"CHRISTIANS AND TURKS"

·PRIZE·PUZZLE· BY SAM LOYD.

PROPOSITION—Find a number which, by counting round and round, will pick out all the boys.

ALL PUZZLISTS ARE familiar with the ancient story of thirty Christians and Turks at sea in a storm, and how the captain decided that one-half of his passengers would have to be thrown overboard to save the ship. Being a fair-minded man who believed that all should be treated impartially, he arranged them in a circle and agreed to count off every thirteenth man until fifteen unfortunate mortals had been selected As the story goes, one of the Christians was a mathematician and a devout man who believed that Divine Providence had sent him to save the faithful and destroy the unbelievers. Therefore he arranged the thirty passengers in such a manner that the thirteenth man, as the counting out proceeded, invariably proved to be a Turk.

That puzzle, as you doubtless remember, turns upon arranging let us say fifteen white counters and fifteen black in a circle, so that by counting round and round and taking away every thirteenth one, that all of the blacks will be re-

moved. To solve the puzzle you need merely place thirty counters in a circle and begin to count around picking off every thirteenth until fifteen have been removed. Then replace the vacant spaces with black men and let the other fifteen be white and it shows how the Christians and Turks must have been arranged.

The above story is related by way of introduction to tell how it chanced one day that ten children, five girls and five boys, returning from school, found five pennies. A little girl found the money, but Tommy Muttenhead claimed that as they were all together the "find" really belonged to the crowd. He had been told the "Christians and Turk" story, and thought it would be a great scheme to play it as a game in dividing up the pennies, it being clear that there were only enough to go half way around. He placed the children in a circle, as shown in the picture, and told the girls that they were the "Christians" and the boys the "Turks." Tommy had planned it all right, so that by counting thirteen from a circle point

the girls would all be counted out, but he forgot that each girl got a penny as she was counted out, so the boys were left, and all that. Tommy got was a good licking which the boys gave him in a lot back of the school. Now this puzzle differs from the old Christians and Turks problem, because you are to guess the proper starting point, as well as the smallest number which will count out the boys and leave the girls.

Commencing with the upper girl without a hat and counting around to the right, every thirteenth will be a girl; but the puzzle is to tell what number Tommie should have used in place of 13 to give the prizes to the boys.

Of course, as each one is counted out, he is supposed to step back from the circle and is omitted in the next counting, which commences from the next one.

Red Cross Volunteers

A·PRIZE·PUZZLE BY SAM LOYD
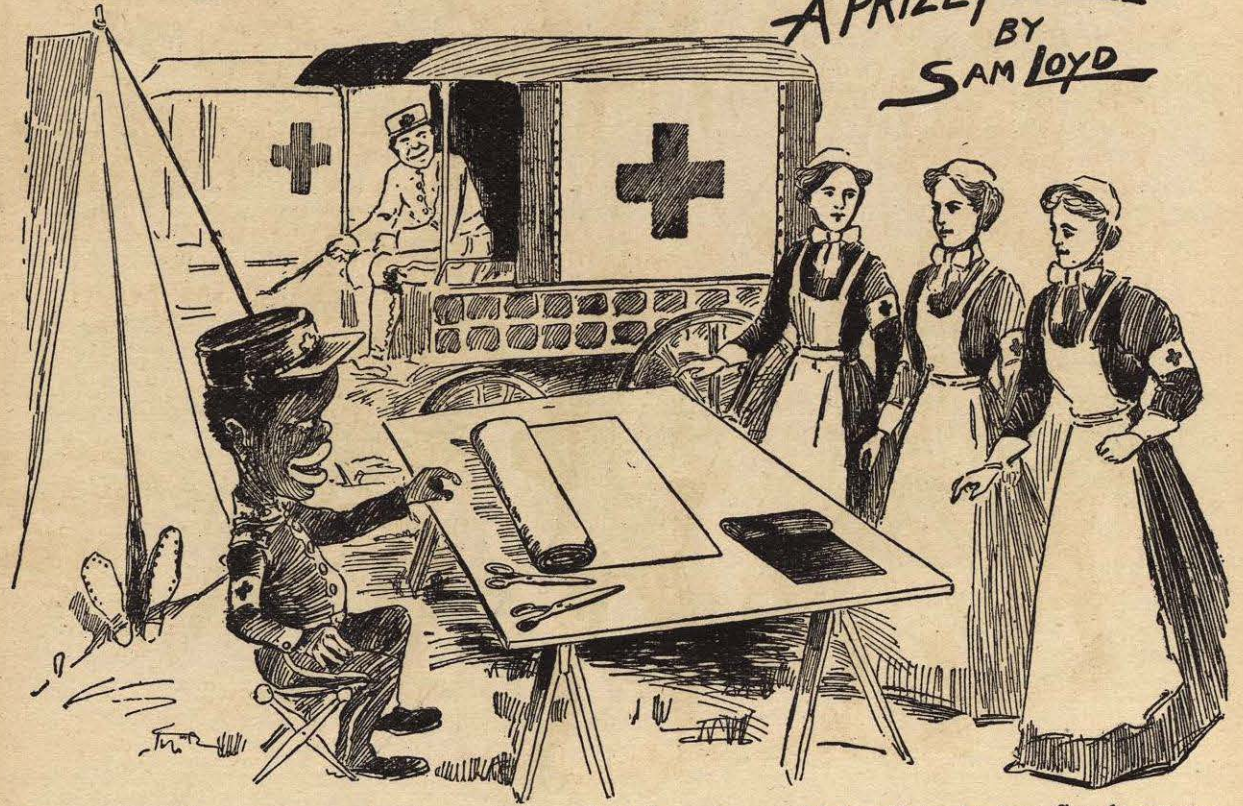
PROPOSITION---Cut a square piece of paper into five pieces which will make two Greek crosses.

