Santos-Dumont's Balloon.

Almost every one, mathematicians as well as puzzlists, fell into the common error of supposing that the wind would average up even, as would be the case if we went ten minutes with the wind and ten minutes against it, when it holds in one direction just as much as it retards in the other, while in the case cited it helps for only ten minutes and retards for a whole hour. It is a simple matter to find that the wind was blowing at the rate of a mile in 4 minutes and 48 seconds, and that the propelling speed of the flying machine is 3 and 9-21sts of a minute per mile, so that he would cover the ten-mile course in a calm in 34 minutes, 17 and 1-7 seconds. The problem was given as a puzzle for the mathematicians who failed to note the palpable error in the description of the time actually made by Santos-Dumont.

Railroad Lingo Puzzle.

Such of our readers as are up in railroad lingo readily interpreted the conductor's statement that the train would stop four minutes, 222222! to mean that there would be a four minutes' stop, and that the time, in railroad lingo, would be two to 2, to two 2, which means two minutes to 2 until two minutes past 2. It is no wonder, however, that Mandy thought the conductor was trying to imitate an engine with his "chu, chu, chu, chu, chu, chu!"

Dividing His Flocks.

In that curious story of the Western ranchman who divided his herdy among his sons and their wives, it will be found that he had seven sons, fifty-six cows, and, as shown in the picture, just seven horses. The eldest son took two cows and his wife six, which was one-ninth of the remainder. The next son received three cows and his wife five. The next son four and his wife four, and so on down to the seventh son, who took eight cows, which left none for the wife. Then each son took one horse, so every family received eight cows and one horse and all shared just alike.

THOSE LUCKY BOYS found three 5s, three 25s and a $3 gold piece which they threw in the well.

Heiro's Crown.

Archimedes was a Greek Hebrew of pronounced business proclivities, who had many dealings with the ruling potentates who were wont to put their crowns in soak found the following results: Weighed in the air the crown was exactly 63 ounces, but weighed in the water, as shown in the picture, it had displaced 8.2245 cubic inches of water, which was readily determined by its difference in weight, as it was well known that a cubic foot of water containing 1728 cubic inches, weighed 62.5 pounds. Thereupon any articles will weigh less in the water, just in proportion to its size, or the amount of water it has removed, irrespective of its shape.

It was known that a cubic inch of pure gold carefully tested, weighs exactly 10.36 ounces, and that a cubic inch of silver but 5.85 ounces, being not much more than half the weight of gold. Therefore it becomes a simple matter to calculate the composition of an alloy which weighs 63 ounces and represents 8.2245 bulk.

8.2245 inches of gold would weigh over 85 ounces and we know that the crown weighed but 63, so quite an amount of silver had been introduced. 8.2245 of silver would weigh but a little over 48 ounces, so it is plain that the jeweler did use some gold. A puzzlist would say, suppose half of quantity was gold, we would have 4.11225 inches of gold and 4.11225 inches of silver which by simple multiplication, is found to weigh 66.6595725 ounces, which should be but 63.

Then says the puzzlist, let us say that one-third of the quantity was gold, and we find that 2.7415 inches of gold weighs 28.401940 ounces, which leaves 32.075550 ounces of silver (viz. 5.4830x5.85), which weighs but 60.477490 ounces instead of 63. From these two trials the first of which was too rich in gold and the other too poor, we at once strike the happy medium and find that 34.1964 ounces of gold and 28.8036 ounces of silver weigh 63 ounces and fill the space of 8.2245 ounces!

The gold at $21 per ounce would be worth $718.1244, which, with $17.570196 for the silver, at 61 cents an ounce, would make the crown as finished worth $735.694596, whereas the 63 ounces of gold would be worth $1323, so the dishonest jeweler really stole about $587.30.

That Hod-Carrier's Problem.

In the puzzle wherein it was asked to tell how many steps the man must take to go up and down, up twice to the top and twice to the ground and twice on every step, it may be briefly stated that the feat can be performed in nineteen steps, as follows: First go to step 1, then back to ground, and proceed by the steps 1, 2, 3, 2, 3, 4, 5, 4, 5, 6, 7, 6, 7, 8, 9, 8, 9. Every step has been used twice and the ground as well as the top has been reached twice.

Crossing the River.

In that complicated puzzle of the summer tourist who had to cross the stream in a boat which would hold but two, and where certain personal feeling added to the difficulties of the strained relations, it can be shown that the entire party can be ferried across the stream in seventeen trips as follows:

First—Mr. and Mrs. C. cross over.
Second—Mr. C. returns alone.
Third—Mr. C. takes over a lady.
Fourth—Mr. C. returns with his wife.
Fifth—Mr. C. takes over another lady.
Sixth—Mr. C. returns alone.
Seventh—The two gentlemen cross over.
Eighth—Gentleman and wife return.
Ninth—Mr. and Mrs. C. cross over.
Tenth—Gentleman and wife return.
Eleventh—Two gentlemen cross over.
Twelfth—Mr. C. comes back alone.
Thirteenth—Mr. C. takes lady over.
Fourteenth—Mr. and Mrs. C. return.
Fifteenth—Mr. C. takes lady over.
Sixteenth—Mr. C. returns alone.
Seventeenth—Mr. C. and wife go over and the entire party have been transported to the other side.

Used to Kissing.

The story describes two billiard balls!

