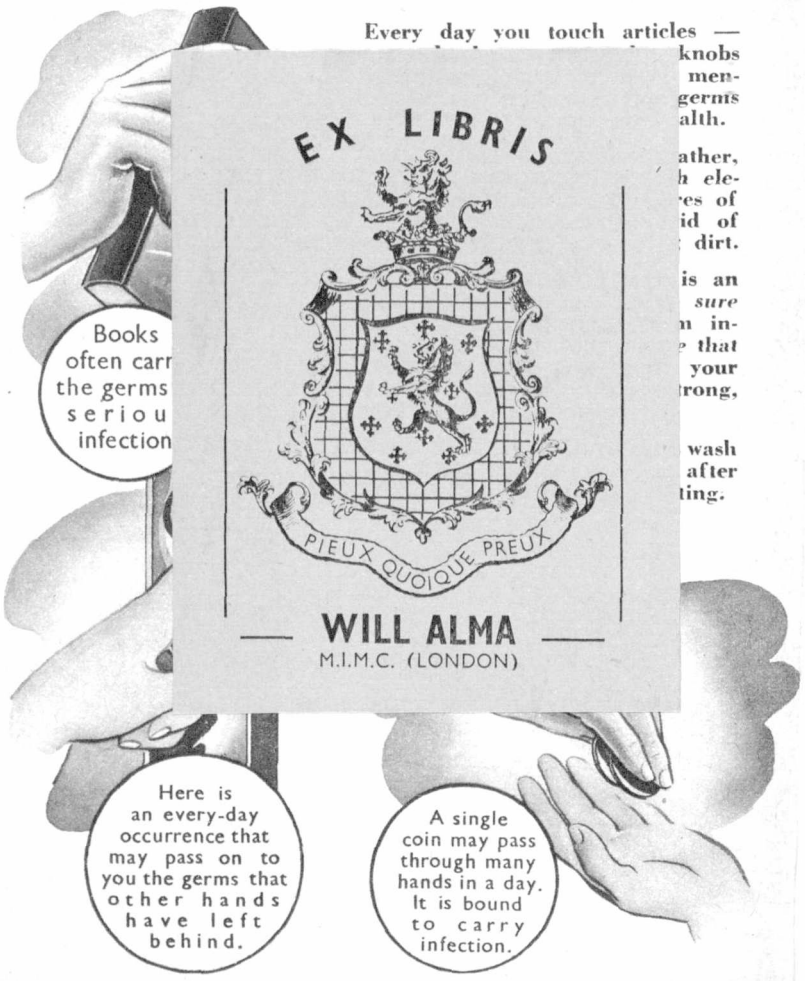
LIFEBUOY BOOK No. 4

PUZZLING PROBLEMS AND CLEVER CATCHES

Boys and Girls!

PROTECT YOUR HEALTH WITH LIFEBUOY!



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INTRODUCTION

Everyone enjoys a good puzzle. In this book you have a wide range of entertaining brain-teasers and intriguing Optical Illusions.

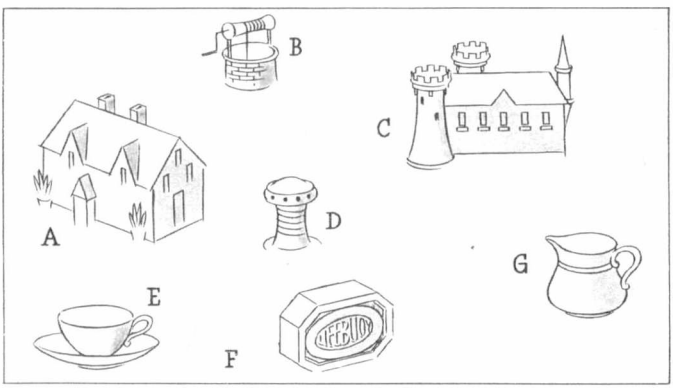
As for the "do's" and "don't's" of this book—we have only one of each. *Do* read the instructions right through carefully before beginning any trick, and *don't* give up if you fail to get a puzzle out first try. Read the instructions through a second time, and begin again.

You'll get plenty of fun puzzling the tricks out for yourself, and then trying them on your family and your friends. They'll be just the thing at parties, too. When you say: "Can you do this one?" you'll soon have a circle round you, and from then on there won't be a dull moment for the whole evening. Why not start a new fashion—have a Puzzle Party at home?

Problems to make you think.

THE MODELLER AND THE RODS

A modeller had 7 models (placed as in illustration) and decided that they would show to better advantage if each was in a compartment of its own. Being fixed to a board, he could not move the models. However, he had 3 straight rods which he decided to use for the purpose. Can you draw 3 straight lines showing how he placed the rods so that each model was in a compartment of its own?



Problem No. 1. Solution on Page 60.

DIVIDING THE WINE

Two men bought a cask of wine which they wished to divide evenly between them, but they had no means of measuring it. All they had was a spare cask. How did they divide the wine?

Problem No. 2. Solution on Page 60.

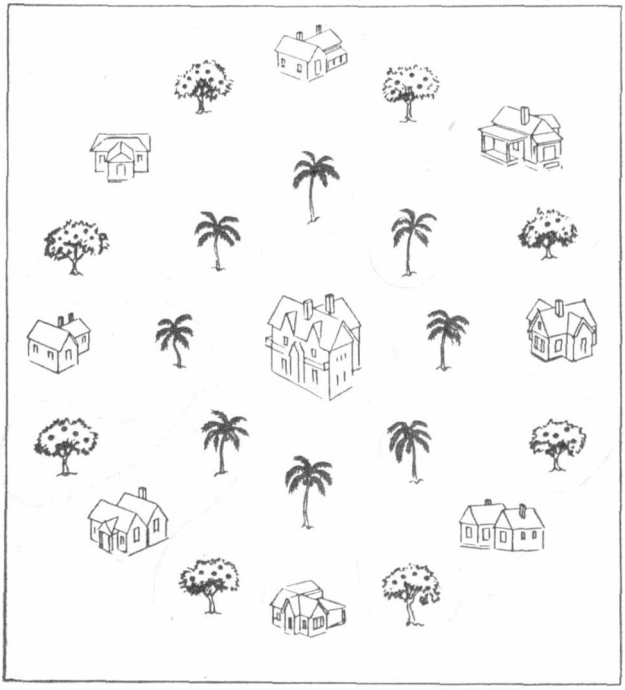
THE TWO BOYS AND THE CHIMNEY

Two boys playing on a roof fell down a chimney. One boy was covered in soot, but the other was quite clean. The clean one went and washed himself, but the dirty boy did not. How was this?

Problem No. 3. Solution on Page 59.

THE FARMER AND THE APPLE TREES

A farmer's house was surrounded by those of his 8 sons. Now the farmer had 8 apple and 8 palm trees in the garden around his farmhouse (illustration) and he wished to give a palm tree to each son and keep the 8 apple trees himself. He successfully grew a hedge to make this division. What shape was the hedge?



Problem No. 4. Solution on Page 58.

CROSSING THE RIVER

A farmer and his wife with their son and daughter and the dog were going to town. They came to a river. Now the only boat was a frail one which could not hold more than 140 lbs. Now both the farmer and his wife weighed 140 lbs. each, the son and daughter each weighed 70 lbs. and the dog scaled 20 lbs. How did they all get across the river?

Problem No. 5. Solution on Page 57.

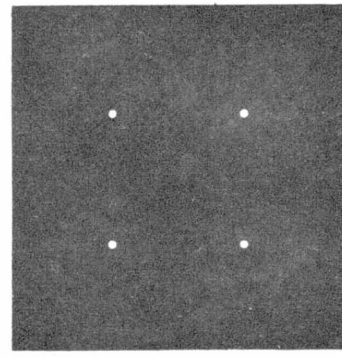
THE MAN AND THE GUILLOTINE

During a long sermon a man in the back pew began to doze. His head dropped gradually forward until he slept. He dreamt he was in the French Revolution and about to be guillotined. At this moment his wife noticed him asleep and tapped him on the back of the neck with her fan. Her action, coming just when he dreamt the axe was about to fall, proved too great a shock and killed him instantly. Is anything the matter with this story?

Problem No. 6. Solution on Page 59.

THE OLD LADY AND THE PATCH

An old lady needed a plain square of material for a patch, but the only piece she could find the right colour was a square 4 times as large as she wanted, and with a design of dots (illustration). How did she cut a square of material the size needed from this large piece, and avoid all the dots?



Problem No. 7. Solution on Page 57.

Catches with Matches.

THE DISHONEST SERVANT

Arrange 16 matches on the table to form a T, 11 in the horizontal row and 5 in the stem of the T, beginning from the middle match of the horizontal row.

In this formation were packed 16 bottles of famous old wine belonging to a merchant. Now the old man was going on a journey, so counted his wine to be sure his servant would not steal any while he was away. This merchant counted in a peculiar way. He commenced at one end of the horizontal row, counted to the middle of this top line, then branched off down the stem of the T and continued his counting to the end of the line, and remarked: "There are 11 bottles of wine." Then he commenced at the other end of the horizontal row and counted to the centre, then continued his counting down the vertical row, and said: "There also are 11. Now I'll go my journey, and if my servant steals one bottle I shall know."

But the wily servant stole 2 bottles, but when the merchant returned and counted his bottles of wine he found 11, as before. How did the servant manage this?

Problem No. 8. *Solution on Page 58.*

MULTIPLYING MATCHES

Take 8 matches. Can you make 2 and a half dozen out of them?

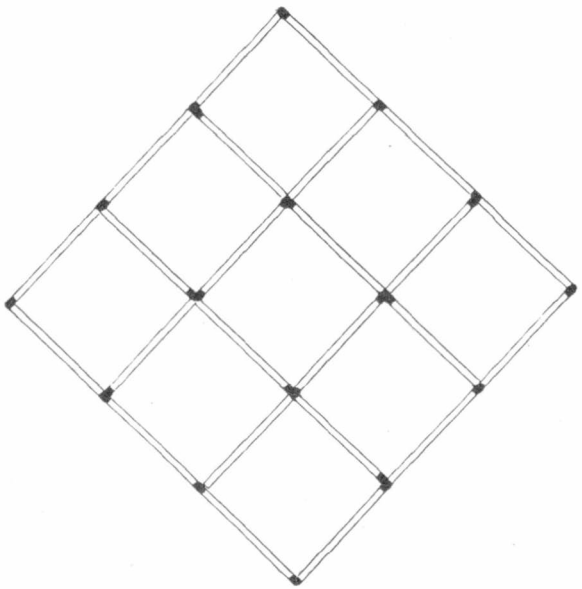
Problem No. 9A. *Solution on Page 55.*

Arrange 3 matches to make 4.

Problem No. 9B. *Solution on Page 55.*

A PUZZLE IN SQUARES

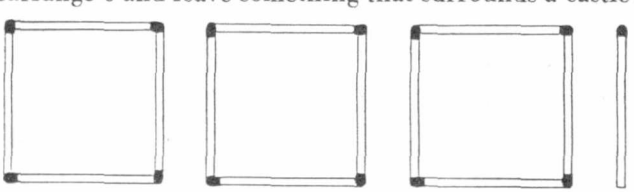
Using 24 matches, arrange 9 small squares—3 rows of 3 squares—to form 1 large square (illustration). Take away 8 matches and see if you can leave 2 squares.



Problem No. 10. *Solution on Page 56.*

A WORD FROM MATCHES

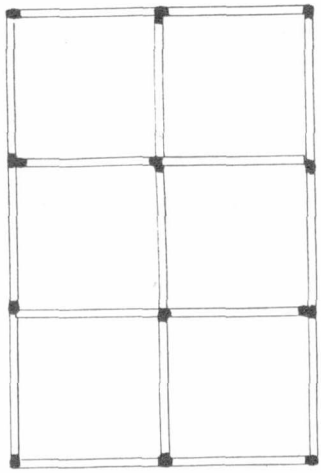
Here you see an arrangement of 13 matches. Can you rearrange 6 and leave something that surrounds a castle?



