

Science Invention

The varying color of a vacuum tube containing krypton, seen by some as lilac and by others as green, is explained by Prof. W. Ramsay to depend on the size of the yellow spot of the retina.

To illustrate immensity and minuteness, J. E. Gore cites the fact that the nearest fixed star is 271,000 times as far away as the sun, and that a specimen of certain infusoria can lie between two lines of an inch space divided into twenty-five thousand parts.

Obesity is regarded by Dr. Gabriel Leven, a French physician, as a nervous disorder. It is not a disease, but a symptom arising from various conditions, with some disturbance of nutrition—usually a kind of dyspepsia—is the foundation. Treatment is directed to the dyspepsia.

It is difficult to account for the enormous velocity of some birds' flight when migrating. The northern blue throat goes at the rate of 540 miles an hour, flying 4,800 miles from Egypt to Heligoland in a spring night of barely nine hours. Virginian plover fly from Labrador to North Brazil, 9,600 miles, without stopping, going at the rate of 430 miles an hour, and probably more. How can this speed be attained? The birds resort to great height, where the resistance of the air is light.

One of the puzzles of geography has been the question of the situation of the sources and upper portions of the three great rivers, Hoangho, Yangtze and Mekong, all of which start from the lofty plateau of Tibet. Two of the rivers traverse China; the Mekong makes its way to the sea between Anam and Siam. This puzzle has been partially cleared up by the explorations of the Russian Captain Kozloff during 1900 and 1901. He found that the three rivers flow on the surface of the great plateau, 12,000 feet above sea-level, and are separated from one another by parallel ranges of mountains rising about 3,000 feet above the plateau, and running in a northwest and southeast direction.

The fact that the sun when poised on the horizon sometimes appears greatly distorted, or drawn out into the form of an oval, is well known, and the explanation is very simple, namely, the rapid change in the refractive index of the air near the horizon, in consequence of which the lower edge of the sun appears to be lifted with reference to the upper edge, and so the disk looks as if squeezed between top and bottom. Recently Professor Prinz, of the Brussels Observatory, has obtained several large scale photographs of the setting sun which distinctly show the deformation of the disk, and render its measurement very easy. In one case the vertical diameter is to the horizontal in the ratio of 75 to 84. Sometimes the distortion is greater than that.

Excavating by Compressed Air.—In sinking the Brooklyn caisson for the third bridge over the East River, it has been found possible to make compressed air do the work of shovels in removing the sand, through a thick stratum of which the caisson is being forced down toward the bed-rock deep beneath. The sand is so pure and loose that the force of the compressed air supplied for the workmen in the caisson suffices to drive it up through blow-pipes inserted into the caisson for the purpose. Jets of water are directed against the sand around the bottom of the blow-pipes, and when thus dislodged the sand readily passes up through the pipes with the strong air-currents that are continually pouring into them from the compressed atmosphere of the caisson.

A WALKING STICK AS A MEASURE

Heights of Objects Ascertained by Help of a Cane.

A walking stick is an invaluable article to accompany one on a walk, for it can assist you in other ways than in leading your progress. Suppose you want to measure the height of a cliff, a church steeple, or some other tall object, and the sun shines not, and therefore no shadow is cast. The walking stick will none the less assist you to tell its height. This time take a distance some 120 feet from the object which you wish to measure, and in the ground at that point firmly plant your stick. Then move along from it in a straight line until by lying down on another earth the top of your stick and the top of the object to be measured will to your eye be on a line. This spot you will mark. This gives you three points—one, where you lay down; two, your planted stick, and three, the object to be measured. Now, the distance from the point where you lay down to the stick is to the distance from the stick to the object to be measured as the height of the stick is to the height of that object. Thus, suppose the point where you lay down is six yards from the stick and thirty-six yards from the object, then the object is six times the height of the stick. Now, the stick you know to be three feet high, the object measured is therefore approximately eighteen feet.

It is a fairly easy thing to obtain the measurement of an object if you but have a rule or a compass. The trouble is that usually when one wishes to judge a distance a standard to go by is sadly lacking. There are, however, ready substitutes if you but know how to use them. If the sun be shining you can get the cardinal points as easily with your watch as with a compass. Point the twelve on the dial toward the sun. Half way between the point at which the hour hand is and the figure 12 will be due south. That point lo-

cated north, east and west follow, as of course. Without explanation this sounds like legerdemain, but it is in reality simple and easily understood. At noon the sun is due south and the hour hand pointed toward 12. The sun and the hour hand both travel forward, but as the hand goes around the dial twice in the twenty-four hours and the sun revolves about the earth but once in that period of time, it follows that the hand's speed is double that of the sun; therefore, by dividing the distance touched by the hour hand from 12 you find south.