In that problem of dickering for rope at Manila, it was told that the dealer measured off twenty feet with a yard stick which was three inches short at one end. It is plain, therefore that three inches were lost on each yard in measuring eighteen feet, but none on the last two feet, as the yard stick was only short on the extreme end. The rope being worth two cents a foot, the dealer loses 81½ feet of rope, worth $1.63, and $3.40,

which he gave in good change, so he loses $5.03, as the feature of getting the bill changed by a neighbor has nothing whatever to do with the question of profit or loss, many good mathematicians and puzzlists to the contrary opinion notwithstanding.

Tabby and Sport.

Of course, many mathematicians and puzzlists, in giving the answer to that exciting race between the cat and dog, say that, as Sport sprang five feet at each bound and the cat only three, but Tabby made five springs to Sport's three, they would be going at the same rate of speed, so the race should be a tie. It would be a tie if it were "a straightaway race," but in running to the stake and back seventy-five yards, each half of the race would be 112½ feet. The dog would be compelled to make twenty-three leaps to the stake and the same number in returning, which would be forty-six leaps of five feet each, so the dog goes 230 feet in all, which is a waste of five feet. The cat would go there and back in seventy-six leaps, which would call for 228 feet, so Tabby should win the race by two feet.

The Star Theatre Puzzle.

The interesting feature of this puzzle is that the people from the other side of the street would read the banners: "Tiny Democrats."

Answer to the Problem in Chances.

In that curious puzzle of George Washington Johnston and mixed-up hats, our bright mathematicians have demonstrated that the chances against any one of the six men receiving his own hat would be as 265 is to 455.

The comical dog story conceals the name of Calhoun.

The Adinco Puzzle.

The boy was right, here after AD would make it adhere. Here after in becomes IN HERE and here after CO would be COHERE.

AT THE RUINS hides the name: Corinth.

Macaulay's Last Riddle is the word "Manslaughter."

The description of the becalmed yachts conceals the name of Fairhaven.

Outwitting the Weighing Machine.

In that little problem of the five little girls who beat the weighing machine, it can readily be shown that there could be just ten different combination couples weighed, and that their separate weights must have been 56, 58, 60, 64 and 65 pounds to produce weights as given of 129, 125, 124, 123, 122, 121, 120, 118, 116 and 114. The two lightest together must weigh 114, and as we find by comparison of the weights of the third weight with the lightest and the second, that the lightest is two pounds lighter, we know that she weighs 156 and the next 158, after which it is easy to tell the rest.

The Price of Eggs.

In the cook's problem in domestic arithmetic it was said that she paid twelve cents for the lot, but made the grocer throw in two extra ones because they were so small, which made them cost just one cent per dozen less. Our clever puzzlist shows that the grocer offered her sixteen eggs for twelve cents, which would be at the rate of nine cents a dozen. She made him throw in two eggs extra, so that she got eighteen eggs for the twelve cents, which is at the rate of eight cents a dozen, or one cent a dozen less than the first price asked. Some pretty good mathematicians were puzzled over this little problem.

The Charade is Mated.

The young carpenters cut the table top as here shown, which is merely reversing the principle of the remnant puzzle so as to make it more difficult:
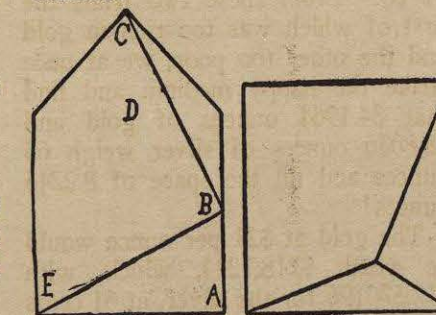
The description of those bookworms conceals the name alaska.

FRESHMAN IMPRUDENCE is made to read: Orthodox Oxford dons don't know old port from logwood, which is like the other: Persevere ye perfect men, ever keep these precepts ten.

The missing word puzzles are: 1. entrance. 2. Desert, 3. Objects. 4. Object.

The necktie puzzle reads: "He might have gotten off with a fine but he got ten days as well."

Answer to Jimmy's Age.

If we call Paddy's age at the time he took to drink X, then Mrs. Murphy's age must have been 2-3 of X plus 2 2-3 years and Jimmy's age was 3 1-3 years. When the family total reaches 4 2-3 X minus 4 years it will equal 100 years, from which we get the value of X as 22 and 2-7 years.

Jimmy's present age is represented by 3 1-3 years plus 1-3 of X, so it is clear that he must be 10 and 16-21 years of age.

Answers to Concealed Geography, 133. Hague, 134. Houlton, 135. Amoy, 136. Erin, 137. Persia, 138. Erie, 139. Texas, 140. Stralsund, 141. Natick, 142. Olga, 143. Palos, 144. Verona, 145. Houghton, 146. Bogota, 147. Angier, 148. Hereford, 149. Erie, 150. Lima, 151. Hayti, 152. Acra and Peru, 153. Cork, 154. Nice, 155. Oneida, 156. Genoa, 157 Thebes, 158. Taunton, 159. Lima, 160. Saugus, 161. Alaska, 162. Nineveh.