HERE IS A PRETTY little cutting puzzle, which is said to have originated in the mind of a Red Cross lassie while serving in Uncle Sam's Ambulance Corps. It is safe to say that the bright witted little volunteer must have been a lineal descendant of Betsy Ross, who, it will be remembered designed the five-pointed star with one deft clip of her scissors. In the present instance it was necessary to practice strict conomy in the manufacture of the red crosses to decorate the arms of the nurses, for the reason that the supply of red flannel was running very short in camp, so the problem presented is as follows: Take a square piece of paper and without any waste cut it into five pieces which will fit together so as to make two Greek crosses of same size.

Progressive Conundrums.

"Miss Gracie," he said, with an engaging smile, "did you ever try your hand at one of these progressive conundrums?"

"What is a progressive conun-

drum, Mr. Spoonamore?" inquired the young lady.

"Haven't you heard of them? Here is one: Why is a ball of yarn like the letter 't?' Because a ball of yarn is circular, a circular is a sheet, a sheet is flat, a flat is $50 a month, $50 a month is dear, a deer is swift, a swift is a swallow, a swallow is a taste, a taste is an inclination, an inclination is an angle, an angle is a point, a point is an object aimed at, an object aimed at is a target, a target is a mark, a mark is an impression, an impression is a stamp, a stamp is a thing stuck on, a thing stuck on is a young man in love, and a young man in love is like the letter 't' bacuse he stands before 'u,' Miss Gracie."

"I don't think you have the answer quite right," said the young lady. "A ball of yarn is round, a round is a steak, a stake is a wooden thing, a wooden thing is a young man in love, and a young man in love is like the letter 't' because, Mr. Spoonamore"—and she spoke clearly—"because he is often crossed."

The young man understood.

He took his hat and his progres-

sive conundroms and vanished from Miss Gracie Garlinghouse's alphabet for ever.

RIDING AGAINST THE WIND

Here is a pretty mathematical problem which will interest the school children, as well as some of the teachers, for the reason that the popular answer is quite incorrect as the principle involved is not generally understood.

A bicycle rider went a mile in three minutes with the wind, and returned in four minutes against the wind. How fast could he ride a mile if there was no wind?

