THE ROYAL ROAD TO LEARNING

KINDERGARTEN MATHEMATICS

HISTORY TELLS HOW Euclid, the Greek mathematician and philosopher, who flourished 300 years B. C., while expounding the problem of subdividing the circle to King Ptolemy, was interrupted by the irate monarch exclaiming: "I am wearied by such dull lessons, and refuse to burden my memory with stupid rules!" Whereupon the great mathematician replied: "Then your majesty will graciously permit me to resign the position of Imperial instructor, for none but a fool knows of a Royal Road to Mathematics."

"Right you are, Euc!" interjected Beppo, the court jester, as he pushed his way to the blackboard," and, in accepting the position so gracefully tendered, I will proceed to demonstrate how the great principles of higher mathematics can be taught by simple kindergarten methods which children may understand and remember."

"Philosophers say:" 'what is learned with pleasure is never forgotten, but knowledge can not be beaten into the head with a wormwood club.' "Pupils should not be made to commit rules to memory; everything should be explained so that they can formulate rules in their own language. A pedagogue who teaches rules would be a good one to train parrots!"

"Dry mathematical problems are more digestible when presented in palatable form, and the mind becomes stored with valuable information when the illustrations are gleaned from the classical tid-bits of history."

"Mathematics, which constitutes the most important branch of learning, forms the groundwork of the arts and sciences, and is so essential to the successful man of affairs, as well as the development of a clear brain, that parents should realize the advantage of encouraging an early love for puzzles, tricks and problems among their children."

"With the kind permission of your majesty," continued Beppo, "we will now elucidate the subdivision of the circle by asking Tommy Riddles, the court crier, whose learning is limited to the science of simple addition, to show into how many pieces it is possible to divide a German Pancake with seven straight cuts of a knife?"

"Furthermore, to add a point to the moral of the story of the sword of Damocles, which is shown to be suspended over our heads by a single thread, we will proceed to impress it indelibly upon the memory by connecting it with a scientific and practical problem: Why is the blade of that scimeter always shown to be curved?"

"Noting with pleasure the presence of the 'Pons asinorum,' the ass's bridge problem, which my distinguished predecessor has made famous as his 47th proposition, which proves that the square described on the long side of a right-angled triangle, termed the hypothenuse, is equal to the sum of the squares of the other two sides, I will ask the author of the 47th proposition to tell how many rails of equal length it would require to enclose a right-angled triangular field if one of the three sides was 47 rails long?"

"The clown's 47th proposition" will doubtless prove that many good mathematicians have much yet to learn regarding the wonderful principles of Pons asinorum which may be said to underlie the foundations of mathematics and geometry.

NOTE.—"Pons asinorum" originally applied to 5th proposition—First Book of Euclid—that "The angles at the base of an isosceles triangle are equal to one another."

Proposition: Can you mark off exactly 50 points

My chum and I were taking in the side shows the other day, when we struck what the man told us was the squarest game in the world. There were ten little dummies which you were to knock over with base balls. The man said take as many throws as you like at a cent a piece and stand as close as you please. Add up the numbers on all the men that you knock out and when the sum amounts to exactly 50, neither more nor less, you get a genuine Maggie Cline cigar with a gold band, worth a quarter.

Our money gave out before we learned how to win, and we noticed that lots of people didn't smoke any more Maggie Cline's than we did. The man who run the business said he didn't mind telling us that people let their predjudices ruin their

chances. An Irishman would always soak the coon, while the darkies had it in for that Chinaman, and as a matter of fact every one had their race prejudices which kept them from winning.

Can you show how we might have made exactly 50 points, and won a Maggie Cline cigar with a gold band around it?


Puzzle of the Iceman

Every blank is to be filled with a word ending in i-c-e.

At the time of the summer ——, the iceman, whom no one should accuse of —— or ——, put up a —— at an —— in his ——, put the effect that with——toward none he would give good —— to all, without —— or ——.

