

# PUZZLES

## A CIPHER FOR LOCAL SHERLOCKS

**A** G. MACDONNELL was last heard of visiting Norway on behalf of the British Government to deliver propaganda lectures prior to the German invasion. Faithful to his instructions, Mr. Macdonnell enthralled the natives with accounts of the lives of great Englishmen. Among these, he included Sherlock Holmes, who was, he said, at the moment, residing in a quiet country area, solving enemy ciphers as fast as the Foreign Office and the Intelligence Department could rush them down to him by special messenger.

Who knows but that some similar undying fame might not come to a Listener puzzler? This week, for the first time, a cipher happens on the page. Who can solve it? Who can make up new ones for the puzzlement of other readers? Is there even a Watson among you? Go to it!

### PROBLEMS

#### Work It Out Quickly!

"A year or so ago," said Mr. Blob the other day, "I could have bought a friend's magnificent car for £1,026. Next year he was asking £684 for it, and it subsequently came down to £456. It is now going for £304, but I propose to wait for one more reduction in price."

If this reduction is consistent with the others, at what price should Blob get the car?

### Cipher

At last it has happened. A correspondent (C.B.G., of Springfield), sends a cipher for solution. He found it, he says, in an English magazine, and does not know the answer. Neither do we, but we have hopes that readers will be able to handle it adequately. With imaginary spies all over the country, this sort of thing was bound to happen. Other readers who wish to try their ciphering hands at similar problems, are warned that the Post and Telegraph Department will only transmit material which has a clear meaning in plain English. This is an excellent idea, because it makes us demand that answers be enclosed. Enemy agents, and other idle persons, take notice!

Here it is:

If you would tread a backward path to happenings of May,

The eighth and lesser powers of two in sequence show the way.

DZY TVZOOHU EUVQ JBTRUOKAK  
ALVI IWVQCYOPP  
NKWWKWOBMT

### Shunt Again

From a single railway line two sidings curve off from different points to meet in a dead-end. In the dead-end there is

room for one truck only. On each siding line there is one truck. The engine is on the main line. Reverse the positions of the trucks without slipping.

—(Problem from Tane).

### For the Pigs

Dimpleton has a house at A, distant 200 yards from a stream BC. These, you will admit, were funny names for houses and streams, but R.E.W. St. C., of Hamilton, says they are right and we must accept them, since he sent the problem. His pigsty also had an unusual name. It was called D, and it was 100 yards from BC on the same side as A. The perpendicular distance from A to the line extended at right angles from BC through D was 500 yards. This, it must be stated, does not mean that D was any further off the ground than most

position. Now each match is in contact with every other match.

—(Problem and answer from R.W.C.).

**Work for Scissors:** This and the other problems sent by R.W.R. for that issue were diversionary, and shall remain so.

**The Bear:** A white bear, for those directions would only fit at the Pole and so it must have been a Polar Bear, which would be white. To the correspondent who suggested it was a Russian Bear, and therefore pink, a brickbat for mentioning such sinister matters.

### Double Acrostic:

G O G  
E l i A  
N i z a M  
E g a l i t E  
R a p h a e L  
A s s e g a I  
L e d g e r d e m a i N

### Non-Euclidean Geometry

This one came from S.G.E. (Glenavy), and is thrown in as a sop to our keen mathematicians:

Let ABC be a triangle; that is, any triangle, and let the angle A be bisected by AD. Also, let ED be the perpendicular bisector of BC. Let these two lines meet at D. Join DC and DB and from D drop perpendiculars on to AB and AC, to meet these lines in G and F. Then: In the triangles AGD and AFD, the angle GAD = angle FAD (by construction each is half angle A). The side AD is common. There is a right angle in each, so that the two triangles are equal in all respects. Therefore DG = DF. Similarly, in the triangles BDE and CDE, DE is common to both. BE = EC (because DE is bisector of BC). There is a right angle in each (the included angle). Therefore: DB = DC. This much is obvious: But now, perpend: In the triangles BDG and CDF we have proved that DG = DF and DB = DC. But there is also a right angle in each (i.e., DG and DF are perpendicular to AB and AC); therefore these two triangles are equal in all respects. Therefore BG = CF. But, by the congruency of the triangles AGD and AFD, AG = AF. Therefore, adding these two last results, A.G. + BG = AF + CF. That is, AB = AC.

