred directly to a bag, doing away with the necessity of weighing on

TESTING A BRIDGE.

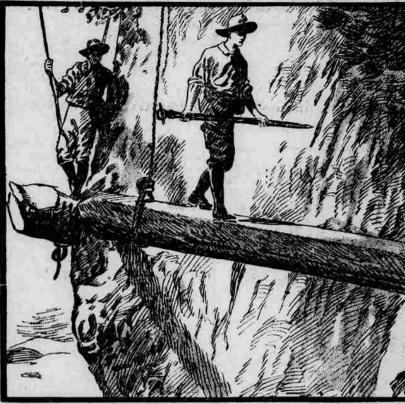
Severe Strain Placed Upon the New Rodah Bridge at Cairo.

The Rodah bridge at Cairo is pracically finished as far as the structural work itself is concerned. This bridge is now undergoing the official tests, but it will not be publicly opened to traffic until the terminals of the structure are finally completed, together with the approaches at one end. This is a work that will probably take some time to accomplish. The tests are of a severe character, dead weights of sand and steel rails being piled up on each pier in succession, exerting a pressure of 1,000 tons. Subsequently live weights of steam rollers and tramears loaded with sand and water carts filled with water are to be run on the bridge, with a total pressure of 460 tons on the main girders. The tests so far have been, so we gather, satisfactory in their results. No fault or strain has been revealed in the material.

How Ancients Did. By rubbing metals with salt, before applying mercury, the ancients obtained a reaction similar to that for which copper sulphate is used. The chlorine released from the salt formed a silver chloride easily attacked by the mercury, so as to form an amal-

gam. First Rubber from Zululand. A first shipment of Tongaland and Zululand rubber has been dispatched A German mechanic has built the to London from Durban. A large tract are expected.

PERILOUS WORK OF RAILROAD PIONEERS



as those crossing Canada are not apwith the obstacles encountered. In many places the roadbed has to be blasted out of the face of a sheer cliff, possibly overhanging a mountain stream hundreds of feet below. In order to mark the way it is necessary the top of the cliff, to enable them to tual construction of the road begins.

The difficulties and dangers of build- | obtain a foothold. Moving cautiously ing a transcontinental railroad such along this perilous path, where the slightest slip would send them to preclated by the layman, unfamiliar death, they work their way, examining the geological formation and making notes of the cutting that will be required. The ax men go first, then follow the transit men to ascertain the distance and angles, the levelers, rod, men and topographers, each with for the surveyors to hang logs from their work to perform before the ac-

MEANS VAST OUTLAY

COST OF ELECTRIFICATION OF ALL RAILROADS.

Estimates Made Show That a Billion and a Half Dollars Would Be Needed to Make the Change Desired.

The advisability of wholesale electrification of all the railroads in the country has been formally considered abstract before the electrical engineering associations, and the question has been found so great that the meetings were marked more by contention and argument than by definite results. Figures presented show the estimated expenditure involved should every mile of railroad in the United States be reconstructed for operation by electricity and the rolling equipment changed to correspond. The total cost of such a change is given at about \$1,500,000,000. Electrical powerhouses to give a total of 2,100,000 kilowatts or 2,800,000 horsepower would be required. Fifteen hundred millions of dollars is a sum so vast that it means nothing to the average person, and yet it represents an investment so stunendous that only an extremely small portion of it can be considered to have any relation to the im-

The economy of such a change has siderable. Present operating costs for that this undergrowth, after the car the movement of every car and engine in the country total \$1,400,000,000 In one year. By electrification this would be reduced by about \$250,000, 000, representing that much actual and net saving. This last sum is indeed enormous, but it only emphasizes the magnitude of the project of universal electrification; for the most radical advocates of the new power have not yet dared to claim that the saving. large as it seems, would warrant the change in its entirety.

Under certain special conditions, however, the new power will stand supreme, and it is by the extension and more general application under these peculiar circumstances that electricity will one day, in due time, come into its own on the railroads.-Clyde Fennimore Burns, in The World To-Day.

Stopped Train to Help Girl.

The gallantry of an engineer and nembers of a crew of a passenger train on the Milwaukee railroad resulted in the rescue of a blushing schoolma'am from a curious predicament, according to a dispatch from Scotland, S. D. The incident occurred at Kaylor, a new town about midway between Scotland and Tripp.

The young woman was hurrying to catch the early train, and in order to reach the station platform had to crawl through a barb wire fence. Her skirts became entangled, and the more she struggled the tighter grew the clasp of the fence upon her.

The engineer saw her predicament and promptly applied the brake, so some one could go to her rescue. The rescuers were the conductor and the members of his crew, and after some little time they succeeded in separating the clothing of the young woman from the sharp barbs on the wire. Naturally the young woman did not volunteer to give her name, and the engineer and others who had gone to her rescue were too gallant to ask it.

Automatic Umbrella Delivery. The railroad stations of Berlin are machines which, on the insertion of 50 cents, will deliver an umbrella. A ticket will also drop out, and, on preCAR BROKE FROM TRAIN.

Solution of Mystery That for a Time Puzzled Railroad Men.

