

The Truth At Last

by Bob Jewett

IN THE APRIL issue, I posed the question: If the 9 ball is frozen to the rail three diamonds from the pocket and you have a 45 degree cut shot without English, is it better to hit the ball and the rail at the same time or should you hit up the rail a little?

I outlined an experiment to find an answer — carefully set up shots with the cue landing measured distances from the object ball and see what percentage of each group goes in.

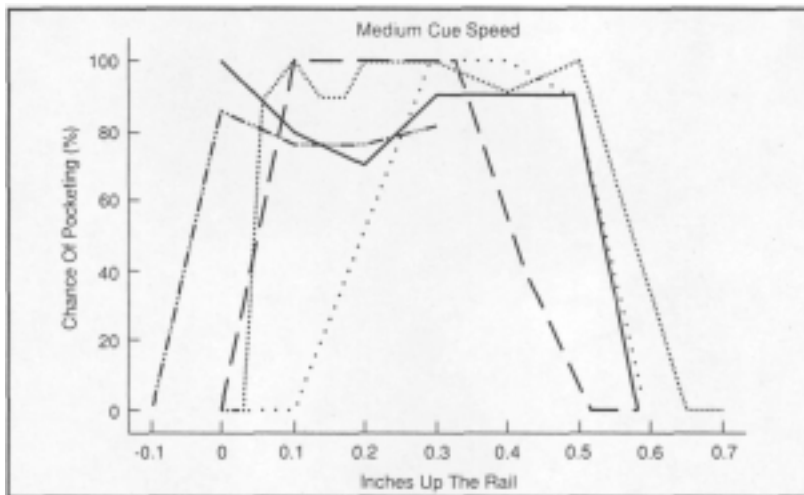
Ten readers responded and the five best sets of measurements are summarized below. Free one-year subscriptions to *Billiards Digest* go to Jeff Pass, Eli J. Beals, John C. Withey, Robert G. Royal and John Bellamy.

I was delighted to see such a good response. In total, over 2000 shots were executed which amounts to over 50 hours of time at the table.

The experiment was done at slow, medium and fast speed. Let's concentrate on the results for medium cue speed, which means that the cue ball went twice across the table after hitting the nine. The plots pocketing percentage against distance up the rail from the object ball that the cue ball lands. Zero distance means that the cue ball hits the nine and the rail simultaneously, and a negative distance means the ball is hit before the rail. I have plotted each of the five sets of results with a different line.

There is quite a lot of variation between the different experimenters, which is likely due to differences in equipment or maybe experimental technique. There are several interesting things to note. Three out of five made none of the shots when they hit the ball and the rail at the same time. All of the experimenters had a good percentage if they shot up the rail by about a third of an inch, and most still had good results at half an inch up the rail. What conclusions can we draw from these results?

The first is that hitting the ball and the rail at the same time is a very bad idea. If you do manage to make a simultaneous hit, the shot won't go in for most speeds and on most tables. If your aim is slightly off, and you hit the ball first, you have two chances, slim and none, and Slim just left town.



A much better approach which works reasonably well for all speeds, is to aim to hit a quarter inch away from the ball. For most tables and speeds this will allow a little aiming error in either direction.

Of course to really fold these results into your own game, your job has just begun. You have to get on your table and learn how it works for various speeds, angles and amounts of English.

You may want to look up what some other pool authors have said about this shot. I won't cover what each of them has said; it's your homework exercise to find out. You'll be surprised and maybe outraged.

The most complete printed discussion of this shot is in Jack Koehler's book, *The Science of Billiards*, which has a whole chapter on "Rail Shots." Koehler covers the use of both rail-side and ball-side English, adjustment for distance from the pocket, and the effect of cut angle, which is far more detail than I can go into here. Two interesting quotes from the book:

"However, if shot properly, the rail shot can be relatively easy. As a matter of fact, the permissible error of most rail shots is greater than similar shots away from the cushion."

"The target point is always on the cushion side."

If you don't believe all of this yet, I

can sympathize. I grew up believing "ball and rail at the same time" was an eternal truth. The situation where this gave me the most trouble was in straight pool when a ball was frozen to the middle of the foot rail for a break shot. I'd chant to myself, "Same time. Same time." My sight and stroke were true enough that I'd actually hit the ball and the rail at the same time, the object ball would rattle and miss, the cue ball would open the rack, and my opponent would run the table. It took me more than a few years to suspect that "ball and rail at the same time" might look good on paper, but it was expensively wrong on the table.

To some people, a simultaneous hit looks like ball first: there's a kind of optical illusion. Try this very quick experiment: Freeze the cue ball and the object ball together on the rail. Now very carefully move the cue ball along a 45 degree angle away from the object ball by about a quarter inch. Get down in shooting position, aiming back along that 45 degree angle, which we know must give a simultaneous hit. Does it look like a ball-first hit to you? It does to some people.

If you suffer from the optical illusion, try the quick experiment on someone who has never played pool to see if they see it the same way.

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