An Old Saw with New Teeth
BY SAM LOYD
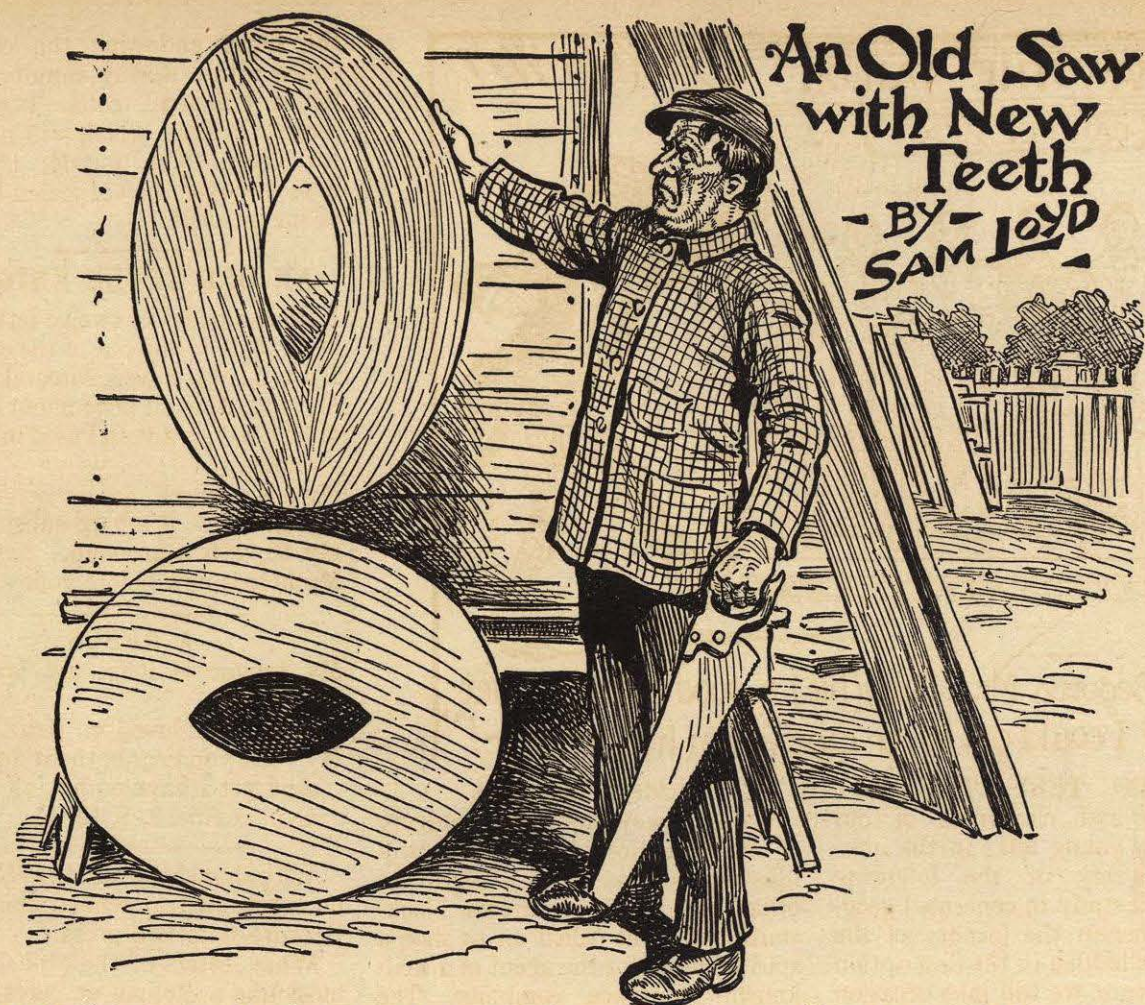
PROPOSITION----Divide the two ovals into the fewest possible number of pieces which will fit together and form one large circular piece.

ALMOST EVERY COLlection of puzzles contains a certan problem wherein it is told how a joiner who had a circular board wished to convert it into two oval table tops, with holes in the centers as shown. The puzzle is to cut the circular piece into the fewest number of pieces which will form the two ovals, but as the shape of the ovals are not given, the puzzle is generally looked upon as too difficult and unsatisfactory.

By the modern plan, however, which is to reverse a problem and work it backwards, the terms may be turned around so as to make a presentable, up-to-date puzzle, and is given as an instructive lesson in puzzle building.

Divide the two oval rings into the fewest possible number of pieces which will fit together and form one circular piece—like the top of a table without any hole in it.

Of course, you may follow the old style if you prefer it. Take a perfect circle and divide it into the fewest possible number of pieces which will fit together and form two oval rings as shown, but remember to put a strong accent upon the "fewest" number of pieces.

A Good Catch on Sharpe.

Brown (to Sharpe, who prides himself on his spelling): "I bet I can give you a word you can't spell."

Sharpe (scornfully): "I bet you can't."

Brown: "Very well. How do you spell 'need,' meaning to need bread?"

Sharpe: "Poof! K-n-e-a-d, of course."

Brown: "Wrong."

Sharpe: "Wrong? Meaning to knead bread, you said, didn't you?"

Brown: "Yes."

Sharpe: "Well, it's k-n-e-a-d, I tell you."

Brown: "Not at all. You k-n-e-a-d dough, but you n-e-e-d bread. It's a simple word; sorry you couldn't spell it."

Why are ripe potatoes in the ground like thieves? Because they should be taken up.

What is that which everyone wishes, and yet wants to get rid of as soon as it is obtained? A good appetite.

When is an old lady like a trout? When she takes a fly that brings her to the bank.

What is it gives a cold, cures a cold, and pays the doctor's bill? A draft.

Take away my first letter, I remain unchanged; take away my second letter, there is no apparent alteration in me; take away all my letters and I still continue unchanged? The postman!

Why is a new-born baby like a storm? Because it begins with a squall.

Mention the name of an object which has two heads, one tail, four legs on one side and two on the other A lady on horseback.

Why is a four-quart jug like a lady's side-saddle? Because it holds a gall-on.