Accordingly, he supplied the politician with——, the lawyer with——, the doctor with a ——, the judge with ——, the builder with a —— and a ——, the gambler and his —— in their den —— with ——, the bridal party with ——, the clergyman with a ——, the cat with ——, the woodman with a ——, the drinker with ——, the geologist with ——, the sailor with a ——, the dentist with ——, the dressmaker with a ——, and no one with the ——.

But in spite of all his efforts to supply ice to ——, some people objected so srongly to his ——, that they applied to the —— for —— regarding a ——, by which they might either push him into a —— or over a ——!

8

Right column (page 9)

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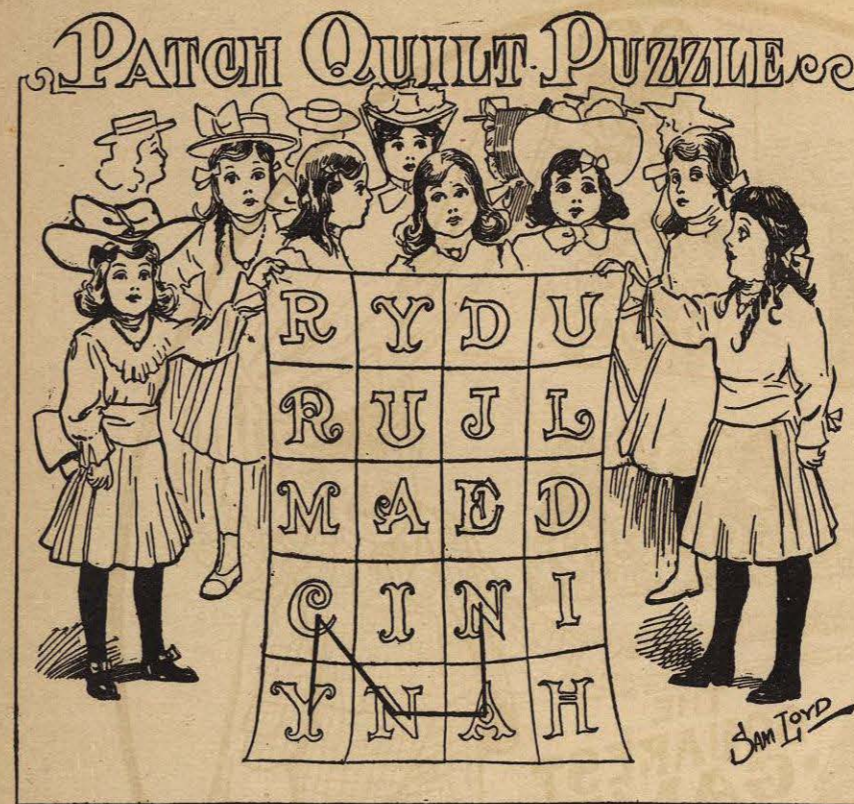
The children have worked all of their names into a wonderful patch-quilt puzzle, which they are going to present to their teacher. Commence wherever you please and go from square to square, and see how many names you can discover. Beginning at N, for example, as shown by the lines, you can spell NANCY, but when you find all of the others you will know just how many scholars went to this school in Puzzleland.

Sammy's Sketch-Book

If you can only draw a little bit you might find lots of things worth showing. Sammy spent a few days on the farm and filled his sketch-book full of interesting things. Here is what he calls "pastural still life." The second view represents "a moving picture" of the same scene, showing the animals getting up on their feet. As an elementary drawing lesson, you are invited to sketch the moving scene as it appeared to Sammy. Upon second thought I give

that part of his letter which described this picture:

"P. S.—I want to say that the first thing I did after getting here was to go to the barnyard, and I found that the story that horses and cows never lie down to sleep is a fake. I send you a picture I made of them as they were lying in the barnyard. I watched them a long time, and they never moved, except the cow, which had a piece of chewing gum in her mouth, and to be certain that the horse wasn't dead I hollered 'Shoo!' And you ought to see them scramble to their feet."

