

# A NAUTICAL PROBLEM

FOR YOUNG STUDENTS  
BY SAM LOYD



COMMODORE CLINCH'S  
LESSON IN  
NAVAL TACTICS.

Here are ten battleships advancing in two rows; upon the approach of the enemy four of the vessels change their positions by the shortest tactics, so that the formation of the fleet will show five rows of four-in-line in each row. How can you perform the feat by only moving four vessels? Ten coins may be used to guess the puzzle.

### Guggleheim's Turkey Puzzle.

"There's all the turkeys we have left," said Guggleheim, the market man. "Together they weigh twenty pounds, and the little fellow sells for two cents a pound more than the big bird."

Mrs. Smith bought the little one for eighty-two cents, and Mrs. Brown paid two dollars and ninety-six cents for the big turkey.

Can you tell Mrs. Jones how many pounds the big gobble weighs?



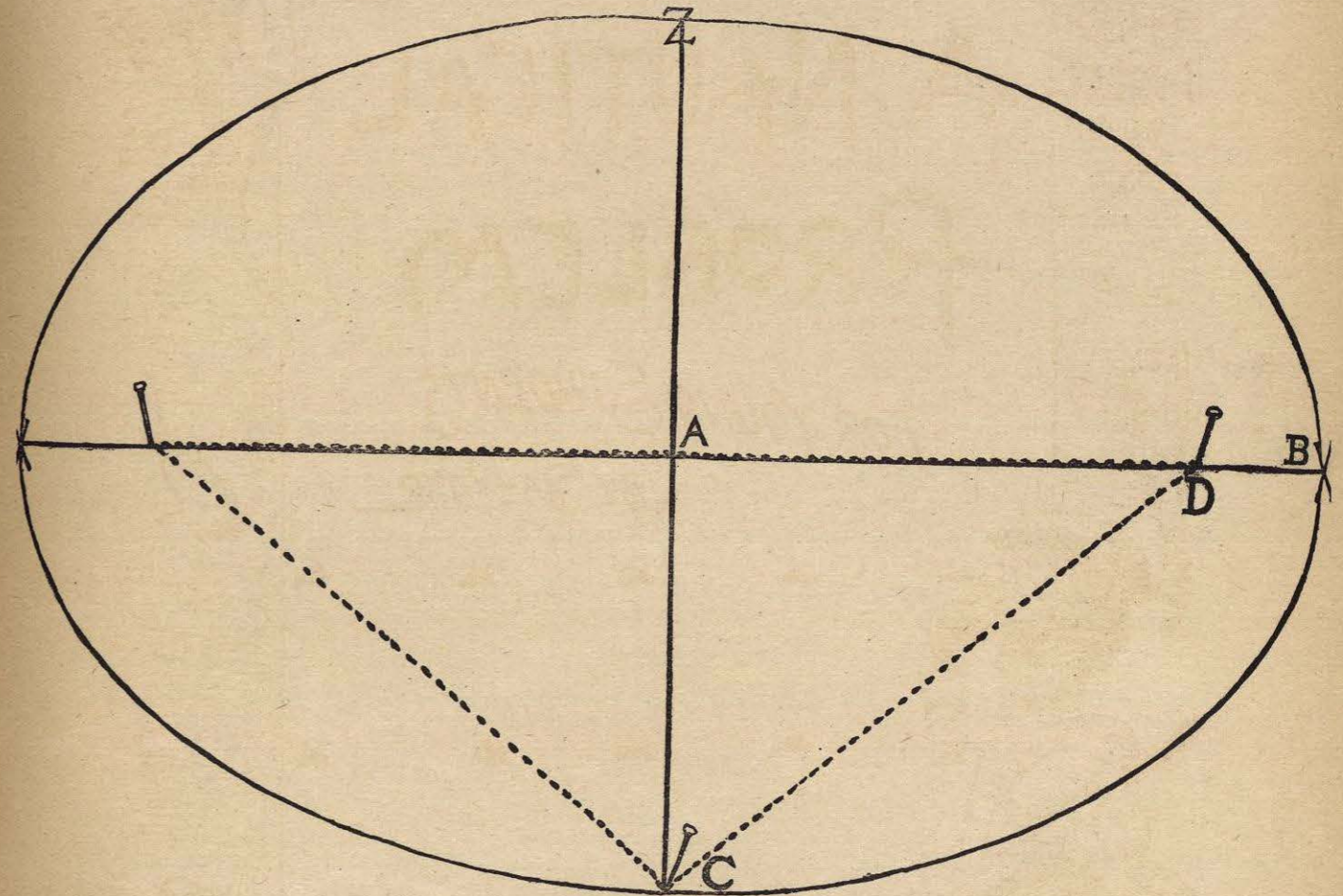
### CAN YOU DRAW AN OVAL?