In the puzzle of Tom the Piper's Son, who stole the pig. Mother Goose reports that Tom had to run 571 3-7 yards to catch the pig, while the porker ran three-quarters of that distance, which would be 428 4-7 yards. The simple rule for solving problems of this class is to halve the distance the man would have to travel to catch the pig in a straight line added to the distance he would go if they advanced toward each other. Tom is 250 yards from the pig, and as he goes one-third faster, in a straight line, he would catch him in 1,000 yards. If they run toward each other, Tom goes four-sevenths of the distance, viz.: 142 6-7 of the 250 yards, which, added to 1,000, equals 1,142 6-7 yards. Half of this equals 571 3-7 yards, which is the correct answer.

A Rebus=

Wedding bells were rung in the "Hebrides."

Aesop's Fable of the Wolf.

The best answer to the story of the hungry wolf who impersonated a policeman to accuse an innocent little goat which had been sleeping, of throwing snowballs at him, is well told in verse by a clever correspondent:

"That cruel, wolfish copper
Told the awful snowball whopper,
To the little kid, on purpose to entrap her
To confess a graver deed.
And he quickly did succeed,
For a sleeping kid is surely a kidnapper!"

Answer to the Strike Puzzle.

The foreman received $1.10 for the first day and then 90 days at $1.11, making 91 days for $101. The handy man worked 101 days for $101. The helper put in 1 day at 90 cents and then 110 days at 91 cents, making 111 days for $101. In all 303 days work, for which the employer paid $303.

In this curious demonstration of the truth of the old adage that "the longest way round may be the shortest way across" the problem was to "find the shortest way to string an electric wire so as to connect the two ends of a room 30 feet long. The wire was to be strung along the walls, ceiling or floor, from a push button three feet above the floor near the center of the room, near the door, as shown in the picture, to a point 9 feet high, or 3 feet from the ceiling, in the rear of the room, the room being 12 feet wide by 12 feet high and 30 deep.

The shortest distance will be found to be a winding course, along the two end walls, along one side and across one end of the floor, as shown in the accompanying illustration which requires 41,785 feet of wire.

The answer to that illustrated charade is because they are both fast.

Fido's Age Puzzle.

Let the sign X stand for Fido's age five years ago. Then sister's age (being four times older, or five times as old), would be represented by 5X. Adding five years to each, 5X+5 stands for sister and X+5 for Fido, and they are now in the ratio of three to one. That is, should we multiply Fido's age by three, resulting in 3X+15 it equals sister's age of 5X+5. A comparison of the two forms shows that 2X equals 10 and X five years. To-day Fido is ten years of age and sister must own to thirty.

Bixley to Quixley.

After traveling forty minutes the guide stated that they had gone just half the remaining distance to Pixley, so it is clear that the time between Bixley and Pixley consumed 120 minutes. Later on between Pixley and Quixley he stated they were just half as far away from Quixley as from Pixley. Then they reached Quixley in an hour, which makes it clear that they consumed 180 minutes between Pixley and Quixley. Thus we have the time of the whole journey as five hours. It required 200 minutes for the seven-mile stretch, so the distance covered between Bixley and Quixley in 300 minutes must have been ten and a half miles.

In the Baseball problem the Sockers were victorious because if they had the 2 score, the Sluggers, according to usage, would not have continued after scoring 3 points.

In the Legal problem Grandfather first married Mary Ann who died and he married her sister and then departed this world himself, this evidently proves that he had married his widow's sister.

In that Criss-cross puzzle the word is "amaze."

That clever young carpenter divided the checkerboard into 18 pieces as here shown:
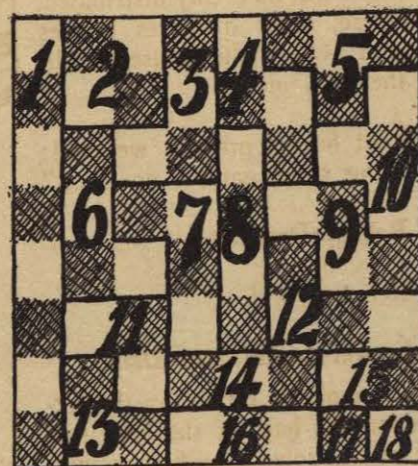
In the puzzle of Well Recommended the testimonial was like the War of Independence because it began by dropping the T into the C.

The Tower of Hanoi.

It would require 8191 transfers to solve this problem, according to rule it would be the 13 power of 2, less 1.

The Clothes Line Puzzle.

Since one piece of the clothes line was equal to five-sevenths of the other, the entire length of 100 feet divided by 1 5-7 will give the length of Mrs. Hogan's share as 58 1-3 feet and the balance, 41 2-3 feet, belonged to Mary O'Neill.

The Eccentric Will.

That remarkable puzzle of the Eccentric Will proved to be, as was intended, a remarkably difficult problem which baffled the most of our experts. It was told that Captain Smith left his money to nine heirs, consisting of a married son with a wife and child, a married daughter, her husband and child, and a stepson with a wife and child. Each husband was to receive a specific sum more than the wife, but the wife was to receive that same sum in excess of the child. The money consisted of one-dollar bills, put up in packages of sealed envelopes, each envelope containing just as many dollar bills as there were sealed envelopes in his or her package. It was stated that "Mary and Sarah together got just as much as Tom and Bill together, while Ned, Bill and Mary together got $299 more than Hank, while the Jones family got over three times as much as the Browns." Only the Christian names of the heirs being given, the puzzle was to guess their surnames by the terms of the will, which solves as follows: Bill Jones got $8,836; Mary, his wife, $5,476, and the son, Ned, $2,116. Hank Smith received $16,129; his wife, Elizabeth, $12,769, and their daughter, Susan, $9,409. Jake Brown got $6,724; his wife, Sarah, $3,364, and their son, Tom, the black sheep of the flock, only $4!