If you were kissing a young lady, what would be her opinion of newspapers? She wouldn't want any Spectators, nor Observers, but plenty of Times.

"Begorra Mr. P. (hic,) (hic.) a good batin' ye'd get if I could get in yer cage."(hic) at yer!"
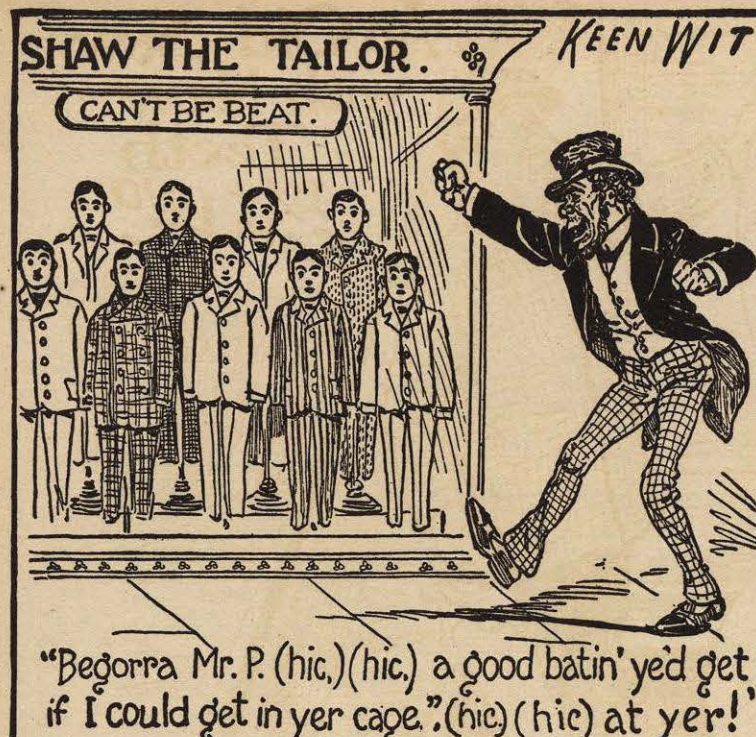
TO TEST THE WIT and cleverness of our young folks in the mastery of the following study in concealed geography, wherein the locality of the incident is hidden in the description of the picture, we will take occasion to guage their sense of humor by asking each one to also express an opinion regarding the full meaning of the Jolly Hibernian's sarcastic remark.

A REBUS.

My first is a negative greatly in use,
Which people first say when they mean to refuse;
My second we'll call a measure of weight,
Frequently used when talking of freight,
An article always in use is my whole,
With texture and form under fashion's control;
A something that's needed all over the earth,
Yet often is quoted a thing of small worth.
Cypher Ans. 2, 21, 20, 20, 15, 14.

Behead a crime and leave common sense? T-reason.

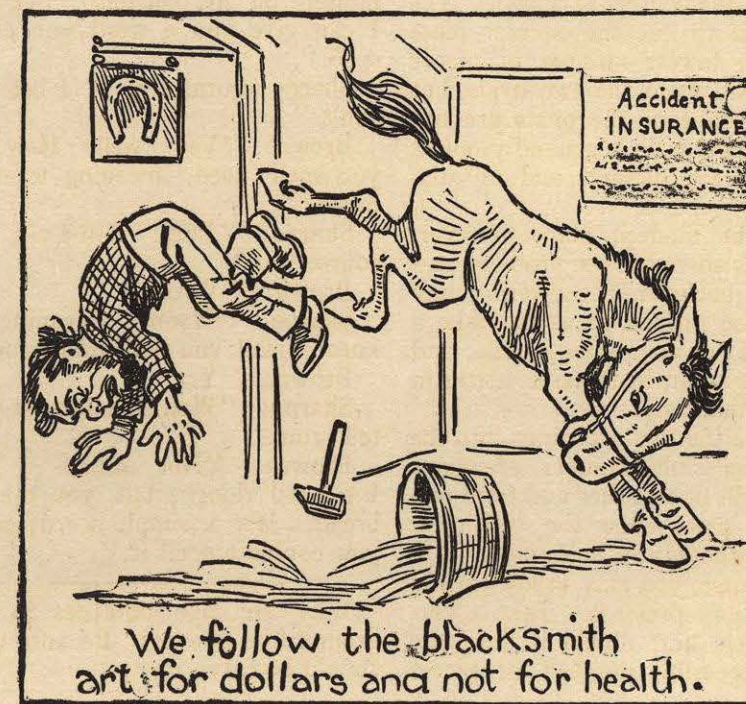What snuff-taker is that whose box gets fuller the more pinches he takes? The snuffers!

Why have miserly people never quarreled? Because they have always agreed.