Problem No. 11. *Solution on Page 57.*

MORE MATCH SQUARES

Arrange 17 matches in 2 rows of 3 squares each to form an oblong. (Illustration.) Can you take away 5 matches so as to leave 3 squares?

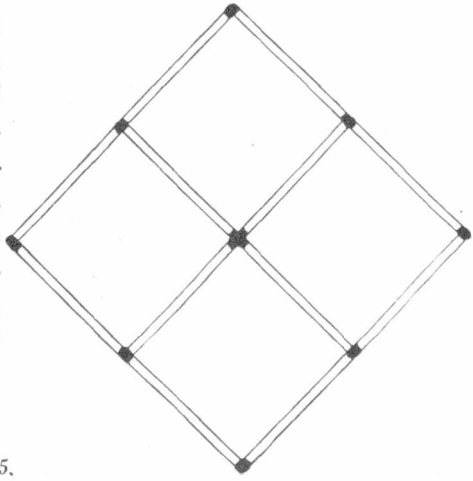


Problem No. 12.

Solution on Page 56.

A SQUARE TRICK

Arrange 12 matches to form 4 squares of equal size (illustration). Remove 4 matches and replace them in different positions so as to form 3 squares only.



Problem No. 13.

Solution on Page 55.

THERE'S A SECRET IN THIS

This puzzle is really a game between you and your friend which, if you know the secret, you can always win.

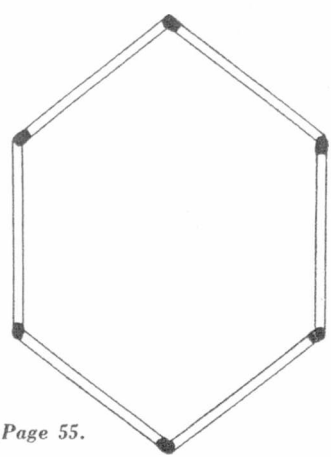
Put 13 matches on the table. The game is that you each take a turn to remove a number of matches from the pile—1, 2 or 3, but no more than 3. The object is to avoid being so placed that you have to take the last match. You can always win the game providing you observe the following rules:—

1. Make your friend take the first turn.
2. If his first draw from the pile is 3 matches, you take 1 match. If he removes 2 matches, you take 2 matches. If he removes 1 match you take 3 matches always leaving 9 matches on the table for his next turn.
3. Do exactly the same thing after his next turn, so as to leave him 5 matches on the table for his third draw. If you do this he will always find himself forced to take the last match.

Problem No. 14.

DIVIDING THE DIAMOND

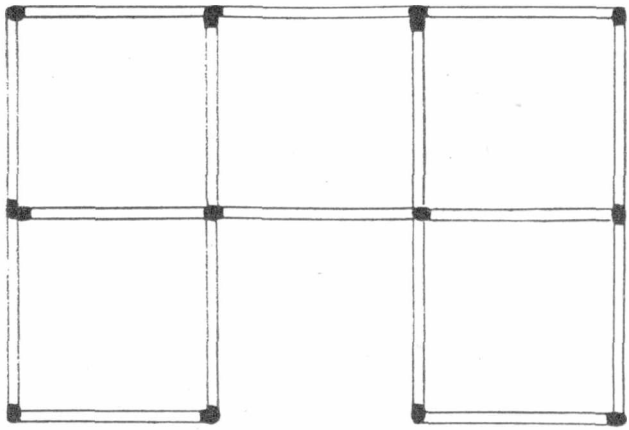
Here you see 6 matches arranged to form a diamond. Can you re-arrange 2 matches and add 1 so as to form 2 diamonds?



Problem No. 15. *Solution on Page 55.*

CAN YOU DO THIS?

Here are 16 matches arranged to form 5 squares. Can you remove 3 matches and replace them so that you have only 4 squares the same size as the present ones?



Problem No. 16. *Solution on Page 54.*

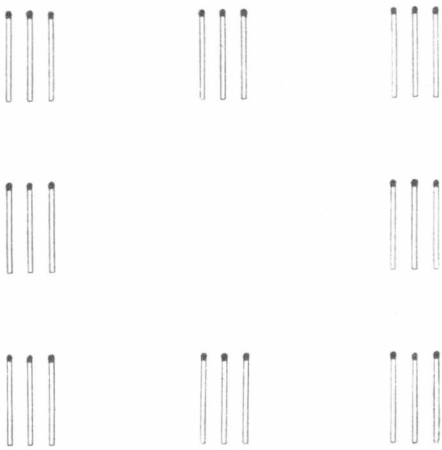
TO STRIKE A SAFETY MATCH WITHOUT A BOX

Your friends will tell you that you can't strike a safety match on anything but its own striking paper. You say that you *can*, and proceed to strike it on the sole of your shoe. Of course you don't tell them that previously you carefully rubbed the striking paper of a safety match box on the sole of your shoe.

Problem No. 17.

EASY MATHEMATICS WITH MATCHES

Arrange 24 matches in groups of 3 so that they form a square. (Illustration.) You will notice that the matches along each side add up to 9. The problem is to add 4 more matches, and rearrange the groups so that you still get 9 matches along each side.



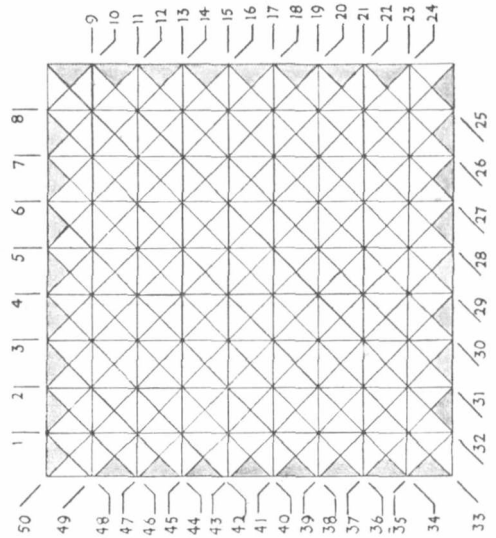
2. Having done this, add 4 more matches to your solution and rearrange your groups so that you *still* get 9 matches along each side of the square.

3. Now take away 12 matches from your solution and rearrange the groups so that you still get 9 matches along each side.

Problem No. 18. *Solutions on Page 53.*

Puzzles with Pencil and Paper.

THE QUARRELSOME BARONS

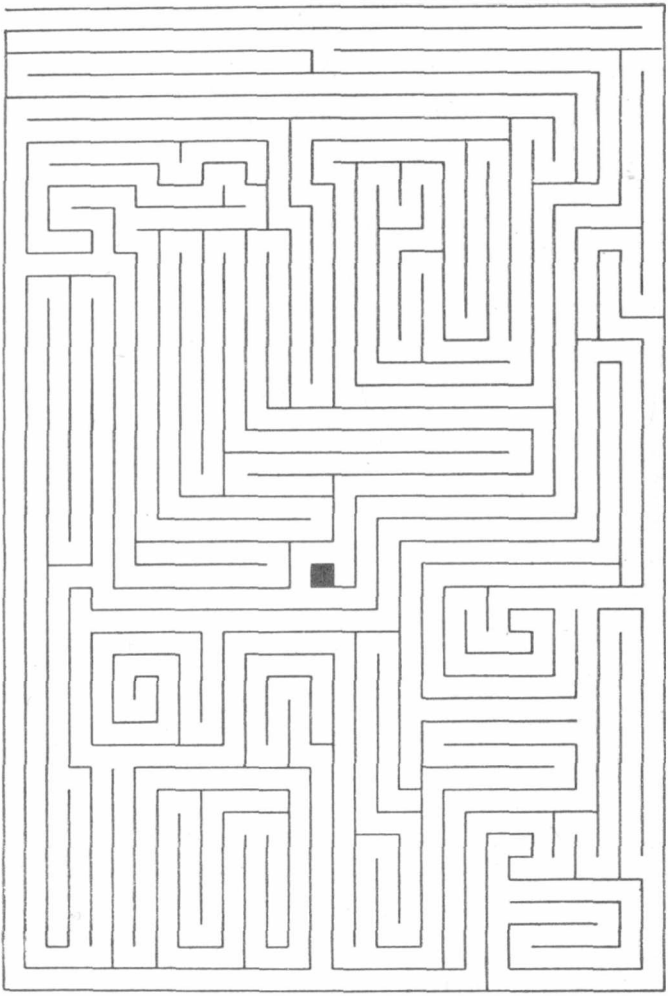


There was once a peace-loving king who was very worried because the 8 powerful barons of his kingdom were always quarrelling among themselves and causing wars. Determined to keep peace, the king ordered 50 highways to be laid down across his country, so that although each baron's castle was situated at cross-roads, yet they could get out of the kingdom by any of the 8 roads without meeting any other castle. Here you see a map of the roads. See if you can place each of the 8 dots at an *8-way* cross-road so that no 2 dots are in the same line, horizontally, perpendicularly, or diagonally.

Problem No. 19. *Solution on Page 54.*

THE MAZE

Here is a maze. Start at the centre and find your way to the exit without crossing any line.



Problem No. 20.

MYSTERY OF THE PAPER STRIPS

From simply cutting around paper rings the same way (seemingly) you can produce 2 narrow rings, 2 rings *looped together*, or 1 extra long ring.

Secret:

Take a strip of paper 2 inches wide and 25 inches long and glue the ends together with stamp paper to form a ring. Pierce the ring with scissors and cut round. You now have 2 narrow rings. Take a second strip of paper. Give one end one twist *towards* you, and the other end one twist *away* from you. Now, gum the ends together with stamp paper, pierce with the scissors and cut round. This time you have 2 rings linked together. Take a third strip of paper, but give only the right-hand end one twist before gumming the ends together. Cut round as before and one big ring is seen.

FIG. 1

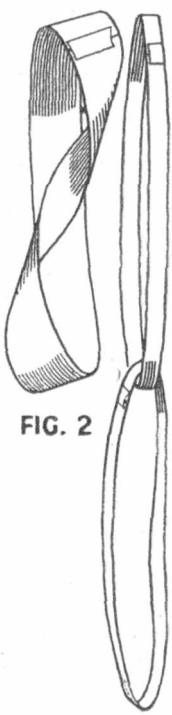


FIG. 2

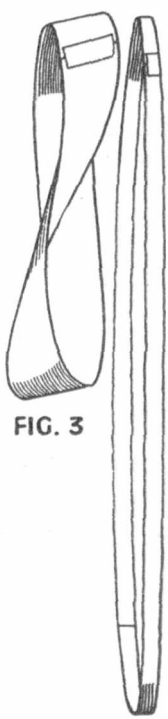
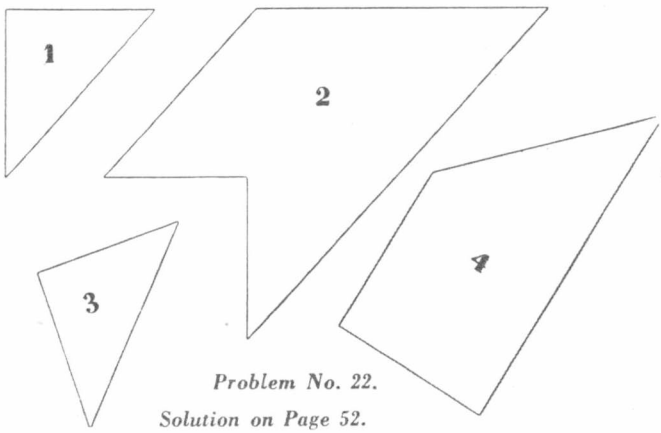


FIG. 3

Problem No. 21.

FIND THE LETTER

Cut out figures shaped as 1, 2, 3 and 4 in the diagram in paper or cardboard and see if you can arrange them to form a letter of the alphabet.



Problem No. 22.

Solution on Page 52.

RESTORING THE TORN PAPER

Your friends see you take a piece of paper, fold it in half, crease it, open it out and tear it across the crease. Then place one piece behind the other, fold across the middle, open it out and again tear across the crease. This is done until the paper is in tiny pieces. You are then seen to open the whole piece of paper untorn.