Answer to Billiard Puzzle.

In that problem of the billiard match, mathematics as well as practice shows that if Apfelbaum can beat Blumenstein when he gives him 20 points in 100, Apfelbaum makes 100 to Blumenstein's 79, for it is clear that if Blumenstein made 80 he would win, and A would not beat him at those odds. As Blumenstein gives Gugelheim 25 points, Blumen-

---

stein makes 100 to Gugelheim's 74. Therefore 74-100ths of 79, which is 58.46, shows what Gugelheim should make while Apfelbaum runs 100. While Apfelbaum runs 200 Gugelheim would make twice 58.46, which as there are no half points must be called 117. Apfelbaum could, therefore, give him the odds of 82 points, as 82 plus 117 equals 199, and would then just beat him by the required margin of 1 point. Mathematically speaking, Apfelbaum makes 1 and 2077-2923 to every 1 that Gugelheim scores.

In Pictorial Arithmetic Boat+Woman—Man leaves Boatwo, and this—Boa leaves TWO.

That puzzling query is because he is making a banquet.

That illustrated square word reads

P O S T
O D O R
S O D A
T R A P

Answer to Family Puzzle.

Miss Pocahontas Smith must have been twenty-four and little Capt. John but three, with thirteen brothers and sisters ranging between. Once more some of our solvers failed to note that "seven times older" is the same as eight times as old.

The Postmaster's Puzzle.

She got five 2s, fifty 1s and eight 5s=$1.

That rebus puzzle takes the first letter of shark, the C from ace, a from mean or base and to these add MP and it spells scamp.

In the Pictorial Charade we read Pot-he-carries weight.

The Mystery Puzzle.

This problem is readily solved by working backward, when it is revealed that I must have started with $260, the baron had $80 and the count $140.

After the first round I had left $40, the count and baron each doubling their piles and having then on hand $280 and $160 respectively. After the second round I had $80, the baron $320 and the count $80. Then the count and I each doubled our money at the expense of the baron, and we were each left with $160, and I was the only loser, to the extent of $100.

The Juggler's Puzzle is solved as follows, by having one of the triangles:
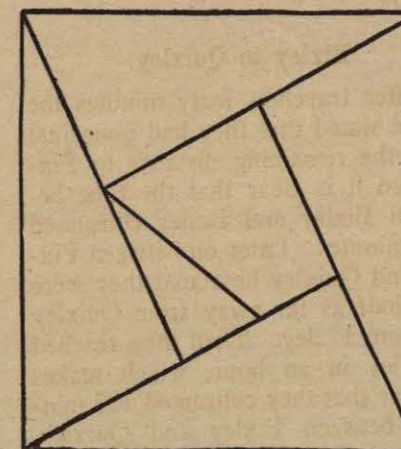
The Miller's Problem is explained by saying the customer has now nine parts of how much wheat? If he has nine-tenths of a bushel he must originally have had 10-9ths of a bushel; The miller took 1-9 and left him 9-9ths or one bushel.

Solomon's Temple Puzzle.

The carrying of the cube up an incline one mile long by half a mile in height would throw the centre of gravity of the block of marble back four and a half inches, so—mathematically speaking—the head man's hold of the arms is equivalent to 49½ inches from centre. The positions of the other two men must be equal to half that distance each, so as to give them the best possible working positions we would place one man 14¾ inches back from the centre of gravity and the other 34¾ inches; then if each man lifts 210 2-3 pounds the weight will be evenly distributed. Of course, other distances besides 14¾ and 34¾ might be used to divide the 49½ inches.

In that buried proverb we read: "A rolling stone gathers no moss."

A Rebus=Decanter.

A Rebus=Vivid.

Answer to Infantry Drill.

Describing this puzzle by the letters upon the hats of the little soldiers we will solve it by first moving B and C to the end of the line next the drummer. Fill up the gap with E and F. Fill up the new gap with H and B, when by filling up the gap again with A and E, the feat is ac-

complished, but you will find it a very complicated trick to work it backwards again from this point, so as to bring them to the original position so that the boys and girls stand alternately in a row.

Mr. Funnyman's Joke is 69 cents.

Two Men and A Ditch Puzzle.

In that famous unanswerable problem wherein it is stated, that two men dug a ditch 100 yards long, wherein the first got 90 cents per running yard, and the other $1.10 on account of the ditch being deeper, it can be shown that if the first man dug 55 5-9 yards at 90 cents, he would receive $50. From the point C, the other man dug down to the road five feet deeper, and measured the hypothenuse line of 45 and 45-99ths, at $1.10, which also makes $50. Which is doubtless the intended answer to this problem, which has been a bugbear for several centuries.
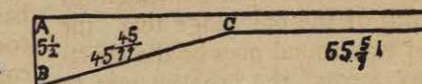
The FALSE COLOR puzzle is explained by the following illustration:
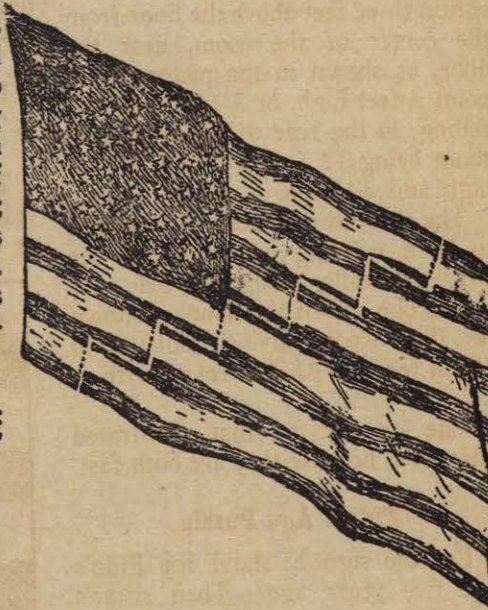
Rip Van Winkle's Game.