One night a long freight train broke in two as it was coming arour a sharp curve on the Erie road between Buffalo and Corning, N. Y. The engineer put on all speed and ran away from the hind section in order to give the conductor and brakeman on the rear end a chance to stop their section. This they succeeded in doing a quarter of a mile or so, and then the engineer backed the forward section, coupled on to the rear section and proceeded to Corning, the end of the division.

The conductor who was to take the train over the next division discovered in looking over his train that he had a way bill for a car which was not among those delivered to him. The other conductor was certain that he had the car when he started for Corning, and showed its number checked off in his report.

No solution of the mystery came for long time. Then some boys came across the missing car at the bottom of a ravine below the curve on which the freight train had broken in two.

It is supposed that when the rear section of the broken train started to round the curve this car had jumped the rails, broken the coupling holding it to the car behind, and cleared 20 or 30 feet down the bank before strikbeen estimated, in prospect, as conhad rolled past, had righted itself and given no indication of having been dis-

BRITISH ROADS IN BAD SHAPE.

Over-Capitalized, They Have Hard Work to Earn Dividends.

According to P. W. Wilson, M. P., British railroads are capitalized at \$6,430,000.000. This is less than half the American total, but four times as much per mile. The railroads, expensively built, with renewals being added to capital at the rate of \$75,000. 000 a year, with receipts increasing only two per cent, a year and the dividend rate steadily falling, are loaded with \$300,000 a mile of capital.

Practically all the stock of English railroads is held not for control, as here, but for investment, and the owners demand dividends. But capital increasing faster than business has gradually forced dividends lower. Nondividend stocks are fewer than with us, but the great mass of securities pay between two and four per cent., and the general average for a generation has been:

Period. Dividend. Period. Dividend. 414 1891-1895 3.80 4 29 1896-1999 3.64 4 22 1901-1965 4 3.38 1871-1875

The owners of British railroads, by years of "after us the deluge" in sistence upon dividends at the cost of watering capital, have got into as bad a condition as American frenzied finance reaches in its most pyrotechnic flights. The service is unprogressive, improvement is delayed and the demands of laboring men go unheard. It is at base a disquieting sit nation.

Dog Understands Signals.

The New York, Susquehanna & Western railroad has a cur dog that understands the block signal system as well as most engineers. His name shortly to be provided with automatic is Boscoe. This quaint mongrel rides in the cab of a locomotive and watches the semaphores. If an arm is up, meaning that the block ahead senting it within two days to an office is not clear, Boscoe growls ominously, of the automatic society, 50 cents will and the engineer takes warning. If be paid back in return for the um- the arm is down, indicating a clear track ahead, Boscoe barks joyously.

Berry Dumplings

The winter dessert of apple dumplings may be replaced by some made with raspberries or other berries. Serve with hard sauce into which is beaten as much of the crushed fruit as it will take without separating.

New Use for Fly Paper.

I have discovered a new use for sticky fly paper. I found that if a mouse puts his one foot on the paper he would put his other foot on, too, and it will hold him fast.-Chicago Tribune.

Diabolo in the Past.

More diabolo discoveries. In the National Library at Paris are two prints, one entitled "The Game of Disbolo at the Beginning of the Last Century;" the other entitled "The Devil for Four (the old diabolo)." Two couples are playing diabolo excitedly in a room; the furniture is upset and the mirrors broken. Another design is "The Good Devil, How He Goes!" A young woman throws a big, simple fellow in the air, and from his pocket fall pieces of gold. In the same picture is another weman, with her diabolo cord round the neck of a man, with the inscription below: "See how we lead them!" Diabolo raised a furor in France in 1812. It was then, according to the Figaro correspondent. imported from England, and an English caricature of a later date represents a great Wellington sending to St. Helena's a very little Napoleon rithing on a diabolo. Long before the revolution of 1789 some missionaries in Peking sent an exact reproduction of diabolo to a French minister of state who collected Chinese curiosi-ties. The Chinese are always found to have forgotten everything we are beginning to learn!-Dundoo Advertises

How to Keep Warm in Winter.

The clothiers intend to keep women warm if one may judge from the many new "protectors" on the underwear counters.

Separate knit sleeves at the knit underwear departments are among them. Then, too, there are Shetland vests with or without sleeves that give a maximum of warmth with a minimum of bulk, and union suits of the same gauzy wool. Bloomers of satin. mohair or sateen, some lined with albatross, are in the same category, being snug extras for wet or bitter These bloomers for wet weather for the woman who is out at all times and seasons are ideal, since they take the place of a skirt and a

damp hem about the feet. No More Dark Brown Sugar.

"You have no idea," said the wife who is also an excellent cook, "how difficult it is to make molasses cookies and gingerbread and brown bread so it will have the same flavor that it had in the days now past. And why? Because it is wellnight impossible to find the good old-fashioned dark-brown sugar. That's the secret of it. There was a time when one could get different grades of brown sugar, that which was least "refined" being very dark and vastly sweeter than the light brown or "C" sugar, as it used to be called But those days have passed and I suppose that never again will my cooking taste quite so good.

"Of course the younger people, those who have never known the exquisite flavor of molasses candy and molasses cake made with the dark sugar, cannot realize the difference, Happy mortals they! As for myself, I am constantly looking for the sugar of my childhood, and there is not a week but I have my hopes raised by some storekeeper telling me he has it; but he is mistaken—it is the light brown sugar he has, and not that which I

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