People who live much in the open, as do ranchers and farmers, can generally tell time fairly accurately by the sun, and some, although the feat is seemingly more difficult, can tell time from the length of the shadow thrown by the sun. The shadow is, however, an easy way of determining heights. For example, suppose you wished to ascertain the height of a tree when walking. Place the shadow of the tree made by the sun and then plant your walking stick and pace its shadow. As many more or less times its length as the shadow is will give you the distance of shadow thrown by the sun. For instance, suppose the shadow to be three times the length of the stick, then it is nine feet, for the stick is three, and if you then divide your paced distance of the tree's shadow by three you will get fairly near the actual height of the tree.—New York Tribune.

MR. SCHWAB IN NEW YORK.

Only Captain of Industry Who Prefers to Work for a Salary.

Mr. Schwab represents the highest development of the salaried employe, writes Samuel E. Moffett, in an article concerning the president of the United States Steel Corporation in the Cosmopolitan. Other men comparable with him as generals of industry have seen graduated from the pay roll to work for themselves. Rockefeller, Hill, Spreckels, Mills, Stanford, Huntington, Hopkins and Carnegie all began poor, but all turned their energies to putting themselves into a position in which everything amassed by their brains would go into their own bank deposits. Schwab alone has been content to remain a glorified wage-earner, cheerfully putting ten millions into the pockets of his employers for every million retained by himself.

Mr. Schwab is a socialist in disguise. He recalls the difficulty a worker found under the old individualistic system of securing a foothold in business for himself. His savings would not buy a factory, or a partnership in one. The exceptional man could save enough to start a little workshop and he could add to his business from day to day until with good luck he had built up a great industry, but the average wage-earner could never hope to be his own employer. Now a man with any thrift at all can buy a share of stock. A little later he can buy another share. Before he knows it he is perceptibly a partner in the business that employs him.

This Mr. Schwab believes to be the direction in which evolution is going to carry our industrial system. He has given his views a dazzling illustration in his own person. In his case it has been not merely the purchase of one share at a time out of weekly savings, but the acquisition of blocks of stock as a reward for conspicuous ability.

Taxes Were Too Onerous.

From Pottsville comes a story of an old chap who is proud to describe himself as the original anti-expansionist. Soon after the breaking out of hostilities with Spain and the passage of the war revenue act by Congress he began to orate against the new taxes as an exhibition of federal tyranny. He would fairly froth at the mouth as he denounced the war tariff and would darkly hint at the possibility of a latter day Patrick Henry and a new awakening of the people to a sense of the injustice. A severe cold laid him low, and his doctor, finding him asleep one day and thinking a little blistering would do him good, applied a fine large mustard plaster to the old fellow's back. The burning, stinging bite of the heated mustard awoke the crusty patient. He rolled over in agony for a minute or two, clapped one hand behind him, felt the plaster, and, frantically tearing it off, roared:

"Has it come to this, that an old man like me can't even die peacefully in his bed without having the government come along and clap a revenue stamp on him?"—Philadelphia Times.

He Ate "Innards."

An actor who was accustomed to spend his summers in Wilton, Me., noted when, as the custom was, a farmer "killed a critter," the liver, sweetbreads, kidneys, etc., were thrown away. He offered to purchase these delicacies, but, though he got the goods, the "sturdy farmer scorned his proffered gold." Not long after he observed as he walked through the village that he was the cynosure of all eyes, and was followed by a wondering, if not admiring, crowd, chiefly composed of the young. "Ah!" thought he, "I can not escape my fame; my glory as an actor has followed me even to this obscure hamlet." And he was mightily puffed up till he overheard one yoke shout to another: "Bill, there goes the feller what eats innards!"—Boston Journal.

No Pneumonia in the Arctic.

Pneumonia is practically unknown within the Arctic circle, observes Dr. E. W. Kelsey, who has returned to England from a sixteen months' stay in Alaska.

We never did admire the sort of woman who refuses to work, but who is willing to charge other women for enrolling them in useless clubs.

NATIONAL PRINTERY.

GIGANTIC BUILDING IS NEARING COMPLETION.