P. S.—Do you remember how Houdin, the famous magician, used to exercise his memory by glancing in a store-window and then telling how many things he could recall having seen during a one minute's inspection. He said most people went through the world without noticing anything. Did you notice the moon in my picture? It tipped the wrong way! The moon always tilts to the left. I drew that moon to make fun of Nelly; she wrote a poem and spoke about "the fleecy clouds behind the moon." Who ever heard of clouds behind the moon! The moon is always behind the clouds, but I drew it to make her mad.

P. S.—I sketched some hop vines

and what they call pole beans, but do you know how to tell which are the hop vines? Hop vines always twine round to the left, while the others twist round to the right. You learn lots of things in the country.

P. S.—The Smith boy was down here Sunday, I asked him how many eggs he thought a peacock laid. He counted a brood of little ones and said "ten." I then told him that peacocks don't lay eggs. A peacock is a a gentleman peacock, the peahens lay eggs. "You might just as well ask how many eggs does a rooster lay?" But Smithy is a city chump and don't know lots of things.

P. S.—Do you see that chicken looking at the dog? how do I know its a dog? because a cat can't have a white tip to her tail. If a cat has any black on her at all, the tip of her tail is black, while if a dog has any white anywhere, the tip of his tail will be white. You never saw a chicken meandering by moonlight in your life, nor did you ever see a hen with spurs! Did you think of that?

P. S.—I drew this picture to see if you can illustrate the difference between a horse or a cow getting up; but talking about that chicken, can you tell why it is like a farmer? Can you tell that it is a large chicken? What parts of an army do you see? Why does it remind you of the gas man? What parts of a mountain do you see? What part of a kite? What part of a will? What part of a needle? What should it lay on the dressing table? What else does that chicken show that is interesting? Show the source of a river, three nicknames, something on a canal, and part of a table.

P. S.—I won't wait to see how you draw the horse and cow getting on to their feet, because I guess a person has to live in the country to learn that a horse always raises bow end up first, while a cow gets up stern end first. The first horse and cow must have begun to get up that way, oh an awful long time ago, and all other little horses and cows did the same as their parents.

9

PUZZLE of CASEY'S COW
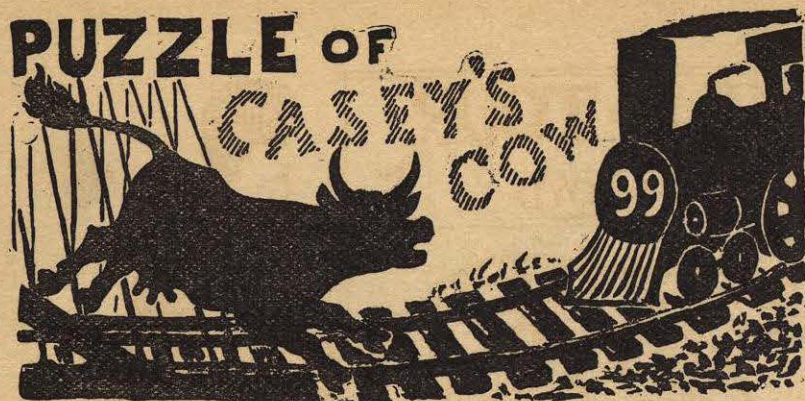
Here is another Rail Road Puzzle, which illustrates a pretty mathematical principle and at the same time points a moral and adorns a tale which all might ponder over to advantage:

"I am satisfied that some cows have more sense than the average man." soliloquized Casey, in his philosophical way. "My old brindle was standing on the long bridge the other day, placidly looking into the water, when she spied the lightning express, just twice the length of the bridge away from the end, coming at a ninety-mile an hour clip. Now, she did not waste the forty-eleven-millionth part of a second in idle speculation; she just made a dash towards the advancing train and saved herself by the narrow margin of one foot, whereas, if she had followed the human instinct of running away from the train, three inches of her rear would have been caught on the bridge!"

"It would be a great thing if some procrastinators, who never can make up their minds one way or the other, were placed in the position of my old brindle cow, so they had to think quick!

"It is a pretty problem to reckon the gait of that cow, and to tell how far she was standing from the middle of the long bridge! Can you figure it out?"

A REBUS.