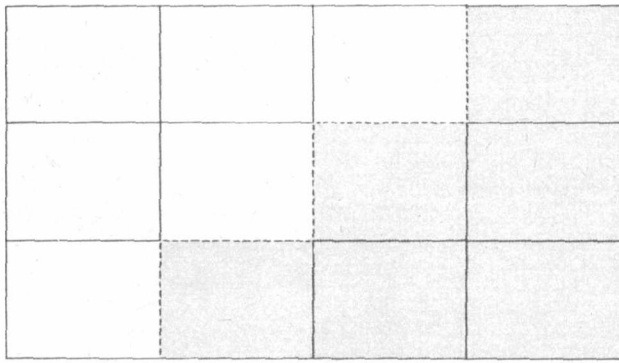
Secret:

Unknown to your audience you have two pieces of paper the same size, one hidden behind the other. Fold them *both* in halves each time—always folding towards you—but open and tear only the back piece, the front piece remaining folded. Place one torn half in front of the other. Fold both lots of paper. Open up the pieces you have been tearing, and again tear across the crease. Repeat until the back piece is in scraps. Hide these behind one thumb and open up the whole piece of paper for all to see.

Problem No. 23.

TO CHANGE AN OBLONG INTO A SQUARE

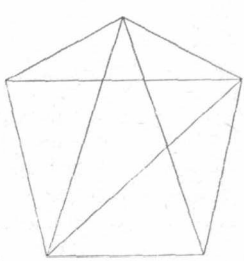
Copy the illustrated oblong on to cardboard and rule the squares, but do not show the dotted line or the shading. Now ask your friend to divide it in two pieces so that when differently placed they will form a square.

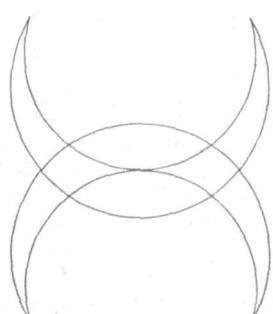


Problem No. 24. Solution on Page 51.

ALL IN ONE

Can you draw these figures without taking your pencil off the paper? Points may touch, but you must not go over the same line twice.





Problem No. 25. Solution on Page 52.

Card Tricks

DETECTING THE MOVED CARDS

In a pack you often find some cards which have the top margins wider than the bottom ones. Select 4 such court cards and lay them on the table face upwards, narrow margins at the top. Turn your back to the cards and ask your friends to turn round any 2 cards and you will be able to tell which 2. This simple secret will completely baffle the onlookers.

Problem No. 26.

TO TELL A CARD WITHOUT SEEING IT

Before beginning this trick, glance at the card on the bottom of the pack (say the 2 of hearts). Now set out the cards in 4 or 5 smaller packs, remembering where you place the one containing the bottom card. Ask a friend to look at the top card of any of the smaller packs and put it back. Now pick up these small packs, making sure to put the pack containing the bottom card (the 2 of hearts) upon the chosen card. Let your friend cut the cards, then you go through the pack, and the card immediately in front of the 2 of hearts is the card you are looking for.

If, however, your friend happens to choose the card on top of the heap containing the 2 of hearts you must proceed differently. When you are placing the small packs on top of each other take a quick glance at the bottom card of the pack which goes on top of the chosen card (say the 6 of clubs). In this case the card you are looking for will be the one before the 6 of clubs.

Problem No. 27.

THE 4 BURGLARS

Let your friends see you place 4 kings in different parts of the pack, cut the cards 3 times, then bring the kings out of the centre of the pack *together.*

Secret:

Taking the 4 kings from the pack, you arrange them one behind the other. The secret lies in the fact that, without letting your audience see, you have placed 2 other cards behind the third king from the front, so they are completely hidden by it. (See illustration.) Now show your 4 kings, then place them face downwards on the top of the pack, which you place face down on the table. Tell this story: "Here are 4 burglars about to enter a building (the pack). The first burglar (show the king on the top of the pack) goes in by the basement (place this king on the bottom of the pack). The second burglar gets in on the first floor, and the third one on the top floor." (As you say this, take the next 2 cards from the top of the pack and place them about $\frac{1}{3}$ and $\frac{2}{3}$ of the way through the pack *but do not show them.* This is the whole point of the trick, as these are not 2 of the burglars, but the 2 cards you hid behind the third king.) Continue the tale: "And the fourth burglar stays on the roof to keep watch (show the next king on top of the pack, then turn him face downwards again). Along come the police and there's a great to-do as they chase the burglars up and down stairs." (Shown by cutting the cards any odd number of times—3, 5 or 7 times. This brings the 4 kings together in the pack.) Finish your story: "At last the police give up the search, whereupon the 4 burglars jump out of one of the windows together." And, spreading out the pack, you show the 4 kings next to each other.

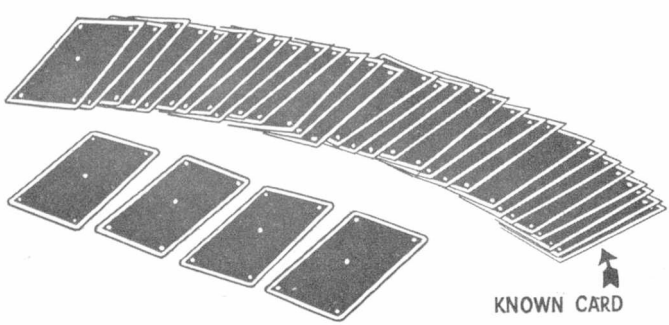
Problem No. 28.

TO MAKE A FRIEND PICK ANY CARDS YOU LIKE

Spreading a pack of cards face downwards on the table, you call for a particular card and ask a friend to pick it from the pack and hand it to you without looking at it. 4 different times you call for a certain card and your friend picks one from the pack. Then you name a card and pick it. Now you turn over the 5 cards and your friend is surprised to see that they are the 5 you called for.

Secret:

Previously note a card on the end of the pack (in this case say the 2 of diamonds). Spread the pack out, and call for this card. Your friend picks a card from anywhere in the pack and hands it to you without looking at it. Noting it (we'll call it the king of hearts), you turn it face downwards in front of you and call next for the king of hearts or whatever card you were last handed. 3 more times you call for the card you were last given and your friend picks one for you. But the fifth time you say: "Now I'll pick one." Of course you call for the card last handed to you, but you purposely pick out the card you know to be on the end of the pack (in this case the 2 of diamonds). Now turn over the 5 cards in front of you—and there are the 5 cards you called for.



N.B.—It is a wise precaution to note the last 3 cards in the pack in case your friend happens to pick the end card and so spoil your trick.

Problem No. 29.

THE CARDS THAT COUNT THEMSELVES

Prepare a pack of cards with a king on top, queen next to it, jack next to it, and so on down to the ace, all face downwards, the remaining 39 cards being under the ace in any order. Place on top of the pack. From the bottom of the pack take any number of cards which are obviously less than 13. Do not count them, but give them to a friend to count. Then ask him to place them on the top of the pack face down. Now deal out the cards face downward, higgledy-piggledy on the table, taking particular note of where you place the fourteenth card from the top. After you have dealt out the whole pack, make a flourish with your hands and point to the fourteenth card. When your friend picks it up he will find that it tells him how many cards he counted and placed on the top of the pack. For example, if he counted 9 cards, the one you give him will be a 9.

Problem No. 30.

BEHEADING THE JACKS

Take the 4 Jacks from a pack of playing cards and arrange them so that only one head is showing on *each* card.

Problem No. 31. *Solution on Page 50.*

TO PICK OUT A CARD DRAWN FROM THE PACK

Just as you finish shuffling a pack of cards, glance at the bottom card (say 10 of clubs). Hand the cards to a friend and ask him to pick one from the pack, note it and place it on the top. Then request him to cut the cards. If he wishes, he may even cut them again. Now if he hands you the pack you can tell him which card he picked.

Secret:

The picked card is always the one immediately in front of the card which you noted as the bottom card (10 of clubs).

Problem No. 32.

Puzzles with Figures.

PICKING THE NUMBER

Previously write 7 on a card, and give it to your friend to put in his pocket. Of course he must not look at it. Now ask him to answer a number of questions quickly. You begin:

Twice one?

Twice two?

Twice four?

Give me a number between 5 and 12?

It is a strange thing, but in nearly every case he will say 7. Tell him to look at the number you previously gave him. He will be surprised to see that it is 7.

Problem No. 33.

AN EASY BARGAIN

Let a friend see you put your penny in a match box. Request him to place a penny of his in the box also. Show him the twopence, shut the box, and say: "Now would you buy this for a penny halfpenny?" Thinking of the twopence in the box, he will probably say "Certainly." Then explain to him that he would be making a bad bargain, as he would be buying back his *own* penny!

Problem No. 34.

HOW FAR DID THE WORM WORM?

Tell your friends this story: "2 volumes of the 'Three Musketeers' stand on the library shelf. The books are the same size, 2 inches thick between covers, and each cover measures $\frac{1}{4}$''." Let your audience write down these figures, then continue: "A worm is on the title page of Vol. 1, and worms his way through to the last page of Vol. 2. How far did the worm worm?"

Problem No. 35. *Solution on Page 49.*

THE WISE CHINESE

A Chinese farmer died, and his will directed that his 19 pigs were to be divided between his 3 sons. The eldest son was to get $\frac{1}{2}$ the pigs, the second boy $\frac{1}{4}$ of the 19, and the youngest $\frac{1}{5}$ of the pigs. But none of the animals was to be killed during the division. The sons were finding the task impossible when a farmer came along, driving his pig. He divided the pigs as directed. How? The farmer added his pig to the 19 in the pen, making 20. He gave half the pigs (10) to the first son, a quarter (5) to the second boy, and a fifth (4) to the youngest brother. This total made 19, leaving his own pig in the pen, which he drove off. How was he able to add his own pig to the 19, divide the total, and then get his pig back without taking it from one of the sons? Because $\frac{1}{2}$ plus $\frac{1}{4}$ plus $\frac{1}{5}$ don't make a whole number.

Problem No. 36.

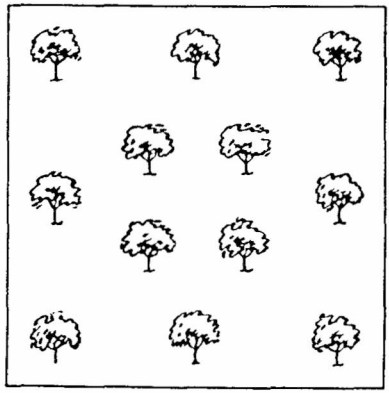
BE QUICK WITH THIS

Ask a friend to write down quickly eleven thousand eleven hundred and eleven. You will quite often get 11,1111. Of course the correct answer is 12,111.

Problem No. 37.

THE OLD MAN'S WILL

An old man died, and in his will directed that his ground, planted with 12 trees, should be equally divided between his 4 sons. Each piece of land was to contain an equal number of trees and to be of the same shape and size. How was the division made?



Problem No. 38. *Solution on Page 51.*

THOUGHT READING IN FIGURES

Say to a friend: "Write down a number with 3 figures in it, the first being larger than the other 2. Reverse it. Subtract the second number from the first. Now tell me the last figure in the answer and I'll tell you the result," e.g.:

Say your friend thought of 862
Reverse it 268

Subtract 594

When he tells you the answer, the middle figure of the answer is always 9, and the last and first figures always add up to 9. As above: You are told the last figure is 4—as 5 and 4 make 9, the first figure must be 5. The middle one is always 9, so there you have the answer—594. Try it with any 3 figures—but the first *must* be larger than the rest.

Problem No. 39.

TO TELL A NUMBER THOUGHT OF

Ask a friend to think of a number and you will tell him what it is. Now tell him to multiply the number by 3, add 2, multiply the new total by 3 and finally add the number first thought of, then give you the result.

Secret:

When your friend gives you the final answer, simply cut off the last figure, and you have the number he first thought of. E.g.: Say he thought of 12.

Multiply by 3	= 36
Add 2	= 38
Multiply by 3 again	= 114
Add the number first thought of	= 126

Cut off the last figure, which leaves 12.