In the little bowling problem it was told that the pins were arranged in a row so that a player could knock down a single pin or any two adjacent ones. They play in turns, and as the little man of the mountains has knocked down pin No. 2, the

puzzle was to tell what is the best shot for Rip to make to win the game.

To retain the championship of Sleepy Hollow, Rip should now knock down pin No. 6, so as to divide the row into groups of 1,3 and 7. Then, no matter what play the little fellow makes, he will surely be beaten if Rip continues to make the best plays. To have won the game at the start, the little man of the mountains should have knocked out pin No. 7 so as to divide the row into two groups of 6. Then, whatever Rip knocked out of one group he would duplicate on the other, and thus win by a sure rule.

22 Birds.

1, Lark; 2, Eagles; 3, Black Cap; 4, Bird of Paradise; 5, Swallow; 6, Rook; 7, Kite; 8, Blackbird; 9, Sailor; 10, Crane; 11, Butcher; 12, Rail; 13, Mocking; 14, Rice; 15, Tailor; 16, Pedlar; 17, Secretary; 18, Turkey; 19, Armadillo; 20, Swift; 21, Jay; 22, Wren.

REBUS—PIGEON.

Alphabet Conundrums.

Of course there were different answers submitted to many of those conundrums built upon the letters of the alphabet, from which the following are selected as the best:

A is like honeysuckle, because the B comes after it.

B is placed before C, because we must be before we can see.

C is like a schoolmarm, because she changes lasses into classes.

D is like a squalling child, because it makes ma mad.

E is like London, because it is the capital of England.

F is like a fishhook, because it makes an eel feel.

G is a hot day, because it is the middle of August.

H is a cure for deafness, because it makes the ear hear.

I is the lucky vowel, because it is in bliss while E is in hell and the others in purgatory.

J is like your nose, because it is next to your eye.

K is like a pig's tail, because it is the end of pork.

L is like a queen, because it makes the knee kneel.

M is a favorite with miners, because it makes ore mores.

N is like a pig, because it makes "a sty" "nasty."

O is like a horse, because G makes it go.

P is a false friend, because although the first in pity it is the last in help.

Q is a guide, because it always goes head of U.

R is a winner, because it leads in a race.

S is a titled lady when it is a dutch S.

T is like an island, because it stands in the middle of water.

U is not so queer as I, because I was the queerist.

V is the spooney letter, because it is always in love.

W is like a scandal, because it makes ill will.

X is a mystery, because it is in explicable.

Y is a great lady, because it is the Fourth of July.

Z is like monkey cage, because it is the leading feature of the Zoo.

Alphabetical addition is solved by the key-word Peach Blows, a famous brand of potatoes. Number each of the letters consecutively.

Second Alphabetical Addition is Don't be lazy.

Evolution Puzzle—Fade, made, male, mile, milk, silk.

A CHARADE is Parrot.

In our trip through the dictionary we found the words: Scion, Suspicion, coercion, internecion and epinicion.

Answer to the Goose Puzzle.

The accompanying figure shows how to divide the goose into three pieces which will fit into the egg.

STREET PUZZLES.

There is one class of puzzle which may be referred to as novelties or curios, which are peddled on the sidewalks by the street hawkers and about which I desire to give a few words of advice or caution. Hardly a day passes without my receiving a communication about some game, puzzle or novelty which the author desires to put upon the market. I always remind them of Puck's advice to young couples contemplating matrimony: "don't!"

In the first place street sales are very disappointing. It is great cry and little wool. Such sales scarcely amount to anything at all and actually kill the orders from the big stores. My advice is never patent, copyright or manufacture any article of this kind until a positive order has been secured which will cover all expenses.

Not more than one puzzle or game out of a hundred is a success. You run no risk in showing your idea before a patent has been secured; I have been handling inventions for half a century and never heard of an idea being stolen.

Here is a specimen of a street-hawker's proposition:

The picture represents two empty cages, but there is another piece of movable cardboard which slides in grooves behind the picture. The spaces between the bars are cut out and two rats are drawn (in sections) which can be concealed by the bars). By moving the card board from right to left only one rat can be seen at a time, so it gives the appearance of jumping from one cage to another.

THIS FAMOUS 14-15 PUZZLE.

Starting from original position Fig. 2 may be reached in 44 plays as follows: 14, 11, 12, 8, 7, 6, 10, 12, 8, 7, 4, 3, 6, 4, 7, 14, 11, 15, 13, 9, 12, 8, 4, 10, 8, 4, 14, 11, 15, 13, 9, 12, 4, 8, 5, 4, 8, 9, 13, 14, 10, 6, 2 and 1.