Will Have a Floor Space of Over Fourteen Acres and Nearly 4,000 Presses Will Find Employment—127 Presses Will Be Running.

The new government printing office is approaching completion and will be a gigantic affair, writes Rene Bache, the well-known Washington correspondent. It will cost \$2,000,000, and will provide a total floor space of over fourteen acres—more than two and a half times the floor area available in the present establishment. As yet the building is entirely covered with scaffolding, but it is substantially finished, except for the interior woodwork and painting. It will be the greatest printing shop in the world, employing the services of nearly 4,000 people. Accurately speaking, 3,889 persons will toil under its mighty roof, nearly 1,000 of them being women and girls. Each year it will expend the enormous sum of \$4,000,000, nearly three-fourths of it for labor, and in its main composing-room 824 printers will be engaged in sticking type. Eight hundred and eighty-five employes will be occupied in binding the books and documents produced, and an additional 935 will do nothing but fold the printed sheets. Figures like these give a notion of the gigantic scale on which the shop will be conducted. Each twelvemonth it will consume for bindings the skins of 36,000 sheep and 11,000 goats. In addition to 75,000 square feet of "Russia leather," made from cowhide. It will use up in a like period 8,000 tons of white paper, 40,000 pounds of printing ink and 37,000 pounds of glue, together with 7,000 pounds of thread for sewing books and pamphlets, and 4,000 packs of gold leaf for the titles of volumes de luxe.

One hundred and twenty-seven presses will be constantly in operation in the great building, their total output in a working day of eight hours being just about 1,000,000 impressions. These presses are of every conceivable kind, one of them being capable of printing cards on both sides from a web of Bristol-board at the rate of 65,000 cards per hour, while four other machines turn out 40,000 printed envelopes every sixty minutes. The quantity of type actually employed will be approximately 1,500,000 pounds, or 750 tons.

No other government spends anything like the amount of money on public printing that is squandered by Uncle Sam. In this particular Congress is always disposed to a reckless extravagance, and hence the huge size of the plant required. Public documents are an important requisite of Senators and Representatives, who scatter them broadcast among their constituents. One hundred tons of a single report now in press will be issued and distributed in this manner, and the total number of volumes of various kinds of literature turned out by the office in a twelvemonth is about 1,000,000, representing a total cost of somewhat more than \$1,000,000.

Nowadays government books, like other kinds of publications, require illustrations, and the cost of these ran up to about \$300,000 last year. It is safe to say that ten years from now Uncle Sam's printing shop will spend pretty nearly half a million dollars for pictures. The most costly illustrations are for the reports for the Department of Agriculture and the bulletins of the Bureau of Ethnology, many of these being in colors. Each bureau furnishes its own pictures, but the printing office has them reproduced by firms in Boston, New York and elsewhere. These are printed the illustrations and return them to Washington, ready to be bound with the text.

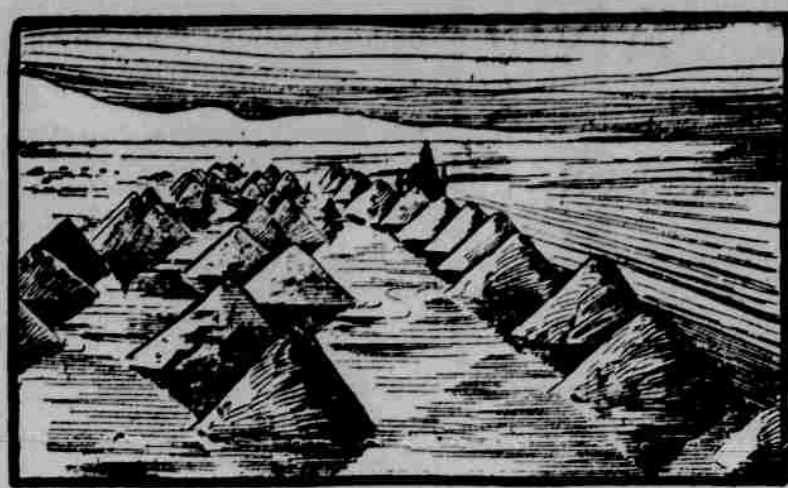
The most important job the big shop has to execute is the printing of the congressional Record. This daily newspaper, which records nothing but the doings of the National legislature, is written from beginning to end by the official reporters of the House and Senate, who take down in shorthand every word that is said at either end of the Capitol. They dictate from their notes to typewriters, and the material thus reduced to typescript is sent over to the printing offices in batches by messengers. The Record is ready for distribution early next morning. One hundred compositors are employed exclusively in the business of setting type for it, one department of the printing office being devoted exclusively to this publication, which is "set up" and sent to press just like any newspaper, being delivered every day to about 9,000 subscribers. Each representative in Congress gets 22 copies daily, while a Senator is entitled to 42. Anybody may subscribe, the price being \$1.50 a month; but the paper is not directly profitable to Uncle Sam, inasmuch as it costs \$125,000 a year.