Problem No. 40.

THE BOAT AND THE ROPE LADDER

Say to your friend:
"A rope ladder with rungs 1 foot apart is hanging over the side of a boat so that 4 feet 6 inches of it are under water. How many rungs are covered with water?"
He may say 4 or 5, but the correct answer is 4, and if he is mistaken give him the answer.
Then say to him:
"Now if the tide rises 3 feet, how many rungs will be covered by the water?"
The usual answer is 7, but as the boat rises with the tide there will still be only 4 under water.

Problem No. 41.

WEIGHING THE BRICK

If a brick weighs 4 lbs. and half a brick, what is the weight of a brick and a half?

Problem No. 42. *Solution on Page 49.*

TO TELL A PERSON'S AGE

Ask a person to write down the number of the month in which he was born. (January is 1, February is 2, etc.) Tell him to multiply by 5, add 2, multiply by 20, then add his age. Next he subtracts 40. Now ask him for the answer. When he tells you, the last 2 figures will be his age and the first will be the month. If there are only 2 figures left, the last is his age and the first the month. For example: If the answer is 114, he is 14 years old and was born in January.

Problem No. 43.

THE SPIDER ON THE WALL

A spider was trying to climb a wall 20 feet high. He climbed up 4 feet every day and fell back 3 feet every night. How long did it take the spider to reach the top?

Problem No. 44. *Solution on Page 50.*

FENCING THE PADDOCK

Say to your friend: A mile of fencing encloses a square paddock of 40 acres. What sized paddock will be enclosed by 2 miles of fencing?

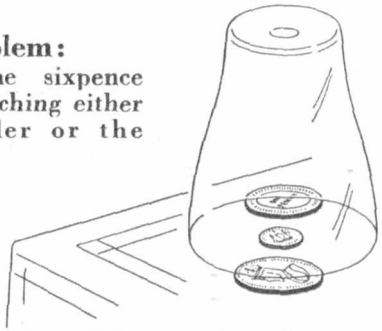
Problem No. 45. *Solution on Page 47.*

Tricks with Coins.

THE HYPNOTISED SIXPENCE

Place 2 pennies on the tablecloth with a sixpence between them. Now rest a drinking glass on the 2 coppers.

Problem:
Remove the sixpence *without touching either* the tumbler or the pennies.



Problem No. 46. *Solution on Page 48.*

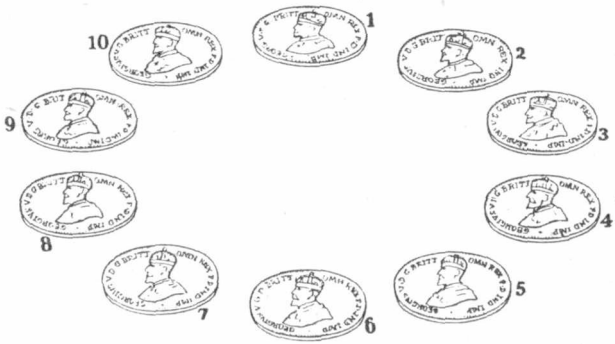
PUZZLE YOUR FRIENDS WITH THIS

Ask a friend to conceal a shilling in one hand and a penny in the other, and you can tell him which is in each hand.

Tell your friend you will call the shilling 2, and the penny 3. Now ask him to multiply the right-hand coin by any odd number he likes, and the one in the left hand by any even number. This done, request him to add both results together, and to give you the final answer. If the answer is an even number the penny is in the left hand and the shilling in the right. But if the answer is odd, then the penny is in the right and the shilling in the left hand.

Problem No. 47.

PENNY WISDOM



Arrange 10 pennies in a circle, heads side up. Start from any coin, which you call 1, and count 2, 3, 4—and turn the fourth penny over. Starting from any other penny, do the same again, turning over the fourth. The object is to continue in this way until every coin is showing tails except one coin, which remains head-side up.

You may count in either direction, observing the following rules. Coins that are tail-side up must also be counted. You must start on a penny showing *heads*, and the count of 4 may only fall on a penny heads side up, which is then turned over.

Problem No. 48. *Solution on Page 46.*

THE CLEVER COIN

In the centre of a piece of paper cut a hole the exact size of a shilling. You are required to pass a *two shilling piece* through this opening without tearing the paper or touching the coin. How can this be done?

Problem No. 49. *Solution on Page 45.*

A PUZZLE FOR TENPENCE

Place 10 pennies in a row on the table. Take any penny and move it right or left *over* 2 pennies and place it on the third. Make 4 more similar moves, and the object is to finish with the pennies arranged in 5 pairs after the fifth move. Remember you may move in either direction and must jump 2 pennies each time. A pair of pennies counts as 2.

Solution:

Until you get used to this trick work it out as follows:

On a piece of paper mark 10 positions in a row, and number them from 1 to 10. Place a penny on each.

Move the penny on space 7 to space 10.
" " " " " 4 " " 8.
" " " " " 6 " " 2.
" " " " " 1 " " 3.
" " " " " 5 " " 9.

Problem No. 50.

THE TENACIOUS PENNY

Balance a visiting card (failing that, a playing card) flat on the middle finger of one hand, and place a penny on the top, making sure that it is right in the centre. The trick is to take away the card without moving the penny.

Secret:

Your friends will try all kinds of methods, then you will show them the only one. With the forefinger and thumb of the other hand "flick" the card from under the penny. The card will go spinning through the air; the penny will remain in position. This trick may require a little practice, but is most effective.

Problem No. 51.

Puzzles with Counters.

THE CHANGING COUNTERS

Copy the illustration on a piece of paper and number the spaces 1 to 7. Now make 6 cardboard counters, which you letter and arrange on the board as illustrated. These are to be moved into the position you see them in Fig. 2. There are 2 rules to observe. 1. Any counter may be moved sideways one square or may jump over another counter to a vacant place. 2. Counters A, B and C may *only* be moved to the right, and X, Y and Z only to the left.

FIG. 1

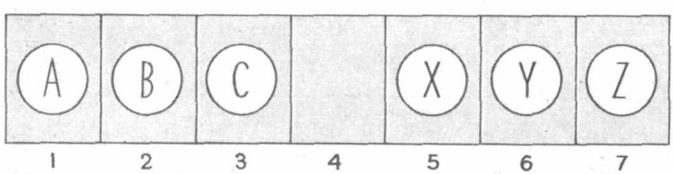
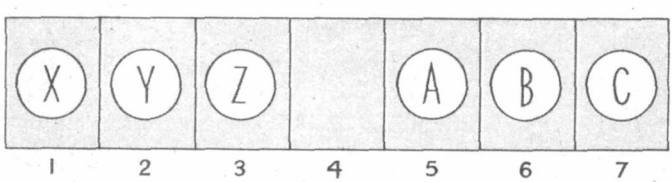


FIG. 2

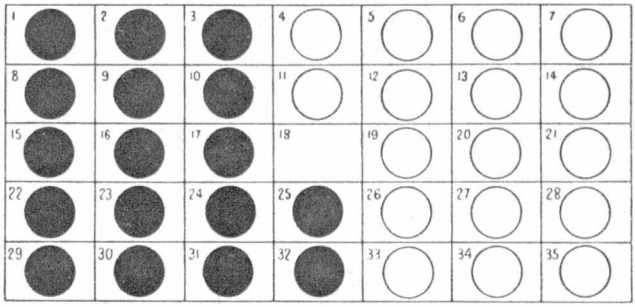


Problem No. 52. Solution on Page 47.

CHANGE OVER

This is a more elaborate form of the last puzzle, requiring 17 black counters and 17 white counters. The board must be ruled into 35 squares as shown in the illustration, which also shows the counters in the starting position. The problem is to make the black counters change places with the white ones. The rules to observe are:—

1. Any counter may be moved sideways one square or may jump over another counter to a vacant place.
2. Black counters may only be moved to the right and white ones to the left.
3. Both black and white counters may be moved up or down.



Problem No. 53. *Solution on Page 46.*

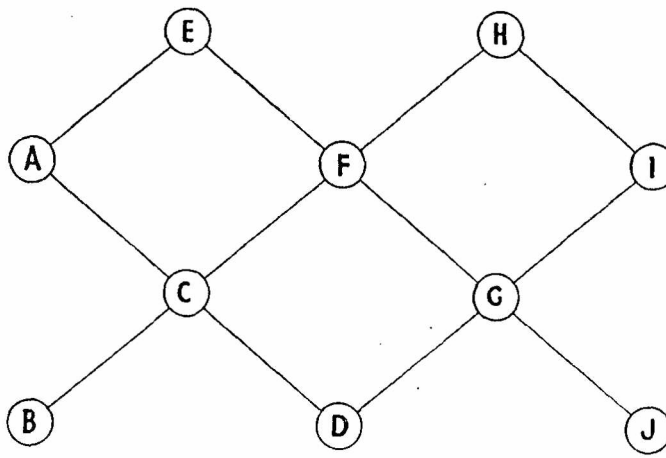
Be in the swim!

KEEP FIT AND WELL *with* **LIFEBUOY HEALTH SOAP**

SPECIAL COUNTER PUZZLE

This drawing contains an interesting little puzzle guaranteed to make you think. Place 2 red counters on points A and B, and 2 blue counters on points I and J. You have to get the red counters to change places with the blue ones, observing the following rules:—

1. You can only move in straight lines.
2. You can only stop at a ring, though you may pass more than one ring if you wish.
3. Different coloured counters must not be in the same line; you need not move the red and blue counters alternately.



Problem No. 54. *Solution on Page 45.*

THE GARDENER AND THE ROSE BUSHES

A gardener purchased 19 rose bushes, and his eccentric master requested him to plant them so that they formed 9 rows, with 5 rose bushes in each row. How did he plant the rows? You can use counters to work this out.

Problem No. 55. *Solution on Page 48.*

Miscellaneous Puzzles.

THE SMOKING FINGERS

This trick requires a little preparation which you must do before going into the room where your friends are. Tear away about an inch from the side of a safety match-box, and separate the black striking paper from the wood. Place the striking paper upon a two-shilling piece and set a light to it. When it has completely burned away, remove the black ash, and a brown, sticky fluid will remain on the two-shilling piece. Rub this liquid on to the thumb and forefinger of one hand, and then put the two-shilling piece aside. You are then ready to show the trick to your friends. On entering the room, tell them that you can bring smoke out of your fingertips. Hold your arm against a fairly dark background and rub your finger and thumb together. A quantity of smoke will arise from them.

N.B.—Wash your hands immediately after performing this trick, as phosphorous is dangerous if it gets into the eyes or mouth.

Problem No. 56.

HOW TO MAKE THE CAT WASH ITSELF

Telling your friends that you can make the cat wash itself you stroke it affectionately, asking it to do as you wish. As soon as you walk away, your friends will be amazed to see the cat immediately begin to wash.

Secret:

Before stroking the cat, secretly smear the palm of your hand with a little grease, butter for example. The minute you cease your stroking the cat will commence to wash.

Problem No. 57.

KNOTTING THE HANDKERCHIEF

Ask a friend to hold both ends of a man's handkerchief and to tie a knot without letting go either end. This is not as impossible as it sounds.

Lay the handkerchief flat on the table. Now fold your arms and in this position grasp one end of the handkerchief in each hand. (Illustration.) Now all you have to do is to unfold your arms, and the handkerchief will have a knot in it.

Problem No. 58.

NOT COLOUR BLIND

Offer your friends a box of different coloured chalks. While your back is turned a stick of chalk is placed in your hands. You offer to tell the colour.
Face your onlookers, hands still behind your back. Place your left hand to your forehead a moment, think intently, then announce the colour.

Secret:

While your hands are behind your back you receive the chalk in your right hand. Then mark a cross on the palm of your left. Now place this hand to your forehead, while you think, and of course note the colour of the cross in your palm. Be careful not to leave a chalk mark on your forehead. Now call the colour.

Problem No. 59.