So many correspondents have inquired regarding the correct proportions of an oval for picture frames, table covers, etc., etc., that we here give the rule for making ovals of any desired dimensions. Those who have occasion to use such generally fold a piece of paper and cut it ex-

perimentally, but never get the classically correct eclipse.

Take a sheet of paper, mark a straight line of the desired length, and a cross line of the width, say 15 inches from *x* to *x* and 9 from *c* to *z*; insert two upright pins on the *x x* line,  $4\frac{1}{2}$  inches from *C* (being equal to half the length of the desired eclipse), with a temporary pin

at *C*; pass a string around the three pins as shown. Substitute a pencil point in place of pin *C*, keeping the string taut while you now describe the oval, letting the string slide on the two pins, and the oval will be a perfect. an eclipse is a symmetrical oval, supposed to represent what is mathematically known as a conic section.

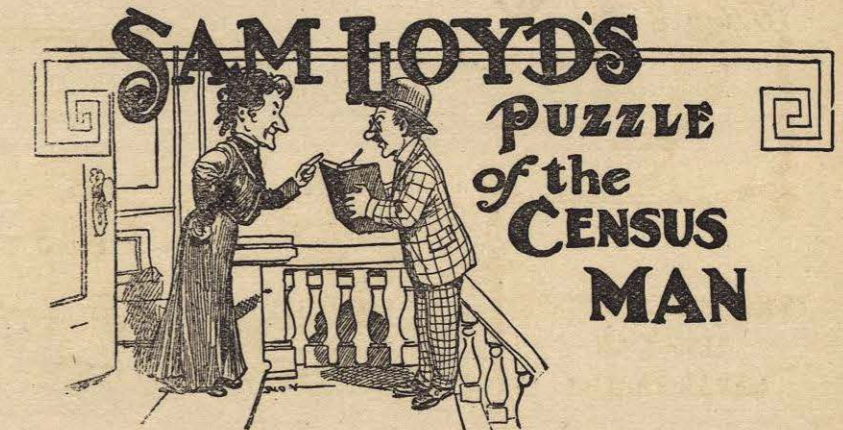


There were two books on a shelf. Vol. I. had 100 leaves, Vol. II. had 150 leaves; if a destructive little book-worm (*Ptinus brunneus*) can bore at the rate of one leaf a minute and through a cover in one hour, how long did it take to bore from the first page of Vol. I. to the past page of Vol. II.?

THRICE BEHEADED.  
Untouched I tell of budding growth and life;  
Beheaded I lead upward more or less;  
Again—with varied fragrance I am rife;  
Again—but little value I express.

In what does a dog differ from a groom in his treatment of a horse? The dog worries him, the groom curries him; the dog bites him, the groom bites him.

Why is a goat in a bedroom like a house on fire? Both should be put out.

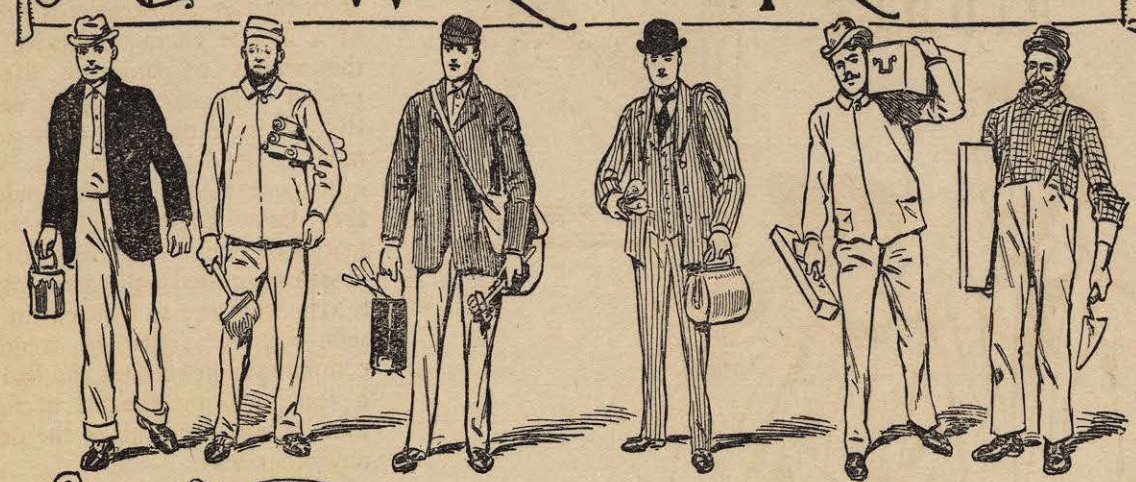


A census canvasser tells of a spinster who, being required to give her age, maintained that she complied with the law by saying:  
"If to my age there added be One-half, one-third, and three times three,  
Just three score years and ten you'll see,  
Which is the age of you and me."