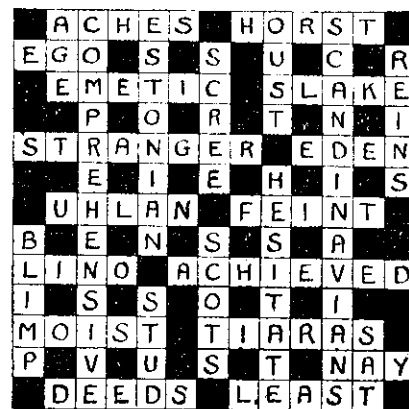
Therefore, it is possible to prove that any triangle is an isosceles triangle.

### Rugby Risks

The other day we were talking Rugby, and conversation turned to the chances of winning the weekly sweepstake, conducted in the Attorney-General's office with the permission of the Minister of Infernal Affairs, in aid of the Society for Giving Attention to the Graves of Soldiers who died of Cholera in the Crimean War. We wanted to know the odds against winning when the sweepstake was supported by 20 people, and to limit the extent of an otherwise impossible calculation, we decided that it should be assumed that the two football teams between them would score 40 points. Now in that total there are an immense number of possible combinations of scores, and yet the Accounts

## The LISTENER CROSSWORD

(Answer to No. 7)



Department maintained it would be possible to establish definite odds by a mathematical calculation. It has to be remembered that this number of combinations may be divided among the 20 people taking part in the sweepstake, and, very important, that the number of combinations is limited to a certain extent by the fact that any team at one time can only score three points (for a try or a penalty kick), five points (for a converted try), or four points (for a field goal).

To the poor PP, this all sounded very difficult indeed, but he felt obliged to assure the Accounts Department that Listener puzzlers would work it out if it could be worked out at all. So what about it?

### CORRESPONDENCE

**R. E. W. St. Clair (Hamilton):** Says the resistance in the cube would be 5/6 ohms, that the odd square in the Odd Square was not there at all, and that To and Fro arrived at 7 o'clock.

**F. Murch (Auckland):** Has placed the pieces of the odd square so that they seem to make only 63 squares. Can other readers do this?

**Thos. Todd (Gisborne):** Is another who has found out that the odd square in the Odd Square was not so odd. He also asks a question about our subscription rates but matters such as that are State Secrets.

**H. G. Lambert (Taupo):** Has at last produced his official answer to the first problem of the donkey grazing (March 29). He says the rope should be 60.82 yards long. If we reproduced all his working it would take 20 inches of space on this page, with ten diagrams in addition. Sorry Mr. Lambert.

**Tane (Whakatane):** Checks his working of this problem and gets the same answer as H.G.L. He also sends a neat method of solving the ohms problem by the use of a simple diagram made up by "collapsing" the cube so that all the circuits and resistances are represented by straight lines.

**F.W.K. (Nelson):** There are too many possible means of death for that problem to be acceptable. They may have eaten some bad fruit, for instance, or is it true that Nelson apples are always good? Thank you for the thought.

**G. Tisbury (Invercargill):** The wine and the water have been too much for us. Have discovered that your letters have been mixed up. Problem next week to straighten everything out.

**F.J.Q. (Motueka):** Replies to MacSkooohook. He has had similar trouble with calendars. The dates and pictures have all been obscured by careless stirring of the porridge. However, he is able to report that forty years back from 1912 the Macs will find that the calendar for 1872 would suit the purpose, and beyond that again, they can make use of calendars for 1816. Ordinarily, he says the cycle of leap years starting on the same day of the week covers 28 years, but, as 1900 was not a leap year, the cycle became 40 years. The 1916 calendar would do for 1844, 1872 and, if 1900 had been a leap year, 1900, 1928, 1956, and 1984.

### Condensed Crossword

Try this in the tram, or while the eggs are boiling. These are the newer, brighter, better, shorter, snappier, and more exciting Condensed Crosswords, exclusive to "The Listener." Tell your friends, for this is something your best friend WILL tell you, if you don't get in first:

Clues across: Pines

Object of great affection

Bar

"There also doth rise the moon"

Clues down: The thumb total

Think!

Reverts to ultimate oxidation

This often tempts a penny from you

Note: If we may put the blurb designed by the advertising department in Plain English, this is the first of a series of miniature crosswords in which each clue represents a four-letter word. They are intended to fill in those odd moments which are insufficient for the main "Listener" Crossword, or the harder puzzles.

pigsties. It simply means what it says, and in mathematics a perpendicular line is a line that does not go round any corners. Now the question is this: What is the shortest distance Dimpleton must walk from his house to draw water from the stream and water the pigs? It all sounds very complicated, but it's not really.

### ANSWERS

(Refer to issue of May 10)

**Match the Matches:** Place two matches close together with their heads touching. Slide a third between them to make the third leg of a tripod in such a way that its head comes up to touch both of the others as if they were three mutually adjacent circles. Over these three place three others in the same