A GOOD CATCH

Spell out C-O-K-E, letter by letter, and ask someone to pronounce the word. Then spell out F-O-L-K and ask him to pronounce it. The minute he has finished the pronunciation say: "Well, what is the white of an egg?" In nearly every case he will say yolk. Explain that the white of an egg is *not* the yolk, and he will see that the joke is on himself.

Problem No. 60.

A DINNER-TIME CATCH

You will impress your friends by telling them that you will show something which has never been seen before, and, once looked on, will never be seen again. Crack a nut, show them the kernel, and then eat it.

Problem No. 61.

HOW TO TIE A KNOT WITH ONE HAND

Take a large silk handkerchief, roll it like a rope and lay it across the palm of the hand. The end between the thumb and first finger X is shorter than the end Y (Fig. 1). Turn your palm towards you suddenly and swing the end Y over the back of your hand and into your palm. It crosses *over* the end X, and is caught between the second and third fingers (Fig. 2). Hold firmly to Y and flick the loop off your hand (Fig. 3). Shake the handkerchief firmly to tighten the knot.

Problem No. 62.

TO BALANCE A GLASS OF WATER

Put this over at a party. Bring the conversation around to juggling, then say you can balance a glass of water on a walking stick. Stand on a chair and place the glass of water against the ceiling with the walking stick pressing against the bottom of the glass to keep it in position (Illustration). Now ask someone to hold the stick while you climb off the chair. As soon as he does so, tell him that the joke is on him. He is caught until someone takes the glass away from the ceiling.

Problem No. 63.

BOTTLE BALANCE

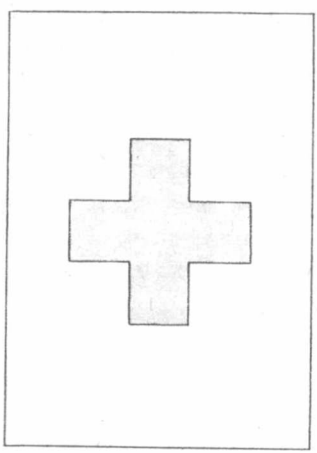
Place a bottle upside down on a penny and ask someone to remove the coin without touching the bottle or disturbing its balance. This seems impossible, and your friend will possibly tell you it can't be done.

Secret:

Press the blade of a knife flat on the table, and with a quick stroke knock the penny from under the bottle. Your friends will be surprised to see that the bottle does not fall.

Problem No. 64.

REMOVING THE RED CROSS



For the bazaar Mrs. Smith had a tablecloth painted with a huge red cross to decorate her stall. After the event she thought it a pity to waste the tablecloth. She could not use it as it was, so decided to cut out the cross, which she did, leaving two pieces of cloth. She sewed them together with *one* join. The cloth was smaller, but still quite large enough for her table. How did she cut and join the tablecloth?

Problem No. 65. Solution on Page 59.

TO JOIN 2 PIECES OF STRING WITH THE TEETH

This trick needs practice, but is well worth it. Knot the ends of a piece of string about 2 feet long, and hold the circle between both hands, as in Fig. 1. Give the right hand one *complete* turn, and when it is back to its former position the string will be twisted in the middle in a special way (observe Fig. 2 carefully). Now pass the right hand loop over to the left hand (which now holds 2 circles half the size of the former one). Keeping these 2 circles together is a peculiar looped join over which you place the thumb and forefinger of the left hand (Fig. 3). All this must be done so quickly that no one notices you cover the looped join. Request someone to cut the 2 pieces of string about half-an-inch in *front* of the left thumb and finger. Drop the string from the right hand and with the left keep a firm hold on the looped join while showing the 2 short ends of string in front of it (Fig. 4). Offer to join these 2 short ends with your teeth. Put them in your mouth (the looped join as well).

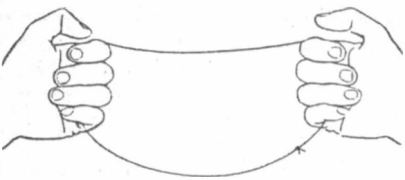


Fig. 1.

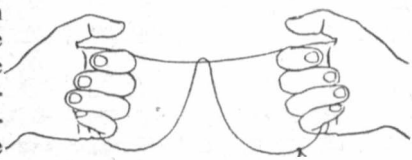


Fig. 2.

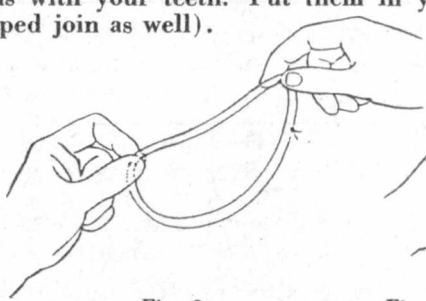


Fig. 3.

Fig. 4.

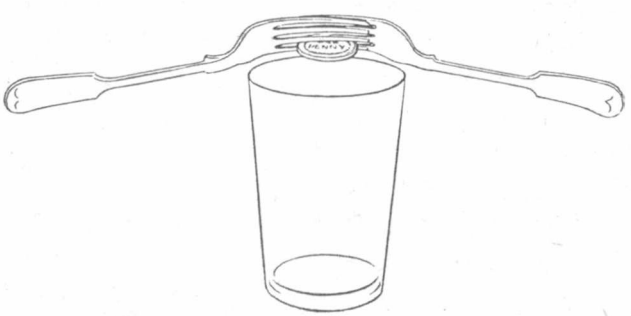
Secret:

Make a great show of biting (as though joining the string is a hard task) and secretly remove the small piece of string from the loop with your teeth, and hide it in your mouth. Now take the length of string from your mouth, and your audience will be surprised to see that the string is miraculously in one piece. Later remove the small piece of string, taking care no one sees you, as this would give away your secret.

Problem No. 66.

AMAZING BALANCE

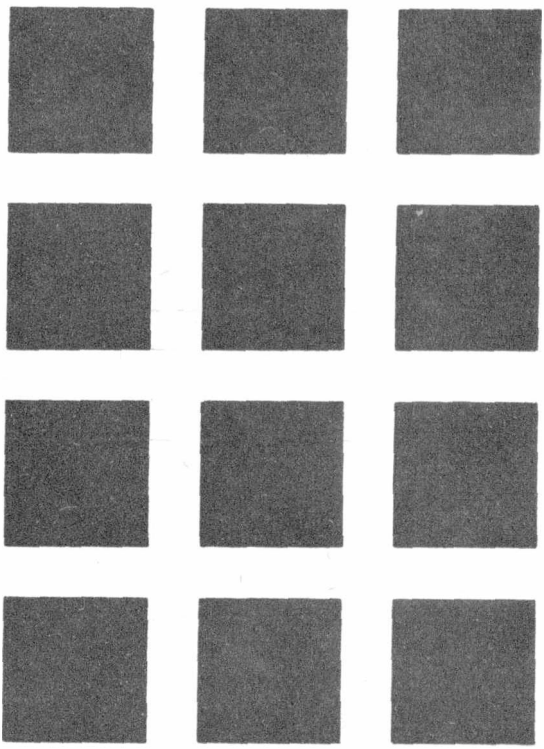
With the aid of 2 forks a penny can be made to balance on the extreme edge of a tumbler in a really remarkable way. Fit the prongs of a fork together and slip a penny in between the prongs. It does not matter if the coin does not fit firmly. Now place the penny on the rim of the tumbler, and it will balance perfectly.



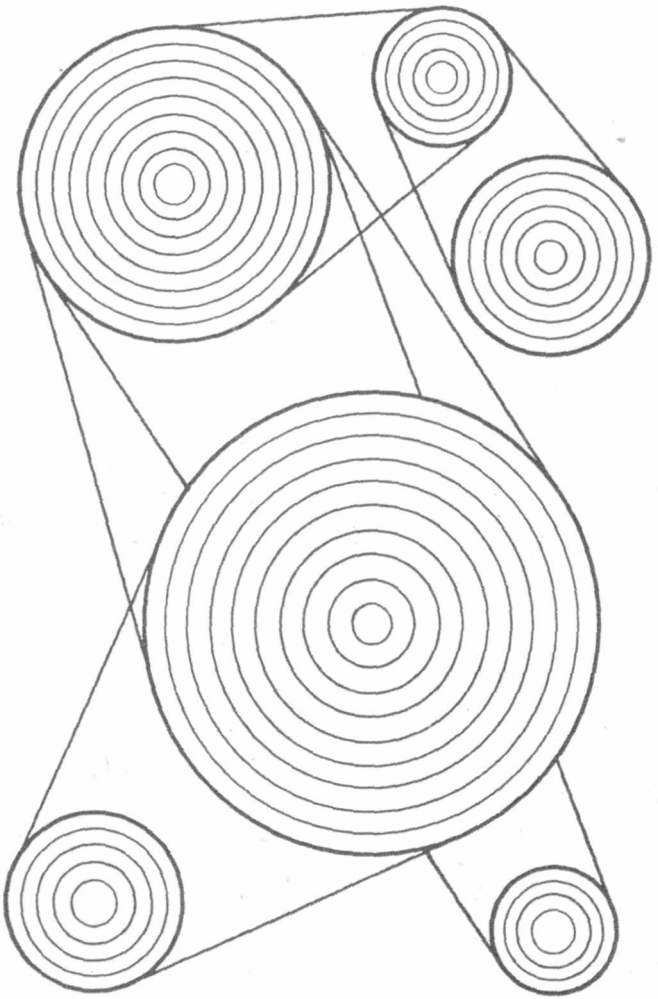
Problem No. 67.

Optical Illusions.

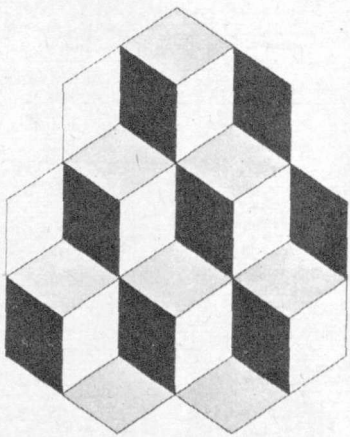
"Seeing is believing" runs the old proverb, but it is not always true. Here you have an example. The illustration shows twelve black squares divided by white lines. Look steadily at the figure and soon grey dots will appear at the corners of the black squares. You can see them quite distinctly, but the moment you concentrate your gaze on one particular spot it will disappear.



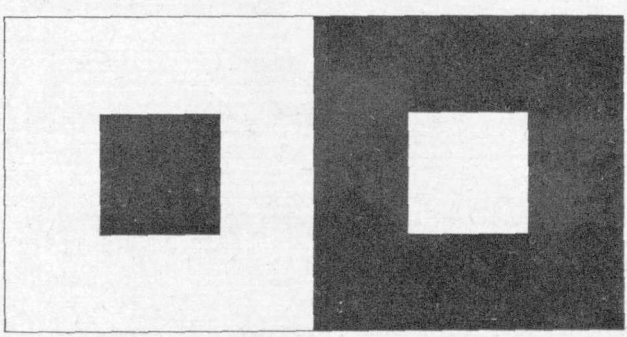
Hold this design in your hand and turn it round by means of a circular wrist movement, and you will see the wheels going round. The faster you move the design, the faster the wheels travel.



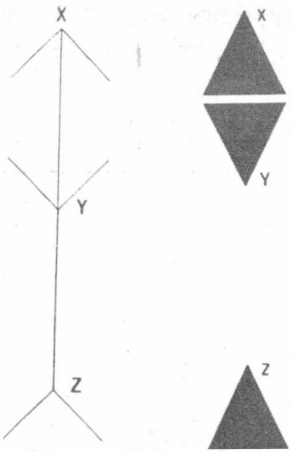
In the illustration you see an arrangement of cubes. Count them, then turn the paper around and count them again. Sometimes you get six and sometimes seven.