You see, the census man had only to deduct his own age from three score years and ten to know the age of the coy maiden. How extremely simple and pretty!

Why can't they catch a thief who steals a complete harness? He doesn't leave a trace.  
When are cooks cruel? When they beat good eggs and whip sweet cream.

# SAM LOYD'S WORKSHOP PROBLEMS



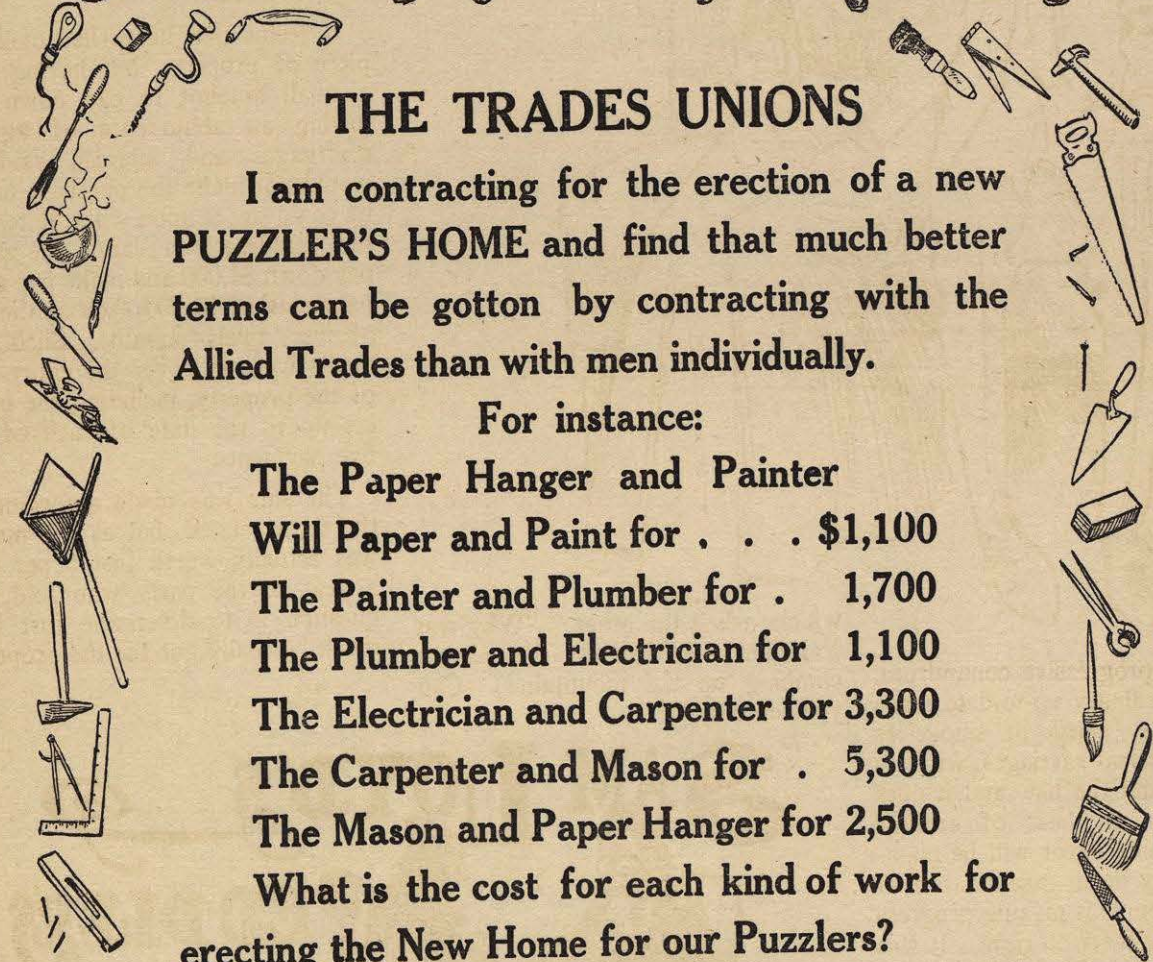
## THE TRADES UNIONS

I am contracting for the erection of a new PUZZLER'S HOME and find that much better terms can be gotten by contracting with the Allied Trades than with men individually.

