

REVELS WITH ROPES

ALTHOUGH the monkey is still climbing the rope we can't hold back L. Wilson's rope problem for a moment longer than necessary. All readers require to solve it satisfactorily is a Boy Scout book about knots, two or three hundred feet of one-inch cable, a pirate galleon, and the captain's gig.

PROBLEMS

Rope Trick

It is suggested that readers give themselves a practical model to play with for this one. It is from L. Wilson, Christchurch.

A pirate captured more prisoners than his craft would carry, so he put some in a boat to be towed behind. He made sure they had nothing that would cut the rope, and then bent on a double painter, which was looped round the after thwart of the boat, with a clove hitch round the forward one, and thence went through a ring in the bow to a bitt on the ship. The prisoners escaped. How? The rope was not cut and we presume the thwarts were not broken.

Harvest

A farmer and his son agree to share equally in the labour of cutting the corn crop in a square field. Father comes in and cuts a strip a rod wide right round the outside of the field. He tells his son that he's done his share and walks off. If he was right, what was the area of the field?—(From R.C.J.M.)

Savings

A parent puts in a child's money box every birthday 2/6 for every year of its age. How old would the child be when the money in the box totalled £17?—(From X.G.T.)

Sharpeners

These three come from A.E.V. (Hamilton).

Digits Again: A number of two digits is such that if we divide it by the sum of its digits we get a quotient three and remainder three. Also, it is less than the number secured by reversing the digits by four and a half times the sum of the digits. What is the number?

Number Please: Given that two numbers have an L.C.M. of 1859, an H.C.F. of 13, and that one is 169, find the other.

Wheat: A farmer sells a certain number of bushels of wheat at 7/6 a bushel and 200 bushels of barley at 4/6 a bushel. He receives altogether as much as if he had sold both wheat and barley at the rate of 5/6 a bushel. How much wheat did he sell?

ANSWERS

(See issue of November 29)

Bar: The publican neither lost nor gained. He was paid for just as many drinks as he served.—(Problem from P. Mora.)

Tote: R.G. comments on P. Mora's problem: Mathematically, neither. The tote really (and usually) did in practice. The fact that the totals of the sums

HEADS AND FEET

The proprietor of a zoo was asked how many birds and beasts it contained. "There are 36 heads and 100 feet among the lot," he replied. How many of each were there? (Problem from R.G., Waihi.)

left equalled one pound more than the amount invested is immaterial. By selecting different amounts hundreds of different results may be obtained; in fact, every whole number from 1 to 1540.

Age: Everyone agrees on 78 years.—(Problem from Sylvia, who, womanlike, omitted to supply the answer.)

Professionals: By Thursday of last week the mail had brought only two answers to Laurence Hayston's problem. R.G. said: Green, humorist; Brown, poet; White, essayist; Black, novelist; Grey, playwright; Pink, historian. P.J.Q. said: Grey, essayist; Brown, novelist; Green, humorist; Pink, historian; White, playwright; Black, poet.

Keep it Down: Just keep up keeping it down.

Smokes: 2/5, says R.C.J.M.

Exchange: The problem set by R.C.J.M.—Move the Money, on September 13, established the principle for working out the moves in problems such as Q.E.D.'s. Keep trying.

Matrimonial: A.G. says: "Yes—by a previous marriage. He marries one woman, and after her death he marries her sister and then he dies. His second wife is his widow, his first wife is his widow's sister."

Metalwork: X.G.T. says: Base—3 ft. 7 3/4 inches square; height—1 ft. 10 in.

More Geometry: There was insufficient space last issue to give A.G.'s detailed proof of his answer. Here it is now:

Let EC be x
Then AC.CE = 15,000 x X = BC².
Therefore 15,000 x X is a perfect square.
Therefore 6X is a perfect square.
Therefore X is of form 6y² where y is an integer.

THE LISTENER CROSSWORD

Answer to (No. 36)

P	R	O	F	I	T	E	J	E	C	T	S
O	A	S	A	O	O	H					
L	I	T	T	L	E	B	O	Y	B	L	U
I	E	E	R	F	L	A					
T	O	N	E	R	I	V	U	L	E	T	S
E			C	D	L	C	S				
S	E		S	T	R	A	N	G	U	L	A
T	A	N	T	R	U	M	S	A	C	R	E
U	D	I	E	W	A	R	N				
P	R	O	N	O	U	N	C	E	M	E	N
I	N	L	T	T	D	L					
D	U	S	T	E	R	P	A	R	O	D	Y

The highest value of y is given by:

$$AE.EC = EB^2$$

$$\text{Therefore } (15,000 - 6y^2) 6y^2 = 5,000^2$$

$$-I$$

$$\text{Therefore } y^2 = 327 \text{ as a maximum.}$$

From I (15,000 - 6y²) 6 must be a perfect square.