A term for scolding, backwards read,
Will give what all good people dread;
A character so base, that none
The epithet would call their own.
Rail—Liar.

A vessel reversed will give the highest point, and a child's toy.
Pot—top.

Spell one word with the letters:
To Love Ruin. (Revolution.)

Why is a watch like a river? Because it doesn't run long without winding.

A REBUS.

My first's the heart of honest trade,
When 'tis judiciously displayed;
But when 'tis of its head bereft,
It then becomes a public theft.
Cypher Ans. 19, 16, 5, 3, 21, 12, 1, 20, 9, 15, 14.

CONCEALED GEOGRAPHY.

34. It is the belief of the ancients that heroes' souls soar to islands of the blessed.
35. He has my R. N. as a monogram on all his note-paper.
36. He broughht orses to Hannah, antelopes to Carrie.
37. A Psyche in marble he adored as if alive.
38. I am her stupid sister.
39. Kate can't tell a wren cemented, from a wren demented.
40. In adusting the baby-jumpers, I adjusted the baby, so that it fell out. (A country.)
41. The calmest man is sometimes made irate. (An island.)
42. Away they went and over the race-course spun.
43. The sale must commence at one o'clock.
44. Would you bid a cow or ox bury their dead?
45. What do you call Mr. Rarey? A horse-tamer, I call him. (A country.)
46. The only animal taken was a Kangaroo. (An island.)
47. The moment I walked I saw three crows on the bedpost.
48. After singing a "te deum," bag, O soldier, your booty. (A lake.)
49. The Ojibbeway retired and the Mosquito led on his troops.
50. They made a hue-and-cry, but ah, of no avail. (A territory.)
51. You should see Parepa Rosa cram entomological specimens into her bandbox.
52. Socrates consideredd a warming pan a matchless affair.
53. King William wrote a letter to a hunter.

A REBUS.

Fair Bessie promised to bestow
My first upon her lover,
And much I hope that no dark clouds
Around the pair may hover.

Sweet Bessy's age is just eighteen,
Of gold she has my second;
On bearing off the lovely prize
How many beaux have reckoned.

And now my riddle I'll conclude,
And hope you'll not me quiz,
For what I say is very true—
My whole fair Bessy is.
Cypher Ans. 8, 1, 14, 4, 19, 15, 13, 5.

What pudding makes the best cricketer? A good batter.

Tom went out, his dog with him; he went not before, behind, nor on one side of him, then where did he go? On the other side.

Why was Moses the most wicked man that ever lived? Because he broke all the commandments at once.

Why are crockery-ware dealers different from other merchants? Because it won't do for them to crack up their goods.

Why is a baby like wheat? Because it is first cradled, then thrashed and finally becomes the flower of the family.

On what toe does a corn never come? The mistletoe.

What is the difference between a hungry man and a glutton? One longs to eat and the other eats too long.

Where lies the path of duty? Through the Custom House.

Why should turtles be pitied? Because theirs is a hard case.

Why should young ladies set good examples? Because young men are so apt to follow them.

Why must the male sex avoid the letter A? Because it makes men mean.

Why must chimney-sweep ng be a very agreeable business? Because it suits (soots) every one who tries it.

Why is a joke less durable than a church bell? Because after it has been told (toll'd) a few times it is worn out.

Why is Ireland likely to become the richest country in the world? Because its capital is always doubling (Dublin).

