

Squirt Testing

by BOB JEWETT



IF YOU'RE A new player, this column may keep you from crippling your game permanently. If you're a veteran, it may show you why English shots have been so tough to master.

First the definition: when a cue ball is struck with side spin, the initial path is often assumed to be parallel to the axis of the cue stick. Instead, the cue ball starts off at an angle to the ideal line. That deviation or deflection from the ideal is called "squirt." See Figure 1.

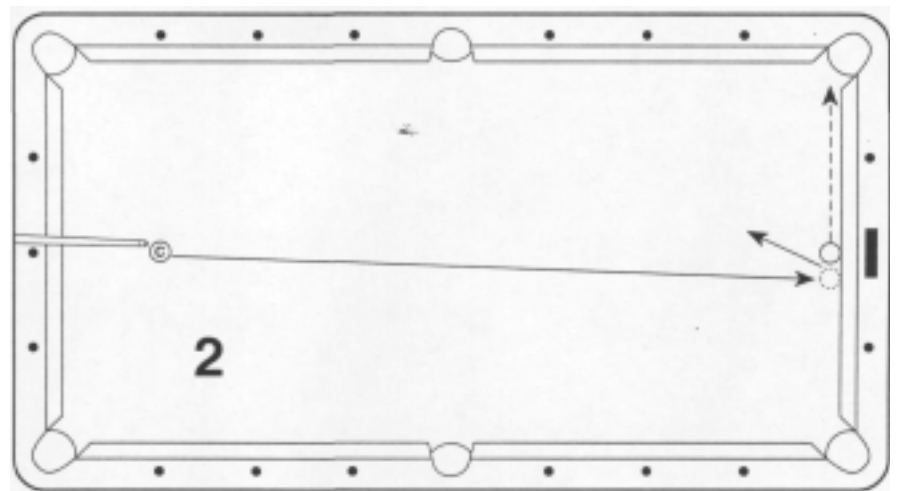