Why are people of short memories necessarily covetous? Because they're always for-getting something.

Accident Insurance.

To get away from the drudgery of mathematics, however, I will illustrate a good story I heard the other day about a shrewd blacksmith, who was called on to shoe a spirited horse for the agent of a well-known insurance company. The agent assured the honest smith that the beast was gentle and kind, and induced him to name a low price for the job.

Not liking the vicious pose of the animal's ears, nor the shifty movements of its eyes, the prudent man first went over to the agent's office and speculated somewhat in accidental benefits. The sketch shows the horse endowing the cautious smith with a weekly annuity of $50 for a fractured collar bone and sundry bruises, which will not heal for years. The puzzle, however, is to discover the concealed locality of the incident.

AN OLD STYLE ENIGMA.

I am composed of twelve letters.
My 2, 8, 9, is dug out of the earth.
My 6, 11, 12, 8, is a numeral.
My 4, 2, 3, is an instrument of war.
My 12, 8, 1, is a vessel used in former times.
My 5 is a vowel.
My 4, 7, 1, 9, is a hard substance.
My 10, 9, is a pronoun.
My hole is now before you.

A REBUS.

My tongue is long, my breath is strong,
And yet I breed no strife.
My voice you hear both far and near,
And yet I have no life.
Cypher Ans. 2, 5, 12, 12.

Why should the number 288 never be mentioned in refined company? Because it is two gross.

What letters of the alphabet are most like a Roman emperos? The C's are.

What is the breed of the dog-star? A sky-terrier.

When may a man be said to be literally immersed in business? When he's giving a swimming lesson.

When giving invitations to a dancing party what single word will tell the hour to begin dancing? At ten-dance (attendance).

We follow the blacksmith art for dollars and not for health.

**PROPOSITION**—Tell why the heart of the apple tree is like the tail of the dog.

AS SHOWING HOW puzzle ideas may be gleaned under the most adverse circumstances, I should take occasion to give a little conundrum which occurred to me during the last summer's outing.

It was during a tramp with a chum of mine that, spying an orchard of fine apples which belonged to a friend of mine who would have been offended if we had failed to compliment him by showing our appreciation of his rare species of fruit, we proceeded to gather some luscious specimens, but were disturbed by the advent of a very boisterous bulldog.

Not to interfere with his gambols or any proprietary rights he might claim, we ascended into the lower branches of one of the trees to bide our time until the dog, getting tired of making a noise and springing in the air, would go home. But bulldogs have no sense of time, so it was not until after midnight, when it was too dark for him to see us, that he concluded to change his field of usefulness; but I am sure that for more than ten hours he furnished such interesting food for conversation that neither of us thought of going home. He was such a cunning dog that we did not wish to harm him, although Jack said if he did not believe he was a very valuable dog, or possibly belonged to some poor family who could not afford to lose him, he would have gone down, taken him by the tail and dashed his brains out againts a tree.

Jack said a great many good things, but one of the best which I now remember was a challenge to tell why the heart of that apple tree
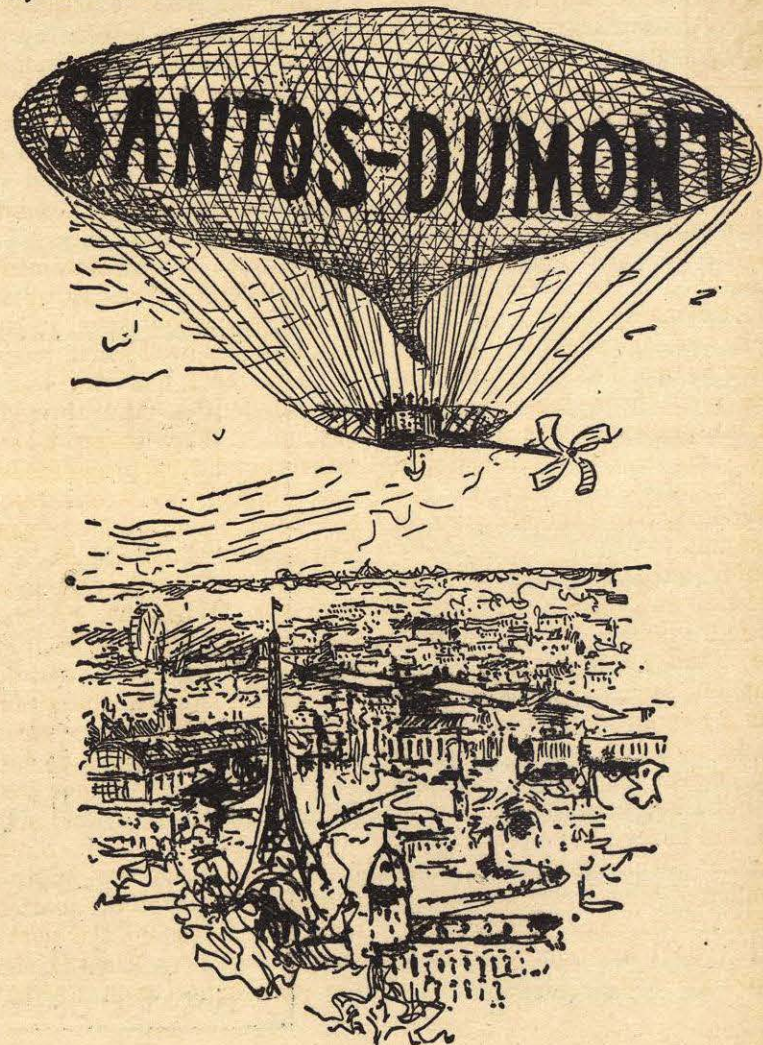
was like the tail of the dog? I am going to offer prizes for the best answers to Jack's conundrum, and have made a correct sketch of the situation, the remarkable point of the puzzle being that you are to describe the resemblance of two objects which you cannot see in the picture.