Why should you never tell a man to take a back seat? Because, if you do, he'll be likely to take affront.
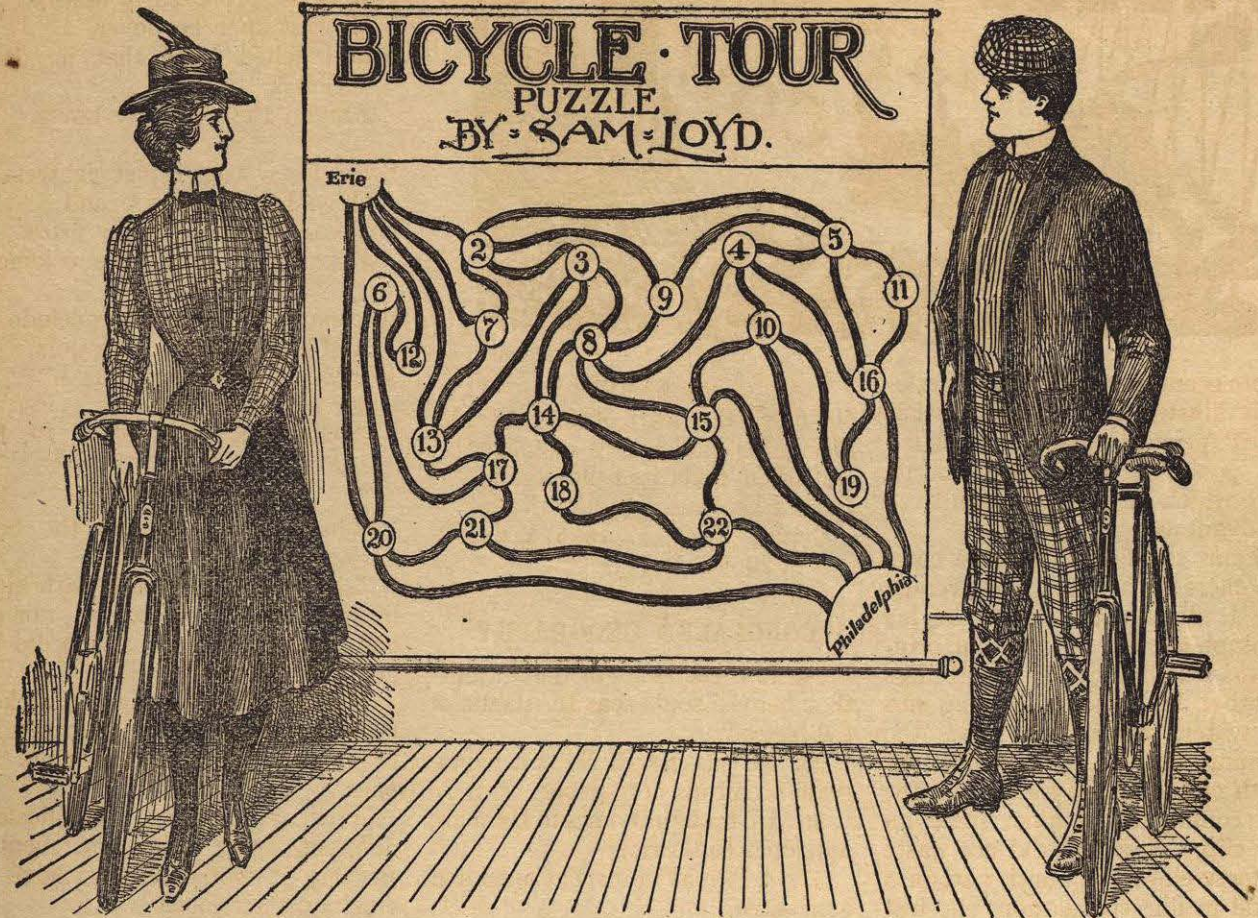
PROPOSITION—Show the route from Philadelphia to Erie, passing through all the towns but once.

NOW THAT THE L. A. W. and Good Roads Association have done so much toward bettering the bicycle paths of the country, it is being suggested by the press that something might be done to impart an artistic finish to many popular routes for the benefit of those who ride by the wheel or auto. Whether it is intended to round off the harsh corners and convert the straight lines into graceful curves, or to induce the malicious fiends who scatter tire-puncturing carpet tacks along the paths, to throw poppy and sunflower seeds instead, is not made clear, but the idea is a good one, and suggests the accompanying artistic map, with a pretty puzzle incidentally added.

The map shows twenty-three prominent cities of the State of Pensylvania connected by bicycle routes of more or less artistic design. The problem is a very simple one: merely start on your summer outing and go from Philadelphia to Erie, passing through every one of the cities but once and without going over any road twice. That is all there is to it. The cities are numbered so as to enable solvers to describe their routes by a sequence of figures. In this trip the usual practice of getting there by the "shortest route possible, etc.," will be dispensed with. Just get there without minding the cyclometer, and get an answer by giving the sequence of towns passed through.