The printing of bills is another important feature of the work of the establishment. Though only a few hundred of the measures submitted to Congress in a year become laws, millions of copies of them have to be printed. A bill must go through a great many phases before it can become a law, and during the process of its evolution it has to be printed again and again—perhaps dozens of times. If finally passed, a single copy of it is printed on the finest parchment, and this goes to President Roosevelt for his signature.

MAN WITH A BIG VOICE.

Member of the "Spellbinders' Trust" Tells a Story on Himself. Grouped in the lobby one warm day, taking in the light southerly breeze, were half a dozen of the House leaders.

CURIOUS SALT DEPOSITS.



One of the unique sights of California is the remarkable salt deposits at Salton. This region lies in a depression some 300 feet below sea level, and is thought at one time to have been the bed of an ancient sea or lake. The tract of land looks like a vast snow field.

The rock salt deposits cover about 1,000 acres, and are now worked for commercial purposes. The output from this place is about 2,000 tons of salt annually, valued at from \$6 to \$34 per ton. The labor is done chiefly by Indians, who are able to withstand the intense heat of the desert (running up to 150 degrees in June) better than the white men.

The method employed is as follows: The salt is first collected by a peculiar plough having four wheels, in the center of which sits an Indian to guide it. This is run by a cable from a distant dummy engine. This machine cuts a broad and shallow furrow eight feet wide and three feet long, throwing up the ridges on both sides. Indians follow in the wake of the plough with hoes and pile up the salt in pyramids.

Then and there the "Spellbinders' Trust" was formed. The coming campaign and the probable amount of speaking that would be required were discussed at length, and then the members of the trust drifted into anecdotes of the stump.

Charles Littlefield, of Maine, led off. "I'm going to tell one on myself," said he, and soon he had a large and increasing audience, including pages and doorkeepers. Mr. Littlefield's voice, it must be remembered, is famous from Seattle to Eastport, and his constituents in Maine insist that they can hear the rumbling when he speaks in the House.

"It was up in Buffalo in the '96 campaign," he continued. "A local lawyer and I had been assigned to a big meeting over on the tough side of the city. The local man, who was evidently making his first campaign appearance, was introduced first, and proceeded to draw from his inside pocket a manuscript, from which he started to read.

"It was a pretty hard crowd, taken all together, but at the same time they were a bright lot and up-to-date. My friend read on for some twenty minutes under great difficulty, and then the crowd began to cheer and shout in derision. Nothing like this, however, could stop him. All kinds of questions were fired at him, but he paid no attention and continued to read off long lists of statistics. At last the chairman of the meeting signaled the leader of the band to start up. The band played 'Home, Sweet Home,' as a gentle hint, but the speaker only waited until it finished and then continued. At the end of an hour of the worst rot I ever heard, my ambitious friend closed in what he thought was a blaze of glory.

"Three cheers for the speaker—for finishing!" someone yelled. "The cheers were given, and then I was introduced. It was a tough proposition, but I jollied along with the crowd for some fifteen minutes, and then launched into what I thought was my best line of talk. I finished all right, and the chairman said I had made a hit.

"In driving to the hotel after the meeting the local speaker said to me: 'Mr. Littlefield, if I only had your voice, with what I have to say, I would be a wonder!'

Just then a roll call was announced and the trust adjourned.—Washington correspondence New York Herald.

HAS SOUVENIR OF KING.

It is Only a Crust of Bread, but Chicago Woman Prizes It Highly.

A unique souvenir of the banquet given at the Richmond House in Chicago in 1890 by the Prince of Wales, now King Edward VII., is possessed by Mrs. Charles Hunt, of this city. Mrs. Hunt is the mother of Mrs. Moses J. Wentworth, wife of the nephew of "Long John" Wentworth, Mayor of the city at the time of the King's visit.

