

PUZZLES

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make the trip either way, and waits three minutes before returning. How many cars will each car meet in the five-mile trip?—(Problem from R.G.).

DIGITS: Ask a person to select secretly a number containing several digits and to subtract from it the sum of its digits. Then let him tell you the figures in the result, omitting any one of them except a cipher. Whereupon you can tell him the omitted figure. How do you do it — (Problem from H.G.L.).

STARS: Draw nine stars in a square three each way and through them draw four straight lines that cut each star once only, without lifting pencil from paper or folding the paper.—(Problem from Charles Chan).

CORRESPONDENCE

R. G. (Waihi): Has sent some more puzzles, several correct answers, and the method for the match game published last week.

Captain Cook: With many others, his letter is suffering from an acute case of Hitleritis, of which the symptoms are a paper shortage.

S.J.S. (Spreydon): We have asked H.G.L. to explain the toss-up complication. He has done so and his reply will be published as soon as possible. Your other work has been so good we can't believe you find the cross-words too difficult. However, if they interest you, that's the main thing.

J.S. (Putaruru): That is already done. Glad to hear from you.

M.M.M. (Invercargill): Your city is a hive of good shunters.

F.D.B. (Riccarton): Book pages later.

L.G.L. (Motueka): Correct

S.G.E. (Glenavy): See reference to H.G.L.'s letter.

Q.E.D. (Hamilton): No engines in the dead end, unfortunately.

Newcomer (Arthur's Pass): F.D.B., who set the chessboard problem, wrote later to emphasise that the number 64 should be a knight's move, from 1, so your solution gets full marks. Thanks for the puzzles, but we've had magic squares and the fruit trees.

Charles Chan (Dargaville): Correct.

J.B. (Motu): The 18 hours were not wasted. All correct.

R.Mc. (Timaru): We haven't graduated puzzlers to Physics yet, but may try soon.

R.T.C. (Wilton): Knows of no less than 18,048 ways of solving the chessboard problem and guarantees to start and finish on any squares required. He sends nine samples of different ways of moving the knight from the top left corner to the bottom right and says this can be done 266 different ways. By the same rule he says it is possible to start on any one of the 64 squares and carry out the same system, giving 17,024 ways. Further, he says it is possible to start on any black square and end on any white square, giving another 1,024 ways to make the total 18,048. And to think how long we took finding out one way!

H.G.L. (Taupo): This correspondent and S.G.E. are having a private duel by mail, with the PP watching anxiously to see what happens. S.G.E. has asked H.G.L. to contemplate Fermat's theorem for six hours, and H.G.L. agrees. H.G.L. is also joining battle with P.J.Q., of Motueka. P.J.Q. wrote some time ago to point out that our publication of H.G.L.'s answer to the problem of Paddy the Pup was impossible. We innocently referred this to H.G.L. only to find him admitting that he had wrongly added $2\frac{1}{2}$ to $3\frac{1}{2}$ to make 7 and that we had perpetuated the error, most carelessly. P.J.Q. therefore wins that round, but H.G.L. defies him in the matter of feeding the pig. P.J.Q. says the shortest route from the house to the stream and back to the sty was 585 yards. H.G.L. says he's done it all sorts of ways and finds that the answer should be 583.0952 yards, which he recommends as a shorter route than H.G.L.'s. This problem appeared on May 24. It required readers to find the shortest route Dimpleton would walk to feed his pigs if he first had to go from his house to the stream to get water. His house was 20 yards from the stream and the sty 100 yards from the stream on the same side. From his house to a line going to meet the stream at right angles from the sty the distance was 500 yards. What has P.J.Q. to say now? In reply to S.G.E.'s comment printed on July 12, H.G.L. says it was all his own invention.



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"**T**HROUGHOUT the world today the British peoples are united in one common purpose—to wage war until victory is won. The issues at stake call for the last ounce and the last inch of effort.

"We in New Zealand cannot share the perils of our men fighting overseas, nor share the daily peril of our kinsfolk in the British Isles, but there is one thing we can do here in the safety of our distant shores—work harder and produce more.

"Our armed forces must have supplies, and Britain urgently needs additional foodstuffs and raw materials. To supply these we must, in every industry, give all the time and energy we have, forgetting for the time being profits and wages, regardless of fatigue and discomfort, and giving up, if need be, many privileges. Even then our sacrifices cannot equal those of men who give their lives.

"Our soldiers, sailors and airmen are facing the enemy with courage and cheerful determination, and we in New Zealand in the factory and in the field may unite with them in the common task, giving our service in the same spirit.

"To employers and to workers and all others who render service, my message is, *let us work as we have never worked before.*

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PRIME MINISTER.

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