A Bicycle Mishap.

Here is another pretty bicycle puzzle which confronted Fred and his best girl on that same circuitous cross state tour which was to culminate at Erie. They had gone some distance when Fred's sprocket wheel broke off in such a way that temporary repairs were out of the question, and they were so remote from any hope of other assistance that it was deemed to be a mere question of reaching home in the shortest possible time. The young lady could be depended upon to maintain a five-minute clip to the finish. Fred was an expert rider who could keep up a three-minute speed when riding upon his own wheel—but if he rode her wheel it reduced his speed to three and a half minutes.

It was evident when the accident occurred that some walking must be done. She could walk a mile in twenty minutes, handicapped by leading a wheel. He could walk a mile in fifteen minutes encumbered with the broken wheel.

An extra sprocket wheel was at home and could be attached in ten minutes, so assuming they left home at 10 A. M. and returned at precisely 6 P. M., the problem is to tell how far they had travelled by their cyclometers, if they had gone as far away from home as was possible in accordance with the conditions described.
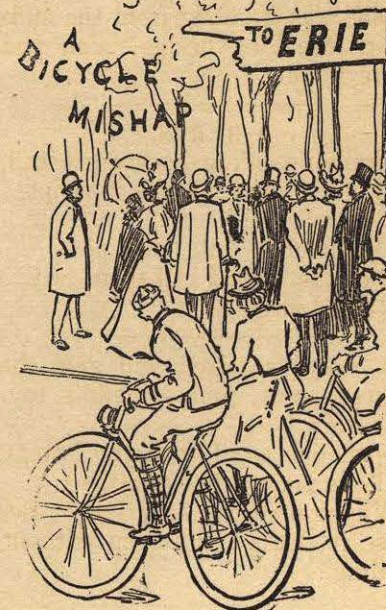
PUZZLES FROM A HARDWARE SHOP

Here is a collection of pictorial rebuses representing well known articles which we see in a hardware store. This puzzle is designed for the little folks who should soon be able to originate puzzles on similar lines.

The Cashier's Problem

The bank cashier could tell some interesting experiences which occur to enliven the routine of ordinary business, and of some pretty problems of a very puzzling nature. What would you do, for instance, when an old gent, who, like the majority of mortals, is averse to figuring, pushes in a check for 200 dollars and says: "Give me some one dollar bills, ten times as many twos, and the balance in fives!" I say, what would you do?

A Charade.

A word, I know, will quickly show
  What wicked people are;
And when transposed, will be disclosed
  A name they always share;
Transposed aright, 'twill bring to light,
  What all would wish to do,
If altered now, 'twill fairly show
  What hides them from our view.
Cipher Answer.—5, 12, 9, 12.

"A Horse's Head Where His Tail Ought To Be."

Among the curious things which Mother Goose tells the young folks they will see in Wonderland, nothing in the entire category of her jingling rhymes excites the juvenile mind

more than the description of the monstrosity of the "Horse with his head where the tail should be." The very suggestion is so inconceivably funny and gives such scope for flights of imagination that it will be a grand puzzle to discover who can make the best transformation, according to the well-known lines:
See! see! what shall I see?
A horse's head where his tail should be.

We reverse the order of things in this puzzle, and will put the cart before the horse so as to give the answer showing the horse's head where his tail ought to be; now exercise your artistic ability and make a sketch showing the simplest way to transform the picture and place things where they belong.

An Illustrated Proverb.

Here is a pictorial proverb, given to sharpen the wits of the little ones. Puzzles of this kind form the stepping stones to problems of greater difficulty.

A Rebus

Short was my life, and brilliant my career;
Behead me, I in lovely green appear;
Behead again, I once was made to save
My chosen inmates from a watery grave.
Cipher Answer.—19, 16, 1, 18, 11.