Fig. 3 may be reached in 39 plays: 14, 15, 10, 6, 7, 11, 15, 10, 13, 9, 5, 1, 2, 3, 4, 8, 12, 15, 10, 13, 9, 5, 1, 2, 3, 4, 8, 12, 15, 14, 13, 9, 5, 1, 2, 3, 4, 8 and 12. To produce a magic square adding 30 the following is the best: 12, 8, 4, 3, 2, 6, 10, 9, 13, 15, 14, 4, 7, 10, 9, 14, 12, 8, 4, 7, 10, 9, 6, 2, 3, 10, 9, 6, 5, 1, 2, 3, 6, 5, 3, 2, 1, 13, 14, 3, 2, 1, 13, 14, 3, 12, 15 and 3.

The real trick of the puzzle could only be performed by changing the 9 into a 6 and the 6 into a 9, by turning them upside down during the manipulation of the blocks.

ANSWER TO PICNIC PUZZLE.

There must have been 900 picnickers who would be seated 9 to a wagon if there were 100 vehicles, or 10 to a wagon after 10 of the wagons had broken down. When they started for home with 75 wagons, it was necesary for 12 persons to ride in each wagon.

Miss Tokio first steps to the first rung then back to the ground; then to 1 and 2, back to 1, up to 2 and 3, etc., always one step down and two up, and the feat can be performed in 23 steps. Hiki's watermelon may be arranged as follows:
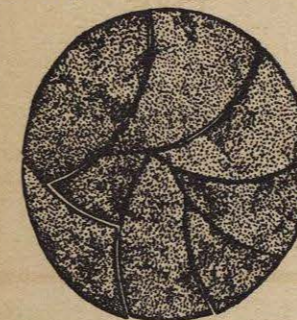
The first charade is Godlike; the second Massacre; the third Pocket-book.

TELEGRAPH POLE PUZZLE.

The bewildering feature of the telegraph pole problem turns upon the fact that no matter how many poles you may assume to pass in one minute, the speed of the train varies, but the distance between poles is the same, because we multiply and divide by the same number. Let x represent the number of poles passed and multiply by 3 5-8 times 5,280 (number of feet to a mile), and divide by x times 60, and the answer will always be 319 feet between poles. But as there would only be 59 spaces between 60 poles, we should divide the 19,140 feet by 59 to get 324 24-59 feet, as the correct answer.

The Bungalose crap player must have thrown a 1 which added to 4 gives him 5, leaving 10 to the other player who wins by 5 points. 109,778 represented in the sextimal notation would be 2204122. The figure to the right represents units; then two 6s, then one 36, four 216s; no 1296s; two 7776 and two 46656s which, added together, proves the sum. The numbers increase by the multiples of 6 instead of 10, as in the decimal notation.

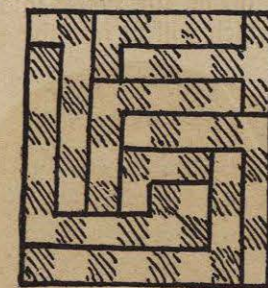The first charade is Sunshine, the next Blockhead.

SOLUTION TO DROVER'S PUZZLE.

Hank had eleven animals, Jim seven and Duke twenty-one, so that there were thirty-nine animals altogether.

Puzzleland Algebra is:
96327
85014

181341.

The Darktown students patched the checkerboard as follows:

The first charade is Windlass, the next Margin, then Offence.

JACK AND JILL PUZZLE.

In the Jack and Jill problem, it being clear that 60 feet down hill is equal to 40 feet up hill, we see that Jack accomplished the equivalent of 1,360 feet and Jill but 1,260 when they met, which shows their speeds to be in the proportion of 63 to 68. As Jack beats Jill by 5-63 of his time, which was equal to half a minute, 1-63 of his time is equal to 6 seconds, and his whole time, therefore, would be 6 minutes and 18 seconds, which is the correct answer to the problem of Jack's speed for the half-mile run.

WORTH THEIR WEIGHT IN GOLD.

In the problem of the dowers of the June brides we were told that the three brides weighed 396 pounds, and that there was a difference of 10 pounds between each. Kitty therefore weighed 122, Nellie 132 and Minnie 142 pounds. As Brown weighed the same as his bride, we will pair Kitty and Brown, weighing 244. We pair Nellie and Jones (198) at 330, and Minnie with Robinson (284) to make the required 426, which gives a total of 1,000 pounds, or half a ton.

THE GAME OF MATRIMONY wins by the play of one, two or three. Then the winning points are 9, 15, 22 and 28. You will also win if you count 34 on the thumb, 32 on the 2, 31 on the 3, 30 on the 4, 24 on the 3, 19 on the 2, 17 on the 4, 16 on the 2, 11 on the 3 or 6 on the 2.

In that clever riddle either screw is insecure.

A STUDY IN EGGS.
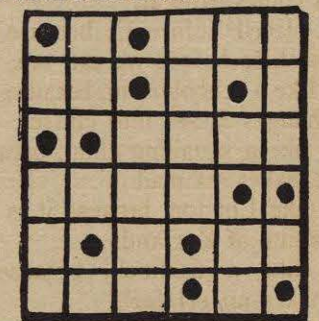
GOOD ADVICE says: "In order to be wise beak on tent tool urn."

PUZZLE.

Had Mrs. O'Flaherty invested but 42 cents she might have purchased one pound of turkey and one pound of goose. Now, if she spent that same amount of money equally divided between geese and turkeys she would have received 21-24s of a pound of turkey and 1 2-18s pounds goose—2 1-24s pounds altogether, which is a gain of 1-24 of a pound, resulting from her laying out her 42 cents by the new method.