For instance:

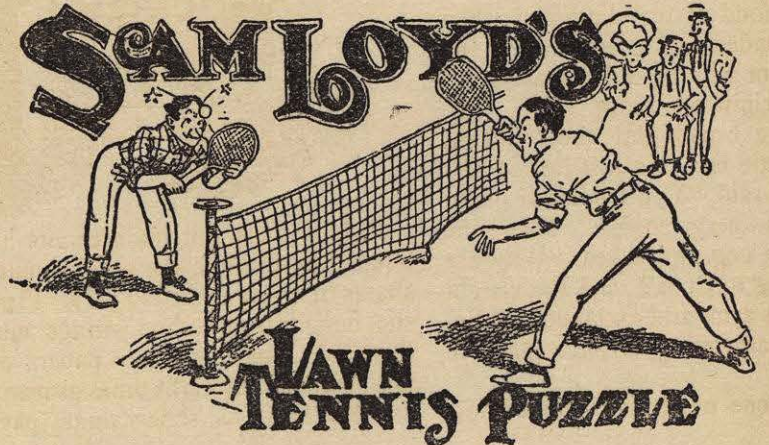
- The Paper Hanger and Painter Will Paper and Paint for . . . \$1,100
- The Painter and Plumber for . . . 1,700
- The Plumber and Electrician for . . . 1,100
- The Electrician and Carpenter for . . . 3,300
- The Carpenter and Mason for . . . 5,300
- The Mason and Paper Hanger for . . . 2,500

What is the cost for each kind of work for erecting the New Home for our Puzzlers?



### LAWN TENNIS PUZZLE.

The annual competitions for the lawn tennis championship are carried out upon the popular knock-out plan, where the losers retire until by such process of elimination the survival of the fittest is elected to meet last year's champion to battle for the championship. When sixteen players compete and the winner must then play with the old champion, it is evident that he must win five straight games, suggesting the simple problem which has given rise to considerable discussion. Before commencing play what are the chances of getting the first prize if all are assumed to be of equal strength? An ex-champion says: "I lost a set the other day, but made 100 points more than my opponent." What was the score?



## PAT'S RIDDLE

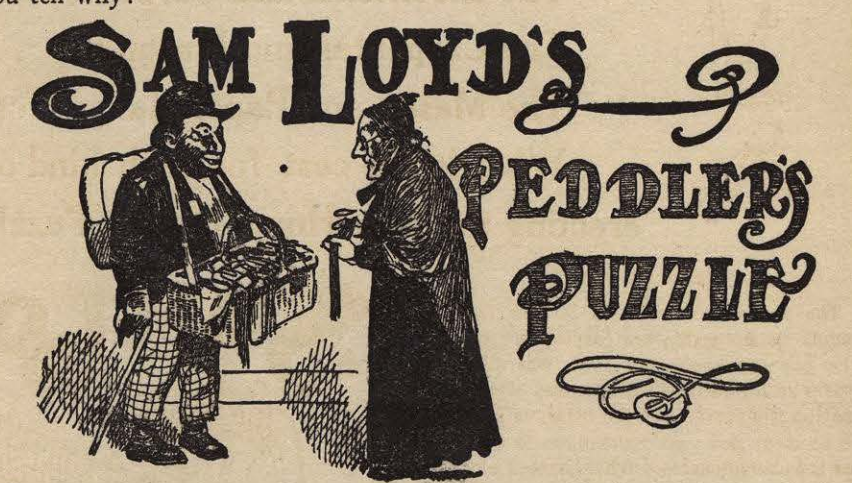


which, asked the other: "Why was Pat like the man in the picture climbing up the mountain?" Can you tell why?

This is a progressive conundrum, not in the ordinary up-to-date sense in which they speak of smokeless powder, horseless carriages, wireless telegraphy, and the like, and it does not illustrate a phase of armless courtship which never will be popular. I merely mean to intimate that this young couple is making progress and is getting there all right. It was getting late, and Anna asked Pat if he was fond of traveling, and when he responded in the affirmative, she asked him why he didn't travel, and that precipitated things.

Such a broad hint never phased him a little bit. He just looked serious and said, "Yes, I think of going to Cuba very soon." Then she slipped a cog and asked, "Why are you going to Cuba?" and Pat caught her in his arms and exclaimed: "Because I am going to have Anna in a hurry!"

Then one of them, I don't know



Peddler Pete got his accounts all tangled up through the peculiar purchases of an eccentric old lady. First she bought some shoe strings and then four times as many papers of pins, followed by eight times as many handkerchiefs as shoe-strings, pay-

To cater to the tastes of many who revel in a fondness for mathematics pure and simple, as differing from puzzles, an occasional problem of a unique character drawn from the affairs of ordinary life has proved to be acceptable and instructive. Here is one built upon a common, every-day transaction, which every one can understand, whether they know anything about mathematics or not. As a matter of fact, it was suggested and carried out by a man who was so deficient in common arithmetic that he could not compute simple interest and had such a fear of being cheated at figures that he would not make the deal in any other way.

It seems that he wished to buy a piece of property, but having only a small amount to pay down and having an abhorrence of figures, mortgages and interest, said he would not make the purchase unless he could get it upon what he termed the "building loan plan." He would pay down \$1,000 and make five more payments of \$1,000 each at the end of every twelve months. Such payments were to cover the entire cost of the property, including the interest up to the date of each of the five payments.