A Conundrum

A TEETER PUZZLE

Elementary Lessons in Algebra

If all of those little boys were seated on one arm of the see saw, how many girls would it require on the other end to keep the balance even?

A teeter tater illustration gives a clearer idea of the algebraic meaning of the two sides of an equation than could be acquired from months of hard study. Let us illustrate the first principle of algebra which tells us that like quantities added or subtracted from both sides of the balance do not change the equilibrium. We will solve the puzzle by the principle of cancellation. There are five boys on one arm of the balance and three on the other, so we cancel off three from each end. Then as there are three girls on one end and six on the other, we will cancel off three from both sides so as to leave two boys balancing with three girls. Startling as it may look, we find that two of those little boys weigh the same as three girls, so if the eight little boys were placed on one arm of the see-saw it would require twelve of the fat girls to balance them! You see to make the picture deceptive the little boys were filled with lead.

Why is a game of tennis like a party of children? There is always a racket.

What sweetmeat is like a person proposed for some office? The candied date (candidate).

Why is a sick Hebrew like an emerald? Because he is a Jew ill.

Why is the printer like the postman? Because he distributes letters.

What is the difference between a sun-bonnet and a Sunday bonnet? A day's difference.

A Charade

My first, gentle lady, you give to the youth
  Who now breathes the fond wish of his soul;
Whom with ardent affection, and honor and truth,
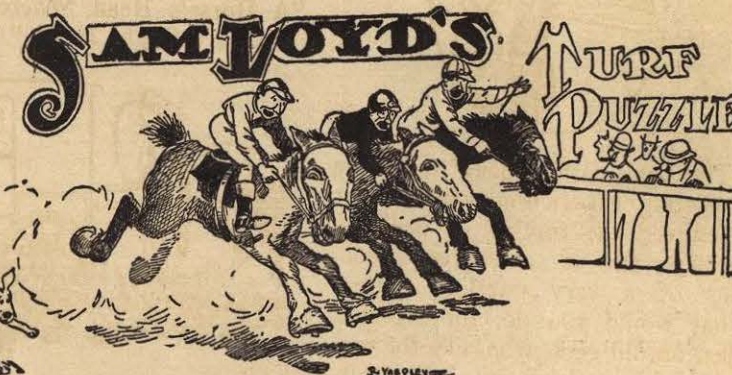 You perceive is needed in my whole.

In my snug little second, secure from the storm,
  We the helpless and innocent find;
And my whole, when a contract or bargain you form,
  You should give, the agreement to bind.
Cipher Answer.—5, 1, 18, 14, 5, 19, 20.

A Puzzle.

Express with four letters a sentence of four words containing fourteen letters.
Answer.—I O U O.

Why are unprotected grates like insolent beggars?
Because they are destitute offenders.

A Charade

Perhaps you may know
That centuries ago
My name the world was unknown;
But now 'tis allow'd
In the midst of a crowd
I am met with in every town

Though varied each lot,
In life I have got,
Yet nothing my course e'er endangers;
And wherever I go
So familiar I grow
That I am nodded to even by strangers.

I am cunning and bold,
For young or for old
I fear not, but bawl out aloud;
Pugnacious, you'll say,
For I knock down by scores in a crowd.

I lie and mislead,
So I pray you take heed;
My art's like a point of a thistle;
Be nice in your choice,
Take Franklin's advice,
And don't pay too much for your whistle.
Cipher Answer.—1, 21, 3, 20, 9, 15, 14, 5, 5, 18.

A Rebus

In every hedge my second is,
  As well on every tree.
And when the schoolboy acts amiss,
  It often is his fee.
My first, likewise, is always wicked,
  Although it does no sin.
My total for my first is fitted,
  Is made of brass or tin.
Cipher Answer.—3, 1, 14, 4, 12, 5, 19, 20, 9, 3, 11.

To show how little the patrons of the turf know about the theory of odds as practiced at the race track, let readers seek a solution to the following elementary problem: If the odds are 7 to 3 against Apple Pie and 6 to 5 against Bumble Bee, what should be the odds against the famous running horse Cucumber?