Mr. Hunt was City Treasurer then, and he and his wife were living at the Richmond House. In deference to the hotel's distinguished guest they gave up their suite of rooms for his use. After the guests had left the dining room at the close of the banquet Mr. Hunt went in with a number of others out of curiosity.

Seeing others seeking souvenirs, and thinking that, as he and his wife had given up their rooms to the Prince they were especially entitled to a souvenir, Mr. Hunt took a small piece of toast from the Prince's plate. He placed it in a little box and presented it to his wife "as a present from the Prince." She has carefully kept the crust, and it is in an excellent state of preservation, a little harder to bite, however, than it was 42 years ago.

In connection with the Prince's toast Mrs. Moses J. Wentworth tells an anecdote. It seems the Prince was not feeling well on the night of the banquet. He had so little appetite that a piece of toast was about all he cared to eat. Having satisfied his slender appetite, and been at the table as long as he wished, he announced, as is usual with royalty on such occasions, "I have finished." This was the signal for all persons at the table to quit eating, rise and then follow the Prince from the table.

Now it happened that "Long John" Wentworth, the Mayor, was a good deal hungrier on this occasion than the Prince was. He had started in to eat something of a "meal," when the

Prince's announcement, "I have finished," interrupted him.

"Well, I have not finished," he exclaimed, in a tone of good-natured but injured protest. However, he arose with the rest and left the table. But he afterward told one of his friends that he took advantage of the first opportunity to "skip off by himself" and get something more to eat.—Chicago Tribune.

English Landlord's Ways.

The secretary of the Tenants' Protective League sends us details of a peculiarly unjust and hard-hearted landlord on the part of a Peckham landlord.

Last December a widow took a house in Peckham upon an annual tenancy, at a rental of £39, and was foolish enough to sign an agreement containing a clause which specified that the rent was to be paid quarterly in advance. She was allowed to enter without any prepayment, and on the 25th of March six months, £19, was demanded, one quarter due and one quarter in advance. This, of course, she was unable to pay, and before March had run out her home was stripped from kitchen to attic of all its furniture save and except what was contained in one small bedroom, where one of her daughters lay dying of cancer.

On Saturday last the broker paid a second visit and made a second distraint, broke the lock and forced an entrance into the sick room, and cleared it of everything, even to the beef tea standing by the bedside, and would have taken the bed upon which the dying girl lay, but was prevented by the accidental presence in the room, when the door was brutally forced, of a well-known Church of England clergyman, who was tending to the girl dying of cancer spiritual consolation. His determined protest saved the girl her bed.

The Tenants' Protective League will take the earliest opportunity of holding a public meeting to protest against such barbarous proceedings. They have accordingly convened a meeting for 3 o'clock on Sunday afternoon on Peckham Rye, where the chairman will give chapter and verse, names and details of the outrageous acts here described.—London Chronicle.

Anecdotes of the Queen's Girlhood.

Mrs. Sarah Tooley, in her recently published "Life of Queen Alexandra," tells some very interesting anecdotes of her majesty. As a child the Queen's surroundings were exceedingly simple. "Mamma," said the little Princess one day, "why may not Dagmar and I wear muslin dresses?" "Because," replied her mother, "your father is not a rich man, and muslin dresses cost so much to get up." There were not many servants at the Gule Palais, where the Queen's early life was spent, and the young Princesses were required to dust their own rooms and to make themselves useful at meal times. A gentleman who was invited one day to partake of the informal family luncheon at the Palais recalls that the butter-dish chanced to need replenishing, and the Princess Louise (of Denmark), instead of summoning a servant, turned to her eldest daughter and said: "Alexandra, will you fetch some more butter?" And the future Queen of England departed on the homely errand to the larder.

Reason for Fear.

The following conversation is said to have taken place between two Boer leaders when it was first announced that the Australians were sending a contingent to South Africa: "I see," said one, "that some people called Australians are coming over here. Do you know anything about them?" "Not much," was the reply, "but I hear that eleven of them beat All England a year or two ago." "Good heavens," cried the first—"and they say that five thousand of them are coming here!"

A Hard-Worked Hero.

"When I starred as 'The Drummer Boy of Shiloh,'" said the eminent actor, "I was on the stage during the entire play and spoke nine-tenths of the lines." "That," said the low comedian, "was a long roll."—Baltimore American.

The matter of kin settles whether a wedding is to be a home or church affair. Aristocratic kin who look well on parade means a church wedding; lots of poor kin means a "cozy wedding at home."