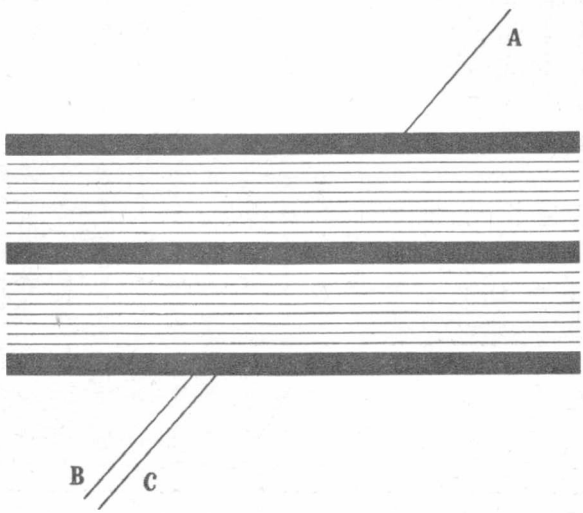
Here you see a small black square with a white background, and a white square set in black. Your impression is that the central black square is smaller than the central white one. Actually, they are both the same size.



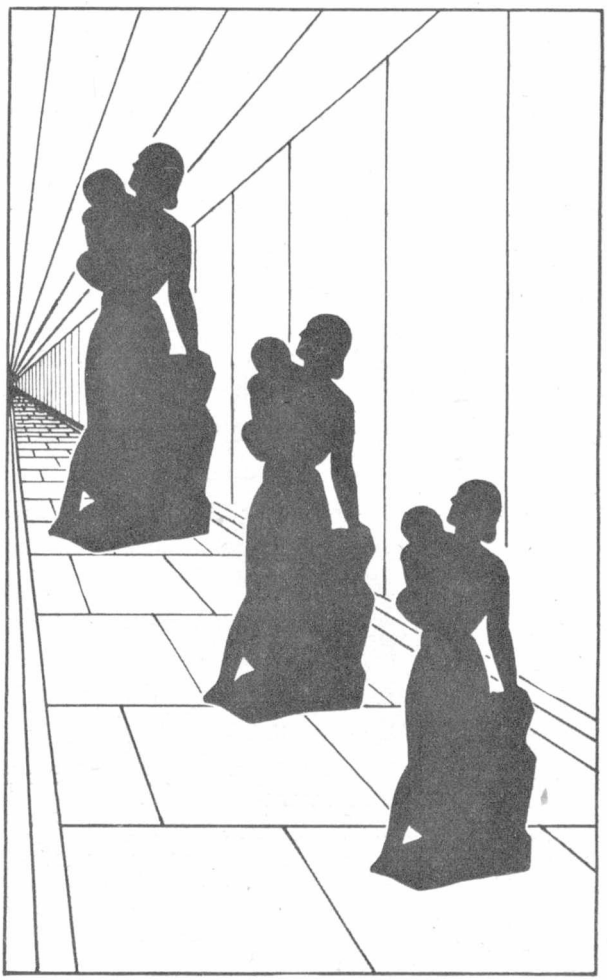
Looking at these examples, you are sure to think that in both cases the distance between Y-Z is greater than the distance between X-Y. But measurement will prove that both distances are the same.



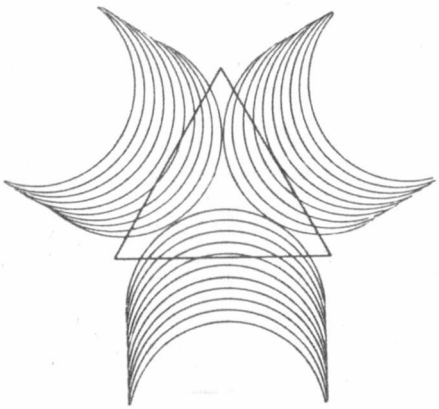
Here is a chance to prove whether or not you have a straight eye. Place this illustration squarely in front of you, and decide which is the straight line—AB or AC. The latter certainly *looks* the line, but get out your ruler and you'll be surprised to find that AB is the straight line.

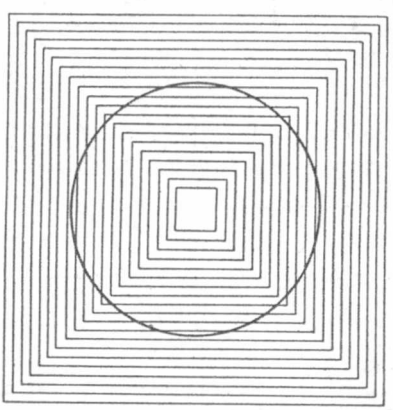


A deception in size is shown in this figure. Here we have three statues in a corridor. The figure farthest away looks quite the tallest and the one at the bottom of the picture looks the shortest. In reality, they are all the same height.



To tell a straight line or a true circle always sounds easy, but look well at these two examples and you will surely decide that the circle has a squarish look, whereas the sides of the triangle appear to curve outwards. But get your compass and your ruler, and you will soon prove that the circle is perfectly round and the sides of the triangle are quite straight.

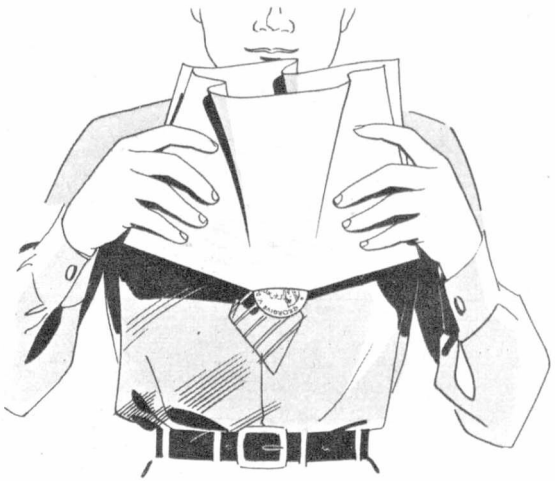




SOLUTIONS

Solution to Problem No. 49

Fold the paper in halves so that the crease thus formed is exactly across the centre of the hole. Hold the paper at each end and ask a friend to place a two-shilling piece in the fold. You then slide the coin down until it is over the opening. Gradually bring the corners of the paper together. As you do this the hole seems to grow larger, and the two-shilling piece easily slips through the opening without tearing the paper.

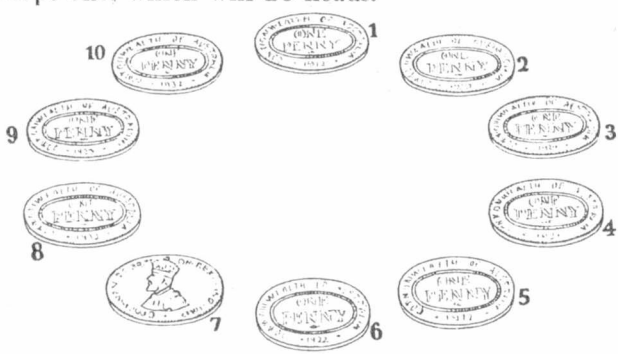


Solution to Problem No. 54

Move A to C, I to G, G to E, J to G, C to H, E to A, G to D, H to F, F to J, D to I, B to F, A to D, F to E, I to H, D to C, E to G, C to A, H to B, G to I.

Solution to Problem No. 48

There is only one system by which you can consistently work out this puzzle. Supposing you decide to work in a clockwise direction. Start with any penny, which we will call No. 1. On its right will be No. 2, and so on round to 10. Start at No. 1 and count "1, 2, 3, 4," turning over No. 4. Continuing in the same direction, miss 3 and start at No. 8, again counting "1, 2, 3, 4," which brings you to No. 1. Turn this over, miss another 3, which makes you start the next count on No. 5, and you will turn over No. 8. Continue with the idea of missing 3 before starting to count "1, 2, 3, 4," and you will finish up with every penny turned over except one, which will be heads.



Solution to Problem No. 53

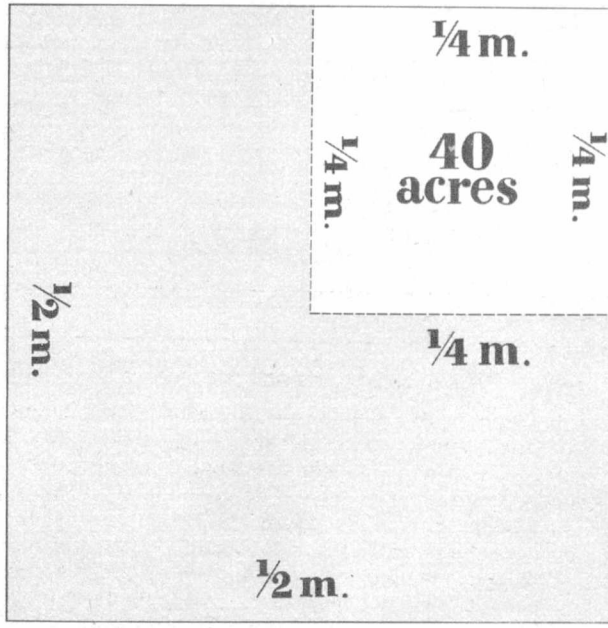
If you begin with row 15 to 21, and work it out on exactly the same lines as the previous puzzle (Changing Counters), you are well on the way. Having done this, move the counter from space 25 into space 18, and you can now work row 22 to 28 in the same way as before. Then move the counter from 11 into 25 and row 8 to 11 is ready to be worked out. Now move the counter from 4 into space 11, and you can deal with row 1 to 7. Move the counter from 18 up to 4, and the one from 32 to 18. Now work out row 29 to 35. The counter from 25 goes down to 32, and the one from 11 now goes to space 25. Finally, move the counter from 18 to 11.

Solution to Problem No. 52

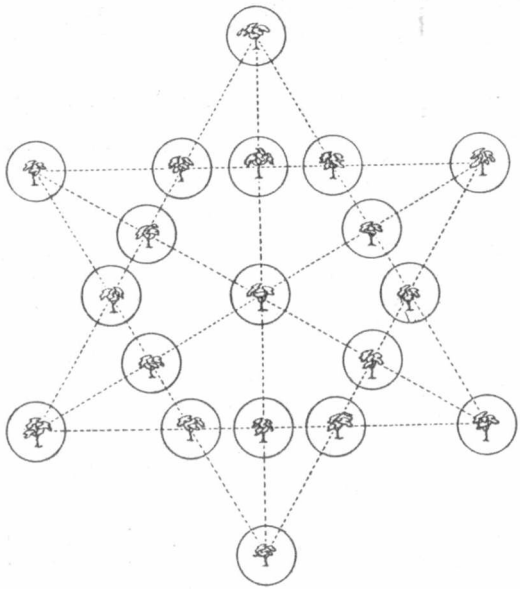
Move C to 4, X to 3, Y to 5, C to 6, B to 4, A to 2, X to 1, Y to 3, Z to 5, C to 7, B to 6, A to 4, Y to 2, Z to 3, A to 5.

Solution to Problem No. 45

The obvious answer to the problem is 80 acres. But look at the drawing and you will see that twice as much fencing encloses a paddock 4 times as big. The answer is therefore 160 acres.



Solution to Problem No. 55



Solution to Problem No. 46

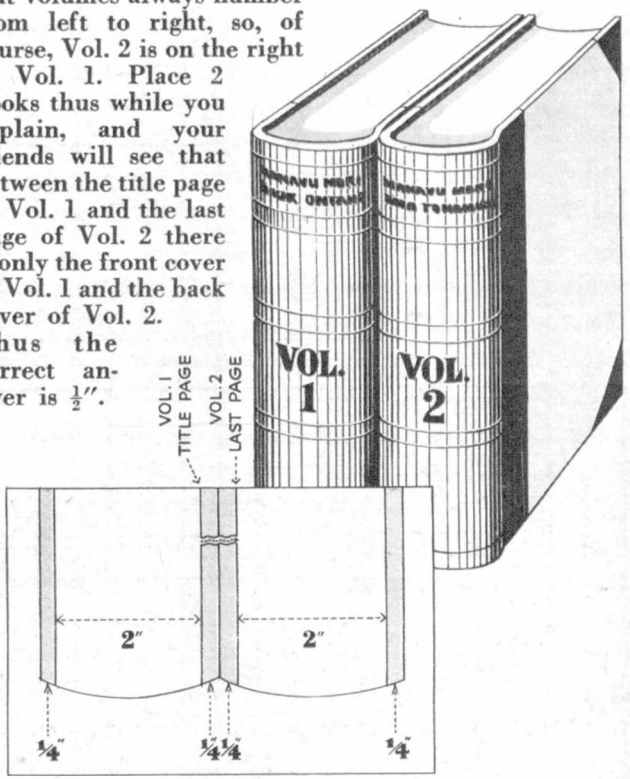
Scratch the tablecloth towards you, and the sixpence will follow.