The sale was made according to the terms stated, but as the money was actually worth just 5 per cent a year to the party who sold, the question is to determine just how much he really got for the property.

ing for each article just as many cents as she bought number of that article. She expended altogether \$3.24 and Peter is puzzled to recall just how many handkerchiefs she must have purchased.



It is said that the modern game of "Craps" is taken from an old dice game of India, wherein a group of natives play for a stake by taking turns in throwing three dice until the winner makes a throw which adds up seven

or eleven.

Can you analyze this old time game by telling what are the chances of throwing three dice so that they add up either seven or eleven?

What is it that Adam never had, never saw, yet left to each of his children? Parents.

What kind of a window resembles a star? Skylight.

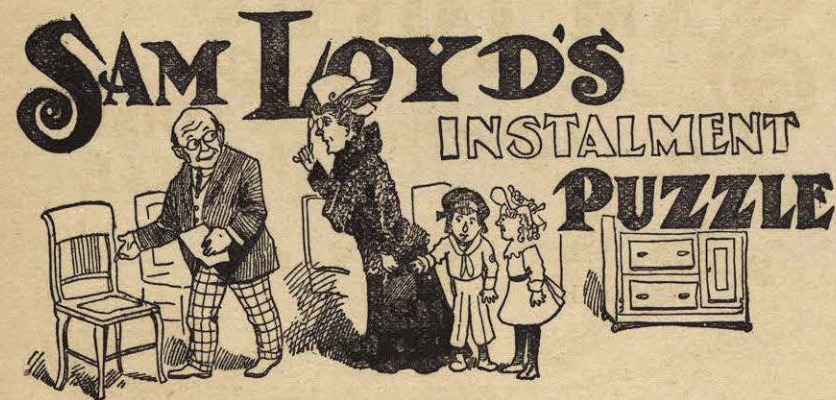
Why is No. 9 like a peacock? It is nothing without its tail.

#### INSTALLMENT PUZZLE.

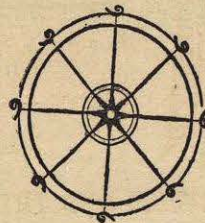
As showing how the general public fail to apply elementary arithmetic to practical matters, we call attention to the following problem:

A frugal housewife who furnished her little flat with \$75 worth of goods purchased on the popular installment plan wishes to know what interest she really paid for the use of the money. The terms were that she was to pay down \$5 cash and \$5 per month until the goods were paid for; but in case she paid spot cash \$10 would be thrown off, so the articles would cost only \$65.

How many practical people can solve this problem in domestic economy?

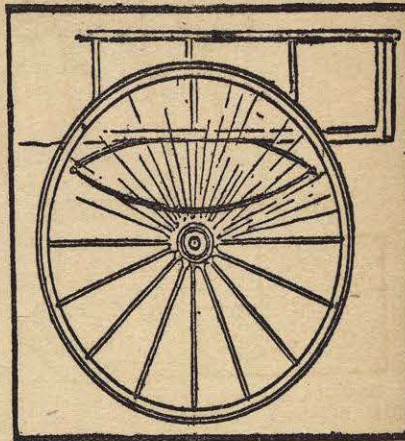


#### PERPETUAL MOTION.



Closely akin to the catch problem of the top of the moving wheel is the question of perpetual motion. Any person of mechanical ability should know that the idea of perpetual motion is an absurdity equivalent to inventing a clock which will wind itself.

The following burlesque by Thomas A. Edison has as much sense as any idea yet promulgated. It represents a wheel furnished with eight figures, representing pounds. There will always be a nine opposed to a six and, as nine weighs more than six, it will make the wheel revolve rapidly, as well as your head when you understand it thoroughly.



This is a famous problem, which has been discussed seriously by noted scientists and mathematicians, nevertheless it is safe to say that the real point, as intended by the author, has been entirely overlooked. There is just enough of the mathematical and mechanical element in the make-up of the problem to provoke discussions from such as are well-up on these subjects, but the author propounded the question to decide a point of common sense, which seems to have been utterly ignored.

It was evidently perpetrated as a joke, for the top of a wheel progresses exactly as fast as the bottom. If the question referred to a mark on the tire the answer would be different, for the top is the highest point of the wheel and cannot revolve, for if it revolves the hundredths part of an inch it ceases to be the top.

Why do girls blow bubbles better than boys? They are more airy.

