

## A Very Queer Railway

*That a railway could evolve from the gyrations of a toy top seems incredible, yet that's the romantic story behind the birth of the Brennan Mono-railway. Read all about it in this pithy article.*

A MAN sat sunning himself near the sea in the South of France when his attention was attracted by a street-seller with a tray of toys. Amongst them was a gyroscopic top, such as may be seen in many English shops.

Somehow this top held a strange fascination for the man who was watching the hawker. Suddenly he jumped to his feet, bought the top, and exclaimed: "That's it—the very idea! This will do the business!"

So goes the romantic story of the first stage in the invention of the Brennan Mono-railway!

Lieutenant Brennan had come to the homeland from Australia to show an important invention to the War Office, who, having seen

a demonstration, had at once decided to buy the patent, paying the young inventor what must have appeared quite a large fortune. The matter settled, he went for a holiday to the South of France.

It was then that the gyroscopic top came into his possession, and from it the idea he needed to make his train travel safely on the single railway which he had long planned. Lieutenant Brennan finished his holiday, came back to England, and then, in a garden, he built a railway upon which might travel the tiny car which he had had almost ready for it. The car was driven by a small motor, and its stability was ensured by the gyroscope, the latter fashioned on the same principle as found in the top already mentioned.

### The Try-out.

There was a great deal of work involved in building the car. Much experiment had to be undertaken, and there were the usual setbacks. No particular care was taken to get the line on an exactly level surface; there was a reason for this which will appear in a moment.

Then came the day when the little railway could have its train. Our pictures show the car on the move, and also one of the first passengers riding safely upon it.

Look closely at the picture shown at the beginning of this article. You will notice that a rope bridge has been made, and that the car is actually entering upon it; also that the boy has no qualms, even if we allow that the distance for his possible fall is not very great. But if he had not full confidence in the car it is obvious that he would be in a more alert position.

Now, the experiments undertaken were made designedly to show that the Brennan system of the mono-rail was not only perfectly safe, but that there was no need to spend a great deal of money on laying an elaborate track.

This latter point is most important, for railway building is the most expensive method of road-making. Think of the carefully-prepared bed, then the big ballast stones, then the granite chippings, then the pickled sleepers, the chairs, the fish-plates, the bolts and nuts, and finally the cost of maintenance!

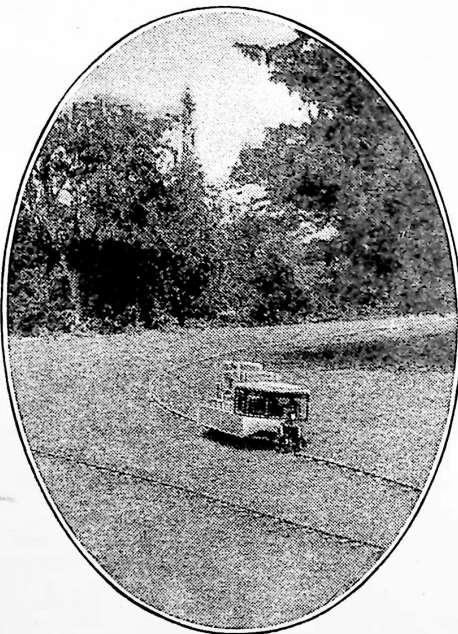
That is one of the chief reasons why railways have practically ceased to be built. The motor is so much cheaper in every way when the cost per ton is calculated; though, of course, a train with three men in charge of it will take 1,000 tons against a possible 10 by a motor and trailer!

### Cheap to Run.

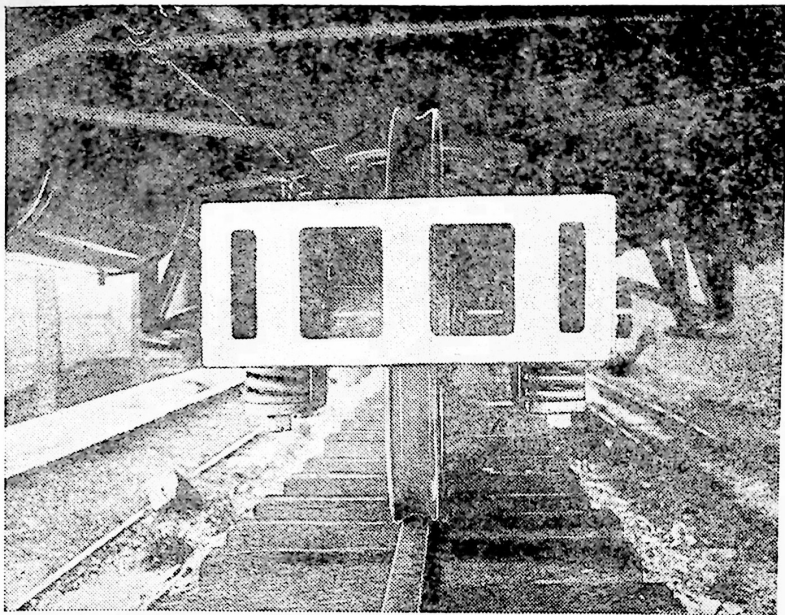
All this heavy cost Lieutenant Brennan sought to avoid when proposing his Mono-railway for general use. The cost of his track would have been less than half that of the lightest laid railway of the ordinary kind, and, again, the cost of operation would have been small in comparison.