Therefore (50² - y²) must be a perfect square,

$$\text{and its lowest value is } 50^2 - 327 = 2173 = 46.7^2$$

Therefore 50² - y² must be either 49² or 48² or 47².

$$\text{Therefore } y^2 = 50^2 - 40^2 = 99$$

$$\text{or } 50^2 - 48^2 = 14^2$$

$$\text{or } 50^2 - 47^2 = 3 \times 97.$$

The only solution for y² to be a perfect square is y = 14.

$$\text{Therefore } BC^2 = 15,000^2 \times 6y^2. \text{ Therefore } BC = 4200.$$

$$\text{Similarly } BE = 4032$$

$$EF = 343$$

$$AB = 14,400$$

This proves there is only one solution.

CORRESPONDENCE

To keep enough space for new problems, acknowledgments of letters have been left out lately. Sorry everybody, but we do our best. These five replies to correspondents were held over last week by a sub-editor who feels most lamentably to make more room than there is:

J.B. (South Westland): Sticks to his answer of 5.44 per cent. for Bacchus in Bolonia which he says "is correct whichever way it is

CODE

The members of a certain society always address themselves in code. If the secretary, whose name is Smith, signs himself HNRGS, how would Howard, Jones, MacGregor, and Murphy write their names in the same code? (Problem from Harry Davey, St. Albans.)

calculated, whether by arithmetical or geometrical progression."

A.E.V. (Hamilton): Of course the printers are always to blame. The beauty of it is they cannot answer back. Thank you, we always have plenty of aspirin. Your answers showed industry, but you did not dig the hole deep enough.

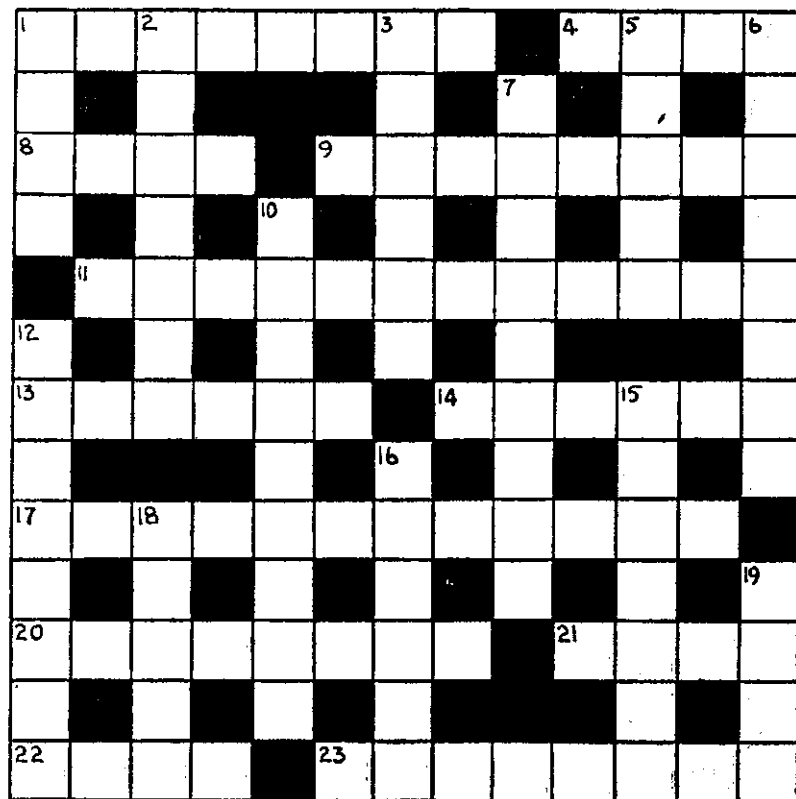
P.J.Q. (Motueka): Repents about his answer to Obscured Palindrome and recognises DEIFIED as the more proper solution.

D.P. (Gore): Confirms the answer to More Geometry. Other comments are to be digested later. Thank you.

H.L. (Taupo): Is still up to form. There was something wrong with his More Geometry answer, but that was probably our fault. He contradicts R.C.J.M. by saying the answer to Brickbats should be 40 lbs.

This week's mail is pretty well acknowledged in the use made of problems sent. However, several interesting points about past puzzles have been raised, and we shall try and deal with them all next week. This week's prize pupils were P.J.Q., R.G., R.C.J.M., Harry Davey, L. Wilson.

The Listener Crossword (No. 37)



Clues Across

- Fond mail of various sorts.
- Not the sort of treatment you'd expect from pals.
- A shop becomes swanky.
- Brace coupling staves.
- A memorable mixture of crime and incense.
- I leant in order to fix the succession of property.
- Talent may be dormant.
- Cut tiny scone (anag.).
- Inside the Senior Service mixed up in 13 across.
- A gas is transformed into a Scandinavian epic.
- Fish otherwise.
- Not necessarily a rich man.

Clues Down

- Be depressed by a poem.
- Ten cans (anag.).
- Of milk.
- Find out from the end of 20 across.
- Pen rests as gifts.
- Clean code is hidden here.
- Mint rises in the Government.
- Represent by means of rice beds.
- Express surprise at finding me in calix.
- Fasten.
- Musical onset.
- Traveller's tale.