Since an investment of 42 cents will produce a difference of 1-24th of a pound between the two methods of purchasing, it is clear that she must invest 48 times 42 cents, or $20.16, to gain 2 pounds by the Christmas method.

Investing $10.08 in turkeys and the same amount in geese she received 42 pounds of one and 56 pounds of the other, whereas had she bought equal quantities of each she would have received but 96 pounds altogether.

THE ARCHITECT cut on a straight line from the second place, as indicated by the King's thumb, to the third space as pointed out by a finger at the top, then move the right hand piece up one space and you will find that there are but 124 cells, which enables you to lay out a route starting from and returning to the left hand corner, passing through all the cells but once.

THE ILLUSTRATED TOWNS are she really lost 32 cents by the exchange.

MERRY-GO-ROUND PUZZLE.

There must have been thirteen children on that Merry-go-round. Those who rode ahead of Willie at the same time came behind him. As there were twelve of them, we simply add three-quarters of twelve to one-third of twelve, which gives thirteen, the total number including Willie himself.

HEIDELBERG PUZZLE.

A rule for solving this problem is to divide the total number of students into the difference between the amounts produced by multiplying the separate student groups by the total group—the quotient being the number by which one group exceeds the other.

We must find a number less than 24 which will divide evenly into 108, and 18 fills the bill. The quotient 6 is the excess of Red Caps over Blue Caps. Therefore there must have been 12 Red Caps and 6 Blue Caps. The Red Caps consumed 216 steins and the Blue Caps

The Frenchman wished to say that he found a hair in the butter.

THE OLD WOMAN in the shoe had 55 children as proven by the

occupations and sports of those shown in the picture.

THE LETTER CARRIER commenced at Ave. B and 1st street, went up 1st street to Ave. C, which he followed to 3rd street, down to Ave. A', thence backward to 2d street, up to Ave. C, along to 4th street, down to Ave. A, back to 1st street, up to Ave B, and through to 4th street.

THE DICE GAME: Player should commence with 2 or 4 if he hopes to win.

THE ARCHERY Puzzle answer is 17, 17, 17, 17, 16, 16 = 100.

THE RECESS HOUR Puzzle may be read: "One ought to wait for tea."

MATHEMATICAL COP PUZZLE.

The mathematical cop says that his conversation with McGuire occurred at 9:36 A. M., because one-quarter of the time from midnight would be 2 hours and 24 minutes, which, added to half the time till midnight (7 hours and 12 minutes), equals 9:36.

Were it not for the fact that McGuire bid Clancy good morning, showing that their conversation took place in the A. M., it might be assumed that the time was P. M., and 7.12 P. M. would be an equally correct answer.

THREE 12-INCH NAPKINS will cover a 15 and 1-4 inch square table. Place one squarely on one corner and the others will easily cover the remainder.

These are the Twenty-one Palindromes that the rhymes concealed: 1. Anna. 2. Eve. 3. Ada. 4. Nun. 5. Madam. 6. Bib. 7. Pap. 8. Gig. 9. Level. 10. Ewe. 11. Noon. 12. Eve. 13. Pop. 14. Pup. 15. Pip. 16. Mum. 17. Gog. 18. Eye. 19. Tenet. 20. Peep. 21. Deed.

THE HARDWARE STORE sells: Hammers, glass, spades, bolts, locks, buckets, tacks, pails, casters, stove lifters, saws, pulleys, monkey-wrenches, white leads, quays and springs.

THAT FRENCH CRYPTOGRAM reads: "J'ai grande apetite" a little too long too wait for tea. The P. S., is supposed to mean "add a line more" viz.: Adaline Moore. THE FOUR SOUNDS are ring, roar, bark and creek.

BUSINESS PUZZLE.

As the difference between a price which is 10 per cent. advance upon one doll and one which is 20 per cent. advance upon ninety cents is two cents, which is 1.55 of the former price, so in this case the price for which the goods sold is fifty-five times twenty-five cents, which is $13.75.

A little study will give the several names of Bluebeard's wives correctly, and the keys may be placed in the following groups: 78x 345 = 26910.

SUBSTITUTE an E for R and spell FEALTY.

IN PUZZLELAND you can see the portrait of Washington by glancing from left to right along the center of the big tree. The simplest way to cut a square into six squares is to mark it off into nine squares, then the largest one will be made up of four squares, and there will be five more little ones: THE CHARADES are: Hardship, Shakespear and Bugbear.

CREDIT CHECK PUZZLE.

In that mark down china sale Mrs. Bargainhunter bought ten plates at 13 cents each on Saturday and returned them on Monday for eighteen saucers at 3 cents each and eight cups at 12 cents each, making a total of $1.50, as she returned the plates at 15 cents each; but on Saturday she could have bought thirteen cups at 10 cents each, so

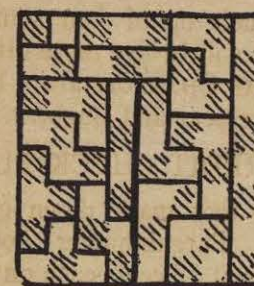LITTLE BO PEEP arranged the four pieces as follows:
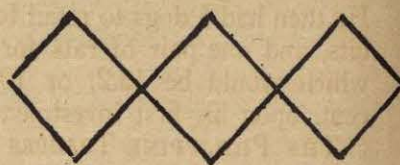
THE CHARADES read: Vanguard, strategem and Sapling. MILITARY PUZZLE: Align.