THE SANTOS-DUMONT PUZZLE.

Just to correct a popular mistake regarding the calculation of the time required to ride or sail with and against the wind, I will present a little balloon puzzle to illustrate an error which crept into the record of Santos-Dumont's famous trip around the Eiffel Tower.

Suppose that a balloon propelled by some mechanical device travels five miles in ten minutes with the wind, but requires one hour to go back again to the starting point against the wind, how long would it have taken to go the whole ten miles in a calm, without any wind? This, as a matter of fact, is but another way of treating the discussion as to how far the balloon actually should be credited with going in one hour and ten minutes.

Railroad Lingo.

SPEAKING ABOUT A little experience of my own, I wish to say that Mandy and me come to town last week to see the boy, and we wuz wonderfully struck by the lingo an' ways of them conductor men on our branch of the P. D. Q. Railroad. A feller was tryin' to git a free ride by sayin' he wuz a member of the Brotherhood of Ingineers, and the conductor man jist axed him what time it wuz, an' when he says, "a quarter to one," the way the conductor man threw him off of the train into a swamp wuz a caution. "Fur," sez he, "any railroad man who duzent know nuff to say 'twelve-forty-five' should stay in the swamp."

Mandy axed him how long we would stop at Kechunk, an' he says, "jist four minits, 2222222 lunch!"

We didn't know much what he meant, but sooner than be chucked out in a swamp we kept our ignorance to ourselves, and just smole them smiles you see in our picturs, but I hev been thinkin' it over some, and believe I know what that conductor man meant by making an engine of himself when he went: "Chew, chew, chew, chew, chew, chew!" So I ask our puzzlists to try and guess it.

A Hat Puzzle.

Take the average business man away from his ledger, by introducing some little proposition which does not readily balance between debt and credit sides of his cranium, and you will appreciate the meaning of that time-honored adage about the difficulty of teaching an old dog new tricks.

The truth of this statement was illustrated the other day by a well-known man about town in the following words, well worth repeating:

"You see I had just won a $5 hat on Jeffries, and through the medium of that wager I setled a rather complicated piece of indebtedness. Some two weeks before, I had been playing a little game of hearts with three friends, a retail merchant, an insurance man and a drummer. When we got through the merchant had won $5 from the insurance man and I had lost a similar amount to the drummer. Meanwhile the insurance man had stuck the drummer for $5 himself. The winnings and losings were all represented in chips, and as none of us had any money, outside a little small change, we simply made a memorandum of the matter and agreed to settle up the next time we got together. On the night of the prize fight I won a $5 hat and

my victim gave me an order, good anywhere in town. I had enough hats already to do me for the season, so next morning I dropped around to my friend the merchant and give him the order. 'Send around and get $5 on this,' I said, 'and consider all those heart games accounts wiped out.' 'Why, you don't owe me anything,' says he. 'But I owe Billy $5,' I replied, 'and I'll consider that settled.' 'But Billy owes me nothing, either,' he protested; 'I won all my money from Bob!' I tried to make the thing clear to him, but I couldn't. The more he figured on it the worse tangled up he got, and finally he refused to take the order. Then I went around to Bob, the insurance man, thinking that he had a good head for figures and would see through it at once, but I overestimated him. 'What kind of a bunco game is this, anyhow?' he asked; 'the way you calculate it would put me $5 in debt to you and Billy.' 'Holy Moses!' said I, 'you've got a head as thick as a man-o'-war's coning tower!' and I started all over again with my explanation. He couldn't grasp it. 'Too many for me,' he said, and I quit him in disgust and hunted up Billy. As soon as he heard the proposition he brightened up. 'What is the catch to it?' he asked, eagerly; 'that would be a splendid gag for me to get off on the road.' 'Catch your grandmother! you mutton-headed idiot!' I roared. 'There's no catch at all. It's a plain, simple matter of business!' With that I sat down and wrote out a statement for each, and after several days' studying the hatter reluctantly accepted the order. All three of them still think that I've swindled them in some mysterious manner.