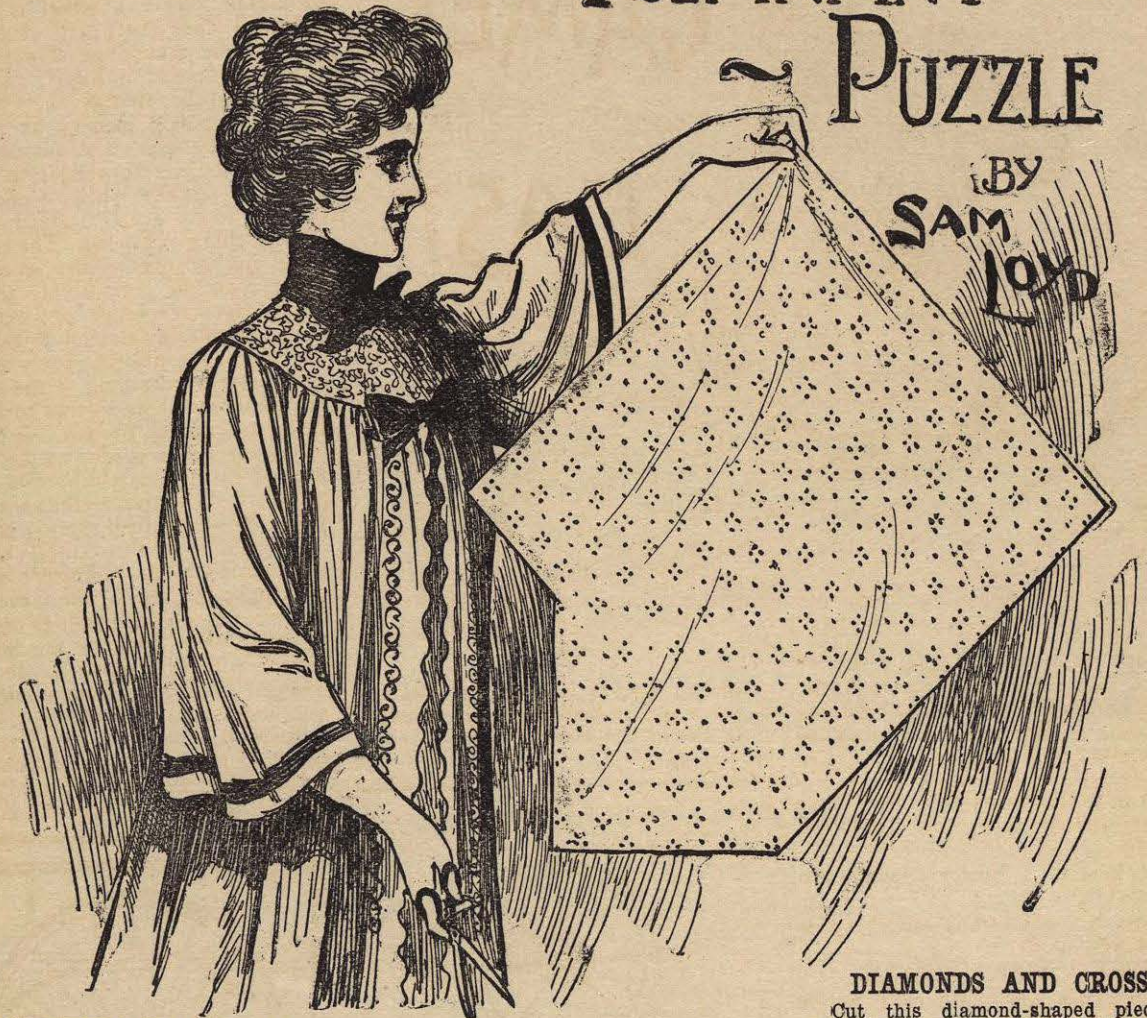
#### THE CATCH PROBLEM OF THE MOVING WHEEL.

I note in a scientific paper that a correspondent seeks for information upon an old problem which has created considerable discussion in the mechanical world, by asking "When a wheel is going on the road does that part of the wheel close to the ground go slower than the opposite side that is free?"

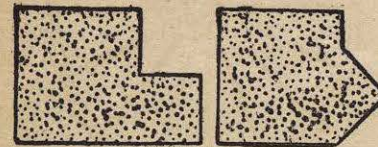
It would be strange that the editor should be caught napping on a problem as old as Samson's lion puzzle, and yet see how cleverly he dodges the issue by giving an answer which, while not responsive to the question asked, is worthy of the Sphinx of Thebes. The reply says: "The rim or tire of the wheel travels faster than the hub, having to make a much larger revolution or circuit in the same time it takes the hub to revolve, but the part of the tire that is on the ground is necessarily travelling at the same rate around its own axis, as that part which is furthest from the ground. If the centre of the earth be regarded as the axis, that part of the wheel which rests upon the ground being nearer the central axis would be slower than the top part, which is further from the central axis. The computation of the difference would depend upon the size of the wheel." Read both the question and answer over several times, so as to compare the information desired with that imparted, and then to complete the missing data assume it to be a 28-inch regulation wheel—riding upon a frozen lake to eliminate all unevenness of the road—and then respond to the query how much faster, if at all, does the top of the wheel go than the bottom?