Solution to Problem No. 42

If a brick is exactly balanced by 4 lbs. and half a brick, then a brick weighs 8 lbs. Therefore, a brick and a half equals 12 lbs.

Solution to Problem No. 35

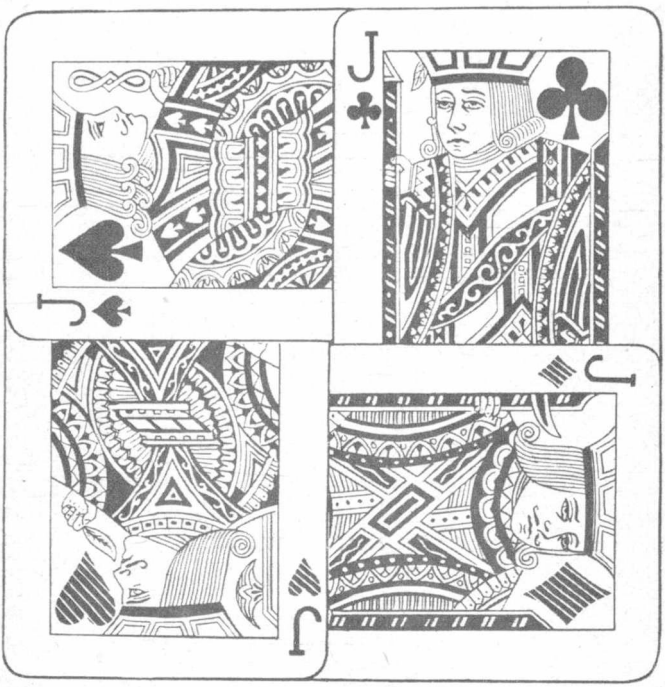
The usual answer is $4\frac{1}{2}$ ins. But volumes always number from left to right, so, of course, Vol. 2 is on the right of Vol. 1. Place 2 books thus while you explain, and your friends will see that between the title page of Vol. 1 and the last page of Vol. 2 there is only the front cover of Vol. 1 and the back cover of Vol. 2. Thus the correct answer is $\frac{1}{2}''$.



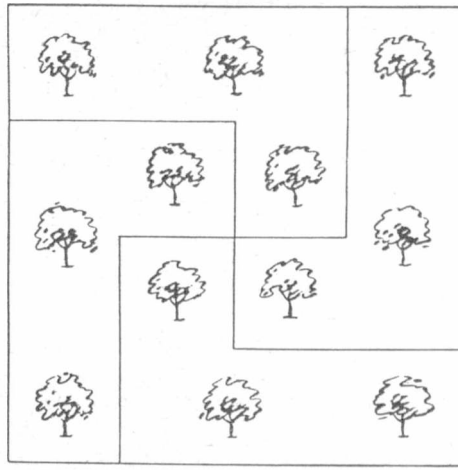
Solution to Problem No. 44

The answer is usually given as 20 days, which is wrong. On the last day it climbed the 4 feet, but as its goal was reached it did not fall back the 3 feet. Therefore, the answer is 17 days.

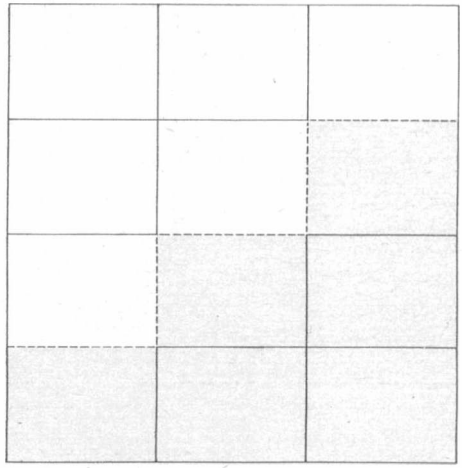
Solution to Problem No. 31



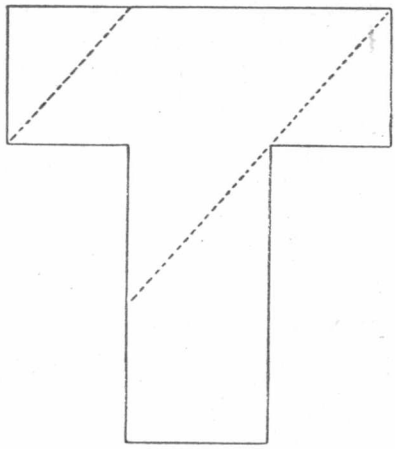
Solution to Problem No. 38



Solution to Problem No. 24

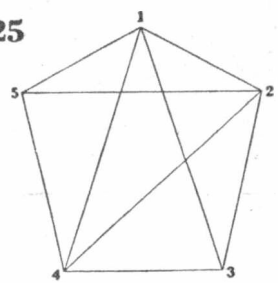


Solution to Problem No. 22

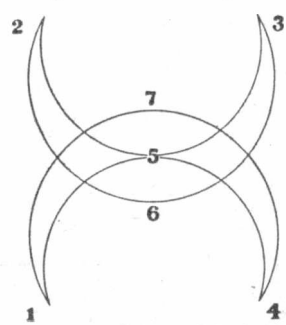


Solution to Problem No. 25

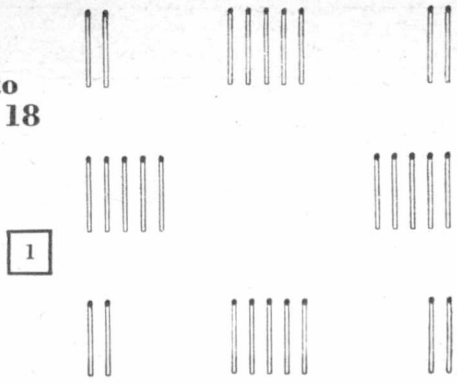
A.—Begin at 5, and draw your first line to 1, from 1 to 2, from 2 to 3, go from 3 to 4 and then from 4 to 5. Continue from 5 to 2, 2 to 4, 4 to 1 and 1 to 3.

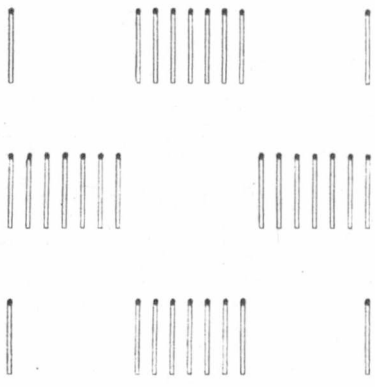


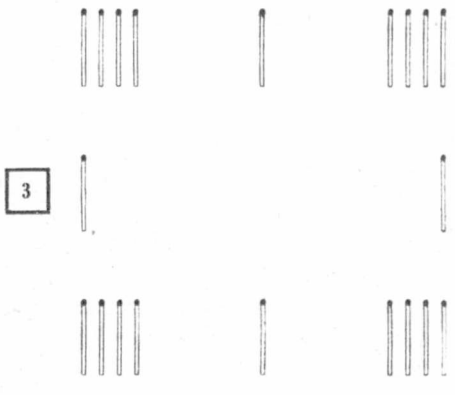
B.—Begin at 1, follow the outside curve passing 7 and on to 4. From 4 go to 5, and branch off to 2. From 2 follow the outside curve, passing through 6 and on to 3. From 3 you go to 5, and branch off to 1.



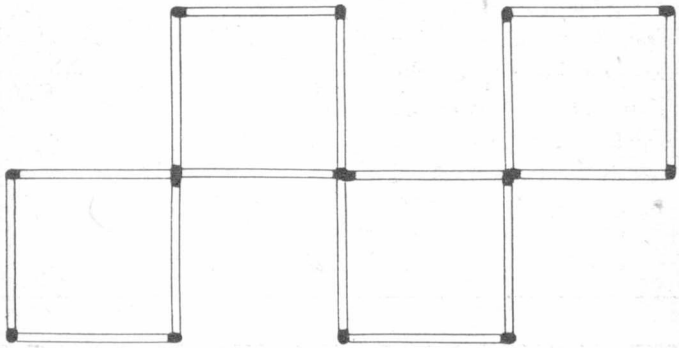
Solutions to Problem No. 18



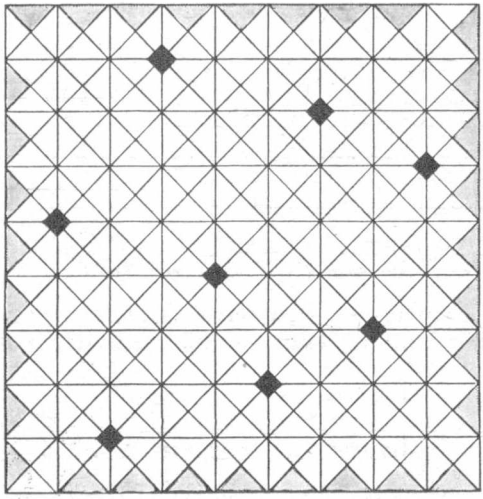




Solution to Problem No. 16

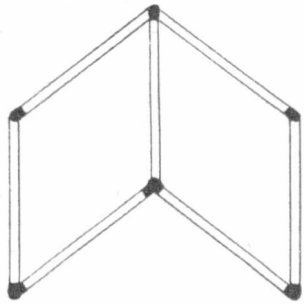


Solution to Problem No. 19

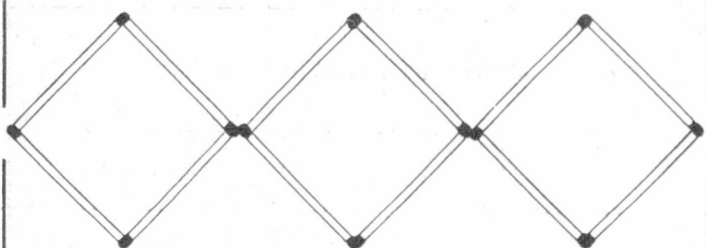


Solution to Problem No. 15

The 2 matches forming the bottom of the diamond are turned inwards, and the extra match is placed down the centre.



Solution to Problem No. 13



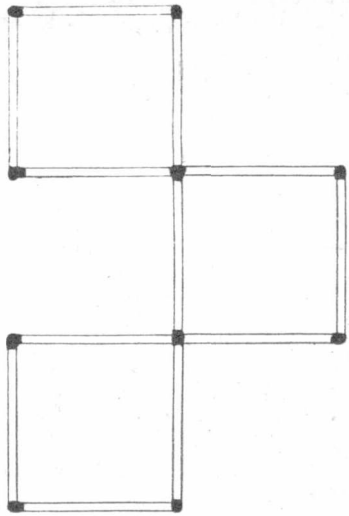
Solution to Problem No. 9A

Place 2 matches by themselves, and the remaining 6 in another bundle. Thus you have 2 and a half dozen.

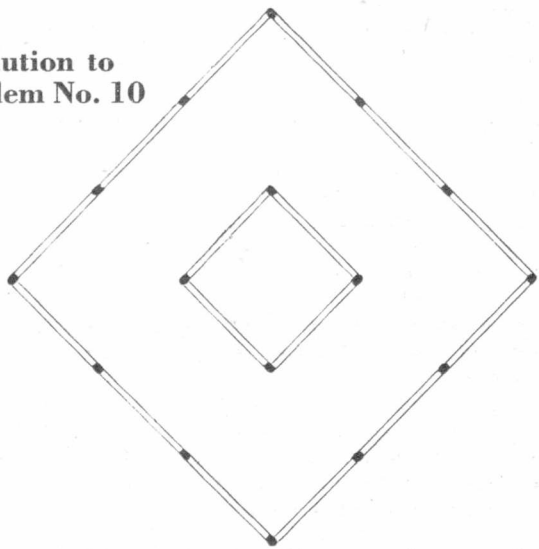
Solution to Problem No. 9B

Arrange the matches as either IV or 4.