How few people there are who would read that story as told, and grasp the whole situation without resorting to pencil and paper?

Which are the lightest men, Scotch, Irish, or Englishmen? Englishmen. In Scotland there are men of Ayr; in Ireland men of Cork, but in England are lightermen.

Why should an artist never be short of cash? If he knows his business he can always draw money.

Why is a prudent man like a pin? Because his head prevents him from going too far.

When you listen to a drum why are you a good judge? Because you hear both sides.

DIVIDING HIS FLOCKS
BY SAM LOYD
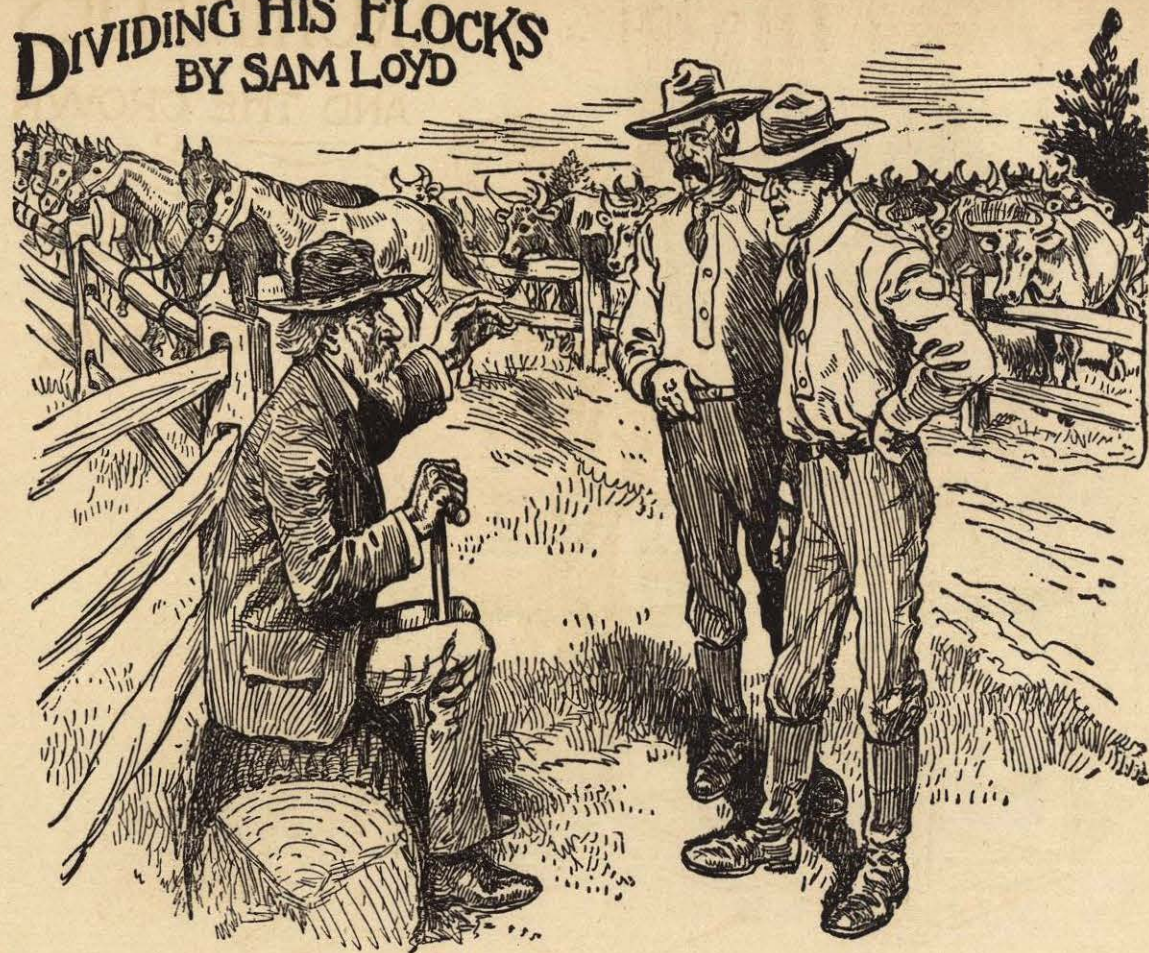
PROPOSITION—Discover the number of sons there were and how the horses and cows were divided.