## THE REMNANT ~ PUZZLE

BY SAM LOYD



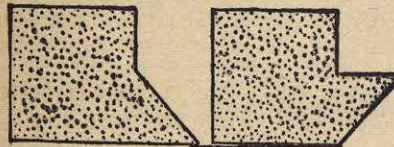
#### THE REMNANT PUZZLE.



Occasion has been taken to explain the first of these figures to show how any two square-shaped pieces may be cut into three pieces which will fit together so as to form a perfect square. It proves the correctness of Euclid's forty-seventh problem, and is a most valuable rule worth knowing. The Remnant Puzzle is given to show that the same rule applies as well to the combination of squares with triangles to form one large square.

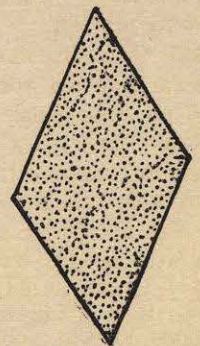
The lady has an odd-shaped remnant which she wishes to cut into three pieces which will form a square without any waste.

The following illustration will show that the triangular piece may also be placed in any position in contact with the square. We have, therefore, four puzzles which illustrate the famous Pons Asinorum, cut any of the four shapes into three pieces which will fit together so as form a perfect square.

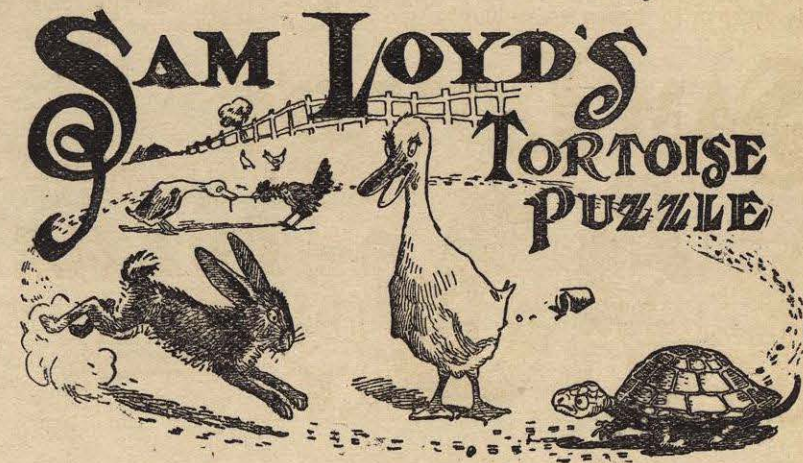


#### THE TORTOISE AND THE HARE.

Aesop tells of a sportive young hare that raced with a tortoise around a circular track, which was 100 yards in diameter, giving him a start of one-eighth of the distance. The hare held such a poor opinion of the other's ability that he loitered along nibbling the grass, and only realized that the tortoise was putting up a great race when they met at a point when the hare had run but one-sixth of his distance. How much faster than he went before must the hare now run to win the race?



DIAMONDS AND CROSSES.  
Cut this diamond-shaped piece into three parts which will fit together so as to form a Greek cross.



# PICTURE SUMS

*This Sum Spells Donkey*

**DON + KEY = DONKEY**

*What Animal Does This Spell?*

**BEE - NET + RABBIT + LEG + CLOCK - CLOCK = ?**

## A FISHING EXCURSION.

Name the following score of fishes:

1. A planetary fish.
2. A stamp.
3. To find fault.
4. A lance.
5. A canine.
6. A feline.
7. A sphere.
8. A smear.
9. An explosive.
10. A weapon.
11. A beam of light.
12. Part of the foot.
13. Terms of sale.
14. A kind of tree.
15. A Michigan town.
16. A precious metal.
17. The source of light.
18. A winter pastime.
19. A lineal measure.
20. A color.

27. Remove a letter from a cry and leave a country product; when beheaded again will leave a quantity of paper.

## SIMPLE REPETITIONS.

Place a word in the first space of each sentence, which make sense when repeated in the second, even though it may have a different meaning:

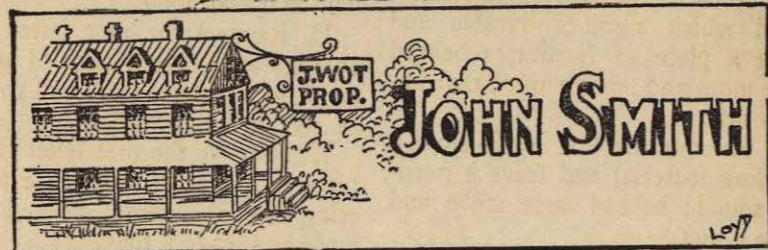
1. With the — — gave me I — a picture.
2. The mischievous young — — over the — — flower beds and ruined them.
3. He — — minutes to catch the train so he must — — or be left.
4. It is almost — — to tell the gardener that he must — — water.
5. The — — brother performed was to catch a — — on his nose.
6. His sister — — in the hammock saw him — — out for a walk.