BEASTS SLAIN BY WHOLESALE.

Arizona Ranchers Corral and Shoot Depredators.

For several months past the mountain lions, bears and wolves that abound in some parts of Arizona have been playing sad havoc with the stock of the ranch of Collin Campbell in Cochise County. With 10,000 calves on the range, the heavy losses in calves and yearlings by the ravages of the wild animals have cut down the dividends of the stock company which owns the range.

"Charley" Montgomery, famous all over Arizona as a hunter and who was chief of scouts under Gen. Crook during the trouble with the Apaches, was engaged to exterminate the animals which have been raiding the herds. Montgomery engaged 100 men of the Pina tribe and held a big round-up of the "varmints."

Early in the morning his Indians and a score of the cowboys surrounded a district five miles square in the foothills of the Chiricahua range and gradually closed in toward the center, with 200 dogs in the rodeo. As they reached the center of the circle catamounts, black bears, coyotes and an occasional grizzly bear tried to break through the line, but were met by a shower of bullets. Dozens of animals perished in the attempt to escape, but 200 others were finally cornered in a box canyon, while redskins and cowpunchers picked them off from the rocks above.

There were scores of close conflicts with the enraged and frightened brutes and in one melee four Indians were fearfully mangled by a grizzly before their shots finally finished the bear. One of the reds, Antonio Herme, a former chief of the tribe, received fatal wounds from the claws of a big fellow. The dogs closed in on the victims and dozens of them were killed before the slaughter was complete. The final count showed nineteen dead mountain lions, five grizzlies, two lynxes and over 100 coyotes—doubtless the biggest round-up of wild animals that has ever occurred in Arizona.—Chicago Sunday Chronicle.

CURIOUS LONG ISLAND TRADER.

Has Everything in Stock From Windmills to Trained Horses.

The character in fiction who bought a door plate on which was engraved the name of "Thompson" with a "p," because there might be a daughter who would grow up and marry a man of that name, has a parallel in real life, says the New York Post. This worthy lives on Long Island, where, besides a cozy home, he has a vast barn filled with bargains from a thousand auction sales. No one knows how many objects he possesses in his treasure house. According to rumor there were more than 10,000 a decade ago, and the list has been growing steadily ever since.

On one occasion he secured some ancient circus horses, which were so accomplished that they could do everything but talk, and for many months he tried to persuade his friends and neighbors to start a hippodrome in order to utilize his purchases. On another occasion he notified a party of acquaintances that he had just secured three misfit tomboys at a great bargain. By cutting out letters they would be just as good as new, and would cost only one-quarter the price of first-hand ones.

One evening when he was canvassing for orders a friend who had become wearied of his importunities said: "Look here, my good man, I'm sorry that you never have anything I want, or that I don't want what you are always offering; but I would like to do business with you."

The bargain hunter and museum owner responded: "If there is anything you want I am sure I must have it!"

The other unwarily replied: "There is only one thing I need, and of course I can't get that in this part of the country. It's a steel windmill, like those they use out in Kansas."

To his dismay his companion grasped his hand energetically, remarking: "I knew it, I knew it. I've got just that kind of a windmill in my barn!"

What He Meant.

Slight mistakes in speaking a foreign language or in understanding it when some one else speaks it are commonly nothing more than amusing, but a member of the Alpine Club mentions an instance of a more serious nature. He was climbing one of the Alps with a guide, who persisted in talking bad English instead of indifferent French. "My guide," he says, "had just crossed a snow bridge over a wide crevasse and turned to await me on the farther side. I asked him if it was weak. He answered, 'No strong.' 'Naturally I attempted to walk across it instead of crawling. I had almost reached the other side when the bridge gave way, and after a delicious scramble to save myself I subsided helplessly into the crevasse.

"However, I did not go far, and when I had crawled out, with snow down my neck and up my arms and in all my pockets, I discovered that my friend had meant 'Not strong.' I strongly enjoyed him to reserve his English henceforth for use in the valleys."

A Steady Death Rate.

Lady Tourist—This must be a very healthy village. Now, what may the death rate be?

Old Inhabitant—Wonderful steady, a'm—wonderful steady. One death to each person—right along!

Answered.

Some wag in the audience asked the lady reckoner on the platform a seemingly unanswerable question. Said he: "When was Caractacus vaccinated?" "When Britons sew to arms," was the instant response.