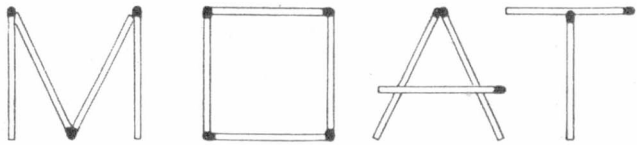
Solution to Problem No. 12



Solution to Problem No. 10

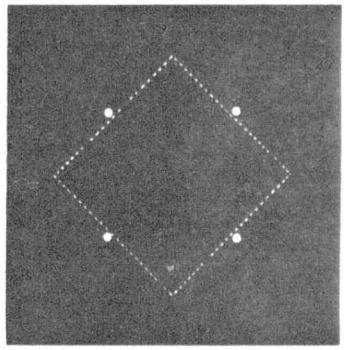


Solution to Problem No. 11



Solution to Problem No. 7

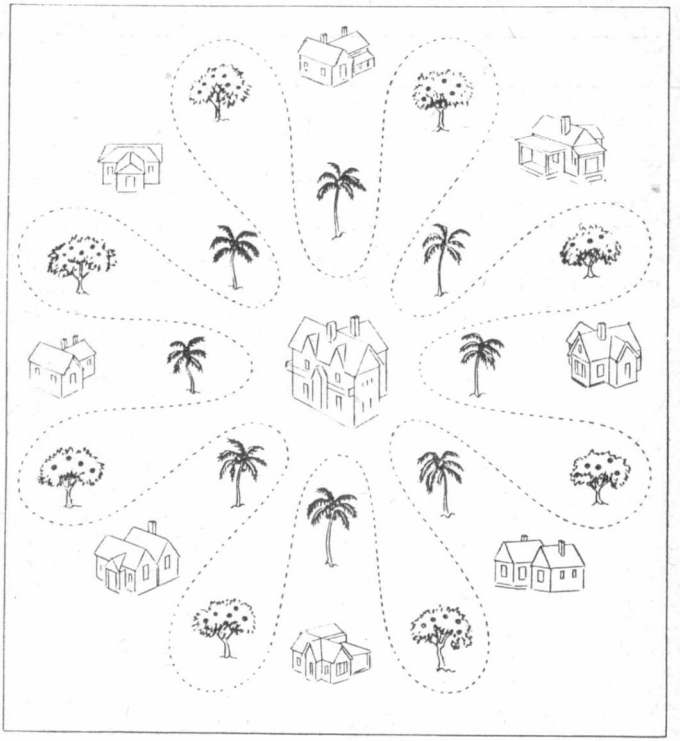
She cut a square from the centre, as in illustration.



Solution to Problem No. 5

The children went across, the daughter stayed, and the son brought back the boat. Then the wife rowed herself across and the daughter brought the boat back. Then the two children went over again and the daughter stayed with her mother. The boy returned to where his father was waiting with the dog. Now the father went over to join his wife, and the daughter rowed back to her brother and the dog. Finally, the boy took the dog over, left it, and returned for his sister. Thus they all proceeded to town.

Solution to Problem No. 4



Solution to Problem No. 8

He took 2 bottles from one end of the horizontal row, and kept them. Then he took 2 from the other end of that row and placed them at the bottom of the vertical row. In this way the merchant did not miss the stolen bottles of wine.

Solution to Problem No. 6

If the man died in his sleep how could he tell anyone what he had been dreaming?

Solution to Problem No. 65

Fig. (1) shows how Mrs. Smith cut the cloth; Fig. (2) shows how she joined it.

When demonstrating this to your friends, draw the cross on a piece of paper 7″ x 5″ and *keep strictly to the measurements shown on Fig. (1).*

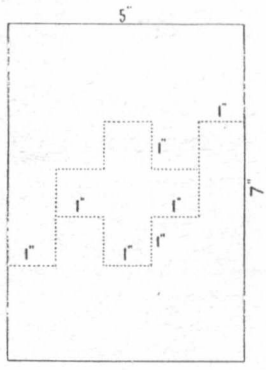


Fig. 1.

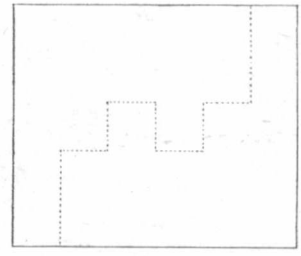
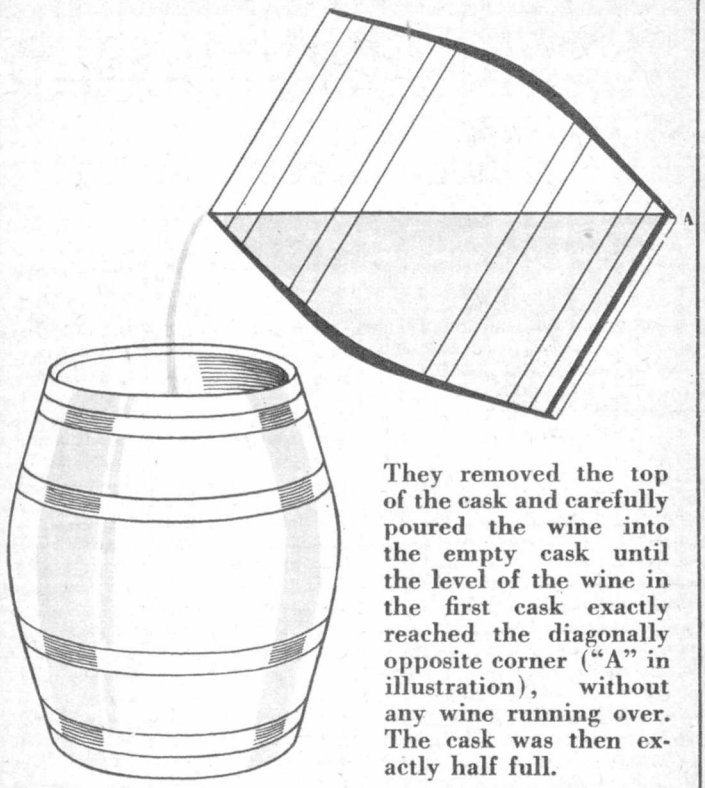


Fig. 2.

Solution to Problem No. 3

The clean boy looked at his companion covered with soot, so of course thought that he, too, was dirty, so washed himself. The boy covered with soot saw that his companion was clean, so naturally thought that he was clean, too, so therefore did not wash.

Solution to Problem No. 2



They removed the top of the cask and carefully poured the wine into the empty cask until the level of the wine in the first cask exactly reached the diagonally opposite corner ("A" in illustration), without any wine running over. The cask was then exactly half full.

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Solution to Problem No. 1

He placed the first rod to enclose the models C, B, and G in the one space. When the second rod was in position the models E, F and G were below it and A, B, C and D above it. The final rod was placed so that C, D, F and G were on the right of it and A, B and E on the left. Each model was now in a separate compartment.

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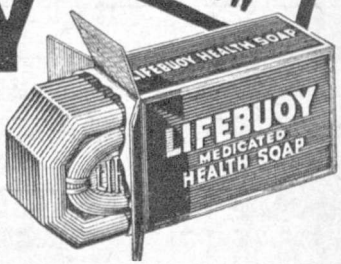
LADIES AND GENTLEMEN – I have nothing in my hands..

Here is the age-old cry of the conjurer, the worker of magic. But very often his hands only *appeared* empty — the eye was deceived.

Now look at your *own* hands. They may *look* clean — but unless they've been washed in Lifebuoy, your eyes may have deceived you again — the tiny pores of your skin will contain dirt — dirt that may carry the germs of disease.

To make sure that what your eyes see *is* true, wash always in Lifebuoy. The rich penetrating lather of Lifebuoy Medicated Health Soap, which contains the famous Lifebuoy Health element, gets right into the skin-pores, removes every *hidden* speck of dirt and the germs with the dirt, too. After washing your hands in Lifebuoy soap you really *can* say "I have nothing in my hands."

FOR THE CITIZENS OF TO-MORROW



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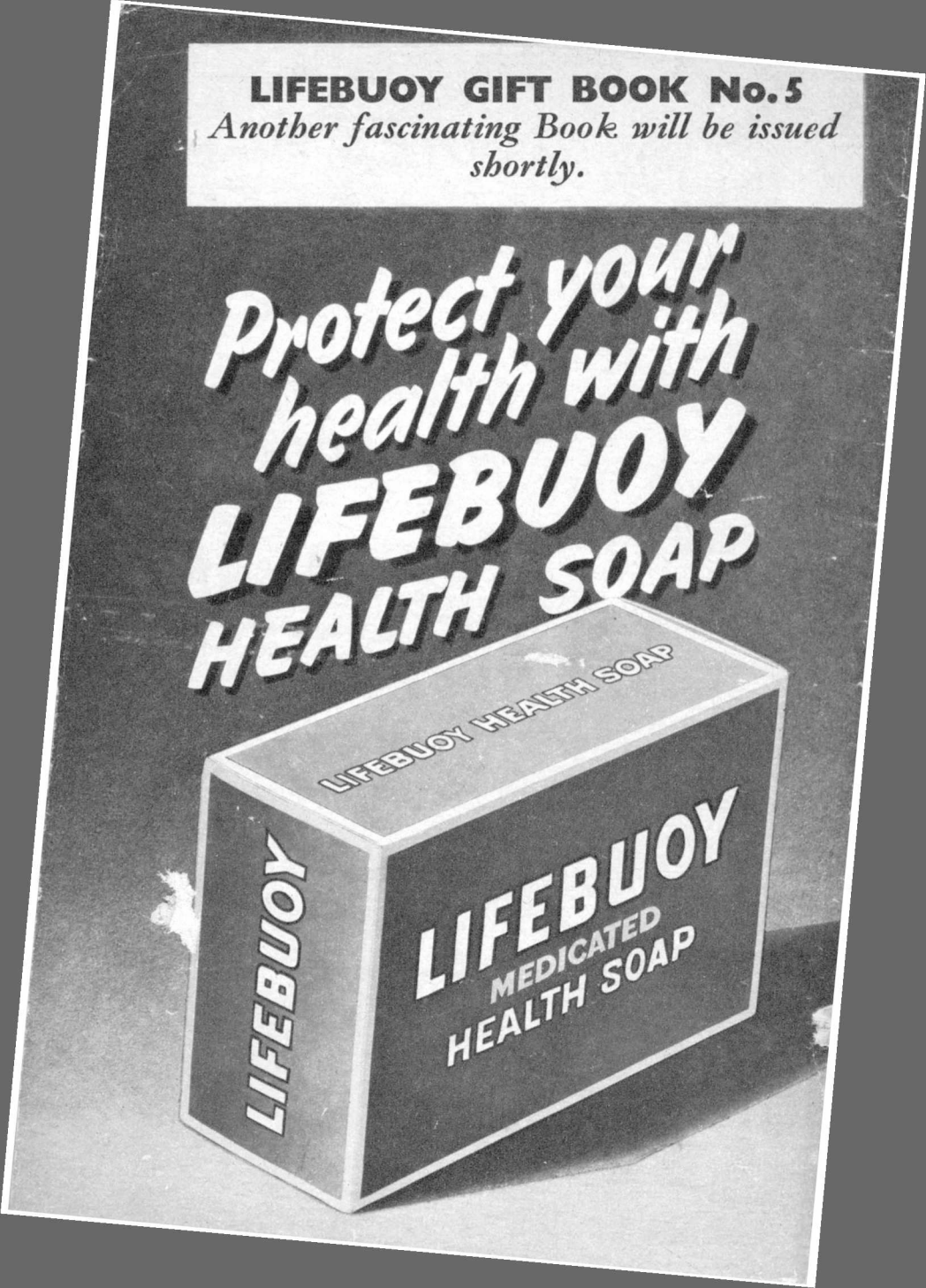
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