## A CHAPTER OF ACCIDENTS.

Fill in the following dozen spaces with words which have similar endings. Each change is made by the substitution of a single letter.

Mrs. — — Jones — — in her rocking-chair, pondering over last month's puzzle page, when she was startled by the entrance of a big — — which in its desperate efforts to escape dislodged a — — from the wall. This so scared the — —, which was resting on the — — after chasing a — — which she was preparing to — —, that she fell into a — — of hot — — and was rescued by — —, who exclaimed, "Good gracious, where am — —?"

# SHAKSPEARE REBUS PUZZLE



Tommy Muttonhead propounds to his teacher the perplexing query: "If five times six were 33, what would the half of 20 be?" The other pupils solved the problem readily, but Tommy could not see how a thing that was not what they said it was had anything to do with something else that is not what they say it is.

# SAM LOYD'S PERPLEXED PROFESSOR.

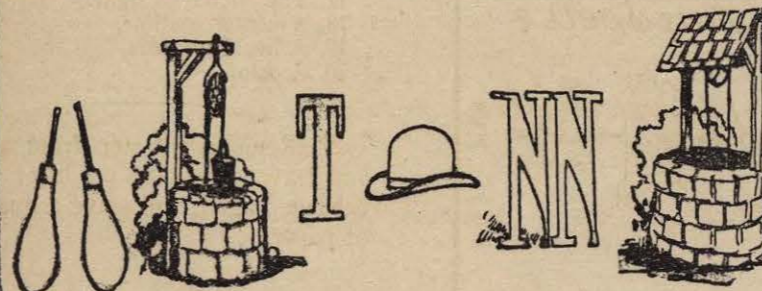


# REBUS PUZZLES

BEFORE THE YOUNG SOLDIER WENT TO THE WAR, HE SENT THE FOLLOWING MESSAGE TO HIS SWEETHEART



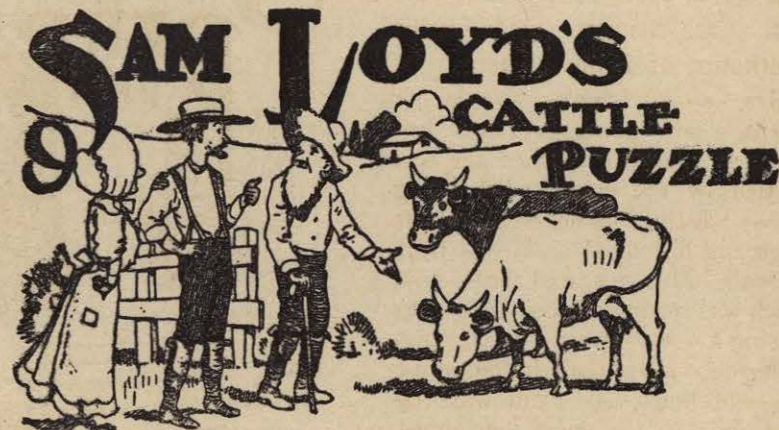
AND SHE REPLIED



## DOUBLE BEHEADINGS AND CURTAILMENTS.

1. Remove the first letter from a word which signifies durable and leave a piece of furniture; behead once more and leave a word that implies skill.
2. Remove the first letter from a building material and leave a musical sound; behead once more and leave a unit.
3. Remove the first letter from a railroad appliance and leave a sorcerer; behead again and produce a disease.
4. Remove the first letter from a solemn pledge and leave a word which signifies to use; behead once more and leave an important organ.
5. Remove the last letter from a word which signifies to gaze, and leave a planet; behead it and leave a sailor.
6. Remove the first letter from a word which pertains to harness, and leave a contest; behead once more and leave a single spot.
7. Remove the first letter from a word which signifies to follow and leave part of a fence; when beheaded once more it will be sick.
8. Remove the first letter from one of a pair and leave a victory, which beheaded again implies contained.
9. Remove the first letter from some grain and create warmth; behead again and learn what to do with the first.

10. Remove the first letters from a word which signifies near and leave a contest; behead once more and you will be not at home.
11. Remove the first letter from an edge and leave a place of amusement; behead once more and you will be able to write with it.
12. Remove the first letter from a piece of furniture and leave a covering for the head; behead once more and leave a tune.
13. Remove the first letter from a cold and leave an elevation which beheaded once more becomes very sick.
14. Remove the first letter from a creeping animal and leave an iron pin; when beheaded once more does not feel well.



**CATTLE PUZZLE.**  
Farmer Jones sold a pair of cows for \$210. On one he made 10 per cent. and on the other he lost 10 per cent.,

cleaning up just 5 per cent. on his transaction. What did the cows originally cost him?