THE STORY IS TOLD of a Western ranchman who, finding himself well advanced in years, called his boys together and told them that he wished to divide his herds between them while he yet lived. "Now, John," he said to the eldest, "you may take as many cows as you think you could conveniently care for, and your wife Nancy may have one-ninth of all there are left."

To the second son he said: "Sam, you may take one more than John took, as he had first pick, and to your good wife, Sally, I will give also one-ninth of what will be left."

To the next younger he did the same, giving him one cow more than Sam's portion on account of the better cows having been picked first, and to his wife one-ninth of the remainder. This he continued to do to the younger sons and their wives until the herd of cows was divided. Then he said: "As horses are worth twice as much as cows, we will divide the horses that every family receive live stock of the same value."

Now, if our young farmers will just exercise their wits and tell how the cows and horses were portioned out to the families, I would be delighted to distribute such horses and cows as I possess, for despite of its being extremely simple it calls for ingenuity rather than mathematical knowledge.

The Lucky Boys.

Here are the lucky boys once more, explaining to those who are up in Uncle Sam's coinage some mysterious problems which go to prove how much better it is to be lucky than YY. You see, they had been on an all-day fishing excursion, and meeting with their usual success, had caught such a big string of fish that they sold them for $3.90. Just think of it —$3.90 represented by seven coins. And that was the most remarkable part of this fish story, for although $3.90 is readily divisible by three, yet the seven coins were such as would not make three even portions. They puzzled their heads over the problem, and were getting very angry, when one of them, the youngest, suggested that sooner than come to blows over such a trifle, they had better throw one of the coins away, and then they could readily divide the rest evenly. So they just threw the troublesome coin down an old well (where the little fellow, who knew there was no water in it, got the coin again the next morning), and by dividing the remainder equally among the three successful fishermen avoided a serious quarrel.

How many of our friends can prove the value of that coin which the foxy little chap advised them to throw into the well?

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ARCHIMEDES
AND THE CROWN
CLASSICAL PROBLEM
BY SAM LOYD

IT IS SOMEWHAT strange that in the story of Hiero, King of Sicily, who gave his crown to Archimedes to determine the amount of alloy which had been added to the gold, all accounts give the same version; agree in the minute details of the given weights, and yet I have never seen the problem worked out to show just how much gold the dishonest jeweler had stolen.

It is told that Hiero, the King of Sicily, ordered his jeweler to make him a crown containing sixty-three ounces of gold. When the crown was finished it was found to be correct in weight, but the King, for some reason or other, always suspected the jeweler of having stolen part of the gold and substituted silver.

In this enlightened age, when you go to an assayer to sell some piece of broken-down jewelry, he tests the proportion of gold contained in the piece by rubbing it upon a test stone, which leaves a fine streak of gold. Some acid is then applied and the time is reckoned to determine how long it takes the acid to destroy the gold, as the metal will resist the acid in proportion to the purity of the gold.

They probably had no such tests in those days, as we are told that the King, as well as the philosopher Archimedes, was troubled for a long time to discover a method of solving the problem. There seems to be a difference of opinion as to who should be credited with the honor of hitting upon the happy thought which suggested the solution to the mystery. It is said that the King was taking a bath, and noticing that the crown weighed less in the water than in the air, gave vent to his joy by the memorable shout of "Eureka!" which has been echoing ever since.

Well, the authentic facts of the case were as follows: The crown weighed exactly sixty-three ounces, and when weighed in the water gave a weight which showed that it had removed just 8.2245 cubic inches of water.

It was found that a cubic inch of gold carefully tested weighs exactly 10.36 ounces, and that a cubic inch of silver but 5.85 ounces. Therefore it becomes a simple calculation to determine the quality of the alloy for 8.2245 inches of pure gold should weigh over eighty-five ounces, whereas the crown weighed but sixty-three. Supposing it to be all silver, the 8.2245 cubic inches at 5.85 would weigh but a little over forty ounces, which would be some thirteen ounces short.

With these facts before us, it becomes a simple matter to make even a close guess as to the amount of the jeweler's peculation, and if we assume that an ounce of pure gold is worth $21, and an ounce of silver to be valued at sixty-one cents, we can determine the exact amount over which there has been so much fuss made for all of these centuries.

Archimedes was the greatest mathematician and philosopher of his time; he it was who, during the siege of Troy, destroyed the enemy's fleet by means of reflecting mirrors. He invented many mechanical powers and boasted to King Hiero that he could move the world if he could only have a point on which to rest a lever. The reason why the answer to this crown problem is never given may be accounted for by his strange death.

In my first my second sat, my third and fourth I ate? In-sat-i-ate.

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