THE PUZZLELAND SWISS FLAG
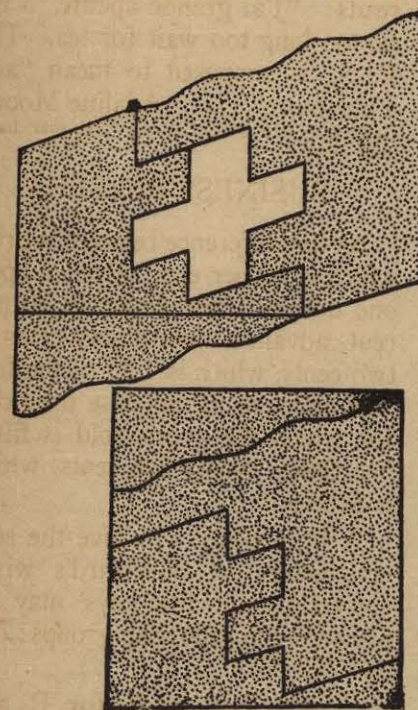
Puzzle is solved as follows: A Swiss Cheese can be divided in to 26 pieces by five straight cuts. A chessboard may be divided into 18 pieces without any two pieces being exactly alike, as follows:

SOLUTION TO ABACUS PUZZLE.

In the Abacus problem, the Canton merchant must have purchased 44 puppy dogs for 88 bits, and 22 pairs of rats at 2 bits a pair, making in all 132 bits. He sold 39 dogs at 2.2, equals 85.8, and 21 pairs of rats at 2.2, thereby getting back his original outlay of 132 bits. He then had 5 dogs to retail for 11 bits, and one pair of rats for 2.2, which would be 13.2, or 10 per cent. upon his first investment.

THE PHILIPPINE TRADERS have four rings weighing a quarter of a pound, three-quarters of a pound, two pounds and a quarter and six pounds and three-quarters. By clever juggling with these four

weights, so as to place some on opposite ends of the scales as counter balances, any odd number, like three and a half pounds, may be weighed.

THE BURIED CITY puzzle is Dublin.

OUR COLUMBUS PROBLEM.

80.55 decimally expressed $= 80.\overline{5}$

$$\frac{99}{97}$$ " " $= .\overline{97}$

$$\frac{46}{99}$$ " " $= .\overline{46}$

82. Total. Therefore = 82.

The . over a number signifies that it is a repeater which would go on for ever, as when we endeavor to describe 1-3 decimally, viz.: 3)10.(.3333 etc., ad infin., but expressed .$\overline{3}$; with a series of numbers we place the dot over the first and last, as with 1-7, viz.: 7)10(1.42857, which series of numbers would repeat in the same sequence for ever. The remarkable feature being that a repeater is exactly equal to 1-9, viz.: 1-9 and .$\overline{1}$ are the same.—5-9 = .$\overline{5}$, just as the series .$\overline{142857}$ = 142857 over 999999.

CHARADES: Nameless, Butchery.

PUZZLING PRATTLE.

In that puzzling prattle it is evident that the children were so befogged over the calendar that they had started to school when their books on Sunday morning! for it is plain that when the day after to-morrow is yesterday, to-day will be three days hence, just as when the day before yesterday was to-morrow carries us back three days from now, which must be Sunday, to be midway between the two "to-days."

HIDDEN CITIES and RIVERS: Pesthe, Augusta, Lima, Carson, Cleburn, Atchison, Po, Nile, Seine, and Don.

HORSE TRADE PUZZLE.

Sixty dollars is half the cost of the animal and three-quarters of the cost of his keep. This makes one quarter of the keep one-third of $47 and the total loss $28 2-3.

ANSWER TO BATTLE OF FOUR OAKS.

The accompanying cut shows how to divide the square lot into four pieces of the same shape and size, with a tree to each piece.
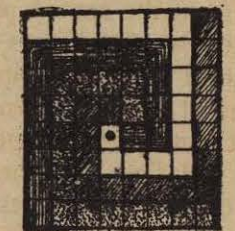
REBUSES: Pideon and Aspire.

A SWITCH BOARD Problem may be wired so as to require but 234 inches, as follows:
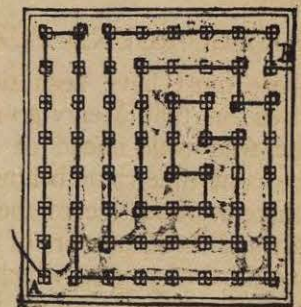
THE HISTORICAL BURIED CITY is Edinburg, followed by 195 Weser, Elbe, Thames, Ganges, Tagus, Canada, Kissingen, Hingham, Angora, Dalton, Ireland, Bethel, Rye, Stafford, Acre, Susa, Gravesend, Coromandel, Persepalis and Cordova.

ANSWER TO EGG PUZZLE.

Regarding the question as to how high Hans could safely build a pyramid of eggs if each egg weighs two ounces and would sustain a pressure of eight pounds, it may be said that the industrious grocer has found by actual trial that a triangular pyramid of 193 eggs on the line of the base would contain 18,721 eggs, which would support the 192 layers containing 1,216,865 eggs. It makes no difference whether we build a square