If the Great War had not come when it did, there would have been a good chance of the Mono-railway taking its place amongst our transport systems. But the War altered everything. In the first place Brennan had the idea that the new type of railway would be just the thing for military purposes, since it could be laid quite easily, taken up and carried to fresh positions. It would serve for taking men and munitions to the front-line trenches; indeed, it could be actually laid in the trenches if the need arose.

Before it could be thoroughly tried out over something more than a purely experimental line, the Great War burst upon the world, and in the rush of using



Many experiments were made to prove that the Brennan Mono-railway was perfectly safe. This photo shows the little car, loaded with cargo, taking a trial trip.



An unusual view of a Brennan Mono-railway car, showing the chassis and mechanism. This, of course, is a full-sized car ; not the experimental model described in this article.

what was to hand there was no time to go ahead with the scheme which, after all, had not been tried in regular working conditions. Then, again, the motor had been so rapidly improved that the roads were alive with traffic which not so long before had been handled by the railways.

#### Fled for His Life!

An experimental line was laid down at a London exhibition, and was used by thousands of travellers. To their great amazement they found that even when the motor driving the wheels was stopped, and they all walked to one side of the car, it did not topple over ! Everyone thought it must, and many were the questions as to how a car on a single rail could remain stable.

One old countryman who saw it start

exclaimed : " Ah, that's all right ! He can keep going all right now like a man on a bicycle. But let me see him stop ! " As if to answer him the car stopped on its next trip exactly against the old fellow. Despite his rheumatism he fled for his life, feeling that he would be crushed beneath it when it fell over !

But he had forgotten the greatest wonder of the Brennan system—that little motor which kept the gyroscope in action. So long as the gyroscope revolved there was perfect safety. The only real objection found to the use of the system was the fact that the motor driving the gyroscope might fail for a few moments, and then that the car might topple over, having lost its balance. The motor never failed in practice, and the cases in which it would do so must be few indeed.

# A DAY IN THE LIFE OF A HEADMASTER

by

The Rev.

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(Headmaster of Greyfriars School)



Seldom am I permitted to work without interruption. Boys are brought before me for punishment.

"How jolly nice to be a headmaster!"

I happened to hear Robert Cherry, of the Remove Form make this remark to his school-fellows when I was passing the door of his study. Pausing for a moment, I heard Cherry add:

"What a lovely, lazy life, you fellows! No work, no worry, not a care in the world!"

I passed on, with a smile. Cherry's thoughtless words had not been intended for my ears, so I did not step into the study and contradict them. I can assure my readers, however, that Cherry's impression of a headmaster's life was entirely wrong, and founded upon ignorance.

A lazy life, forsooth! I will draw a brief sketch of the duties which fall to my lot, and I think it will open the eyes of some—particularly Master Robert Cherry!

To begin with, I rise early. At the first clang of the rising-bell, to be precise. Awaiting me, on my study desk, is a miniature mountain of correspondence. There are letters from parents and guardians, and aunts and uncles, making anxious inquiries as to the welfare of their sons and wards and nephews.

How is Jones minor progressing? Will I be good enough to see that he does not leave off his chest-protector until the warm weather comes? Will I be sure to take Brown minor under my wing, and see that he gets into no scrapes? These are but two of the inquiries with which I have to deal.

Then there are letters dealing with the admission of new boys to the school; there are complaints from local landowners of

Greyfriars boys trespassing on their property; letters from Old Boys; tradesmen's bills and begging letters, and so forth. So you will see that my correspondence is a day's work in itself!

I snatch a hurried breakfast, and return to my study until lesson-time, when I adjourn to the Sixth Form-room to give instruction to the senior boys. Thus the morning passes, and after lunch I renew the attack upon my correspondence.

Seldom am I permitted to work without interruption. Masters call on me at intervals, seeking advice; boys are brought before me for punishment; visitors from outside the school are continually being shown into my sanctum. Interviews, letter-writing, floggings; more interviews, more letter-writing, more floggings; and hey presto! the day is gone, with many tasks still undone. Sometimes I work far into the night; for there are reports to be submitted to the School Governors, and sermons to be composed for the Sunday services.

Where, then, is the lovely, lazy life, with not a care in the world? It has no existence, save in Master Robert Cherry's imagination. Believe me, a headmaster's post is not a sinecure.

# BE AT POPULAR PARTIES

*Performed with ordinary skill the posers in this chatty article will add pep to any party—and popularity to yourself!*

**T**HE boy or girl who can do a few simple tricks is always sure of a warm welcome at parties.

Here are a few little "stunts" which will help to "break the ice," and make you a personage of importance at any party!

## METAMORPHOSES.

This is a new way of spending an odd few minutes. The problem is to change one given word into another, by altering one letter at a time, each alteration making a whole new word, the number of letters being always the same, and the letters always in the same order.

Example :

Change HAND to BENT in three moves.  
Hand—band, bend, bent.

1. Change WOOD to COAL in 3 moves.
2. Change FOOT to YARD in 5 moves.

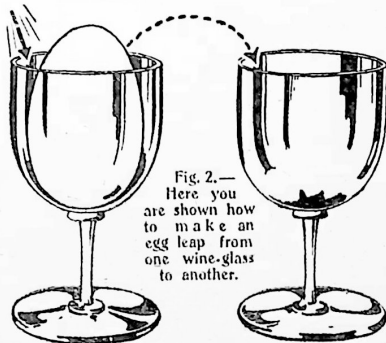


Fig. 2.—  
Here you  
are shown how  
to make an  
egg leap from  
one wine-glass  
to another.

Fig. 1.—The "Spinning Egg" trick will baffle any audience.



3. Change ROCK to SAND in 4 moves.
4. Change COAL to SOOT in 3 moves.

Solutions :

1. WOOD—wool, cool, COAL.
2. FOOT—Food, ford, cord, card, YARD.
3. ROCK—rack, rank, sank, SAND.
4. COAL—cool, coot, SOOT.

Small prizes can be offered for the quickest solutions and those which tally correctly with the originals.

## EGGS-ACTLY! The Spinning Egg.

Make a little net bag of string, just large enough to hold an egg. Produce a fresh egg, and put it in the bag, to which a long loop of string is attached, as in Fig. 1. Put the egg in, and invite the audience, one at a time, to see how long they can make the egg spin in the net, timing each one.

They will be surprised to find that it very quickly stops spinning. This is due to the fluid in the egg, which checks the motion.

If each one is allowed to put the egg in in their own way, it will help you, and they will not think they are being "diddled."

Now say that you will be able to make your egg spin the longest. This you can do

by substituting a hard-boiled egg when it is your turn, though, naturally, this must not be spotted by your audience. The hard-boiled egg will spin indefinitely, and your friends will be completely mystified!

### The Frog Egg.

Ask your audience if they can make an egg move from one wine-glass to another, without touching it by hand. Of course, they will be baffled, yet it is quite simple.

Place a hard-boiled egg in a glass, as shown in Fig. 2, with a second wine-glass by the side. Now blow sharply down the glass in the direction of the arrow, and with a little puff and patience, the egg will jump safely from one glass to the other!

### THE STREET BEGGAR'S SIGN.

Copy the cryptic message shown in Fig. 3 on to a piece of paper, and telling your audience that it is a street beggar's sign, ask them if they can read it. Give them a minute each, and see who is the quickest to decipher it.

The correct solution is: "For a week on end I ate next to nothing." Easy, isn't it?

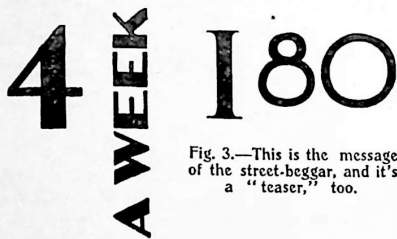


Fig. 3.—This is the message of the street-beggar, and it's a "teaser," too.

### FRUITY FUN!

As there is usually a supply of fruit at parties, it is a simple matter to perform some easy but mystifying tricks with it.

### The Bewitched Banana.

Arrange a dish of fruit, with a banana on the top, and ask one of your elderly aunts to take a banana. Naturally, if she remembers her party manners, she will take the top one! Tell her you will cut it in four pieces for her without breaking the skin.

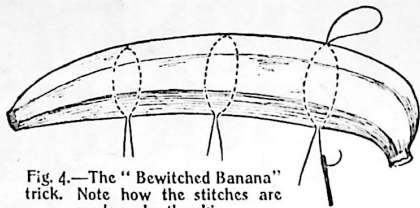


Fig. 4.—The "Bewitched Banana" trick. Note how the stitches are made under the skin.

Make some "magic passes" over the fruit, and then, when she peels it, she will find it in four.

This, of course, is really done beforehand. Thread a needle with very fine cotton, slip it into the rind, and make a short stitch *under the skin*. Now push the needle out through the skin, insert through the same hole at which it came out, and make another stitch under the skin. Continue in this manner round the banana, eventually bringing the needle out of the original hole of entry. Take the two ends of cotton, cross them, and pull gently. This cuts through the fruit. Repeat this operation on two other parts of the banana, as in Fig. 4.

This trick should be practised once or twice beforehand, and if your audience is at all suspicious-minded, then "doctor" every banana on the dish, concentrating on *one person on whom to work*.

### The Orange Mystery.

Hand an orange round to your audience to let them see it is a perfectly genuine one. Then begin to peel it. The surprise comes when you pull a quantity of ribbon from the fruit!

This is simple. Take three yards of narrow orange-coloured ribbon, and thread it through a darning needle. Coil the ribbon round the needle, and—unknown to your chums—conceal it in your left hand, with the needle sticking up. When you take the orange, you push it down on top of the needle, so that when you start peeling, you can take hold of the needle and pull. As soon as the ribbon comes through, drop the needle out of the way. Your audience will never solve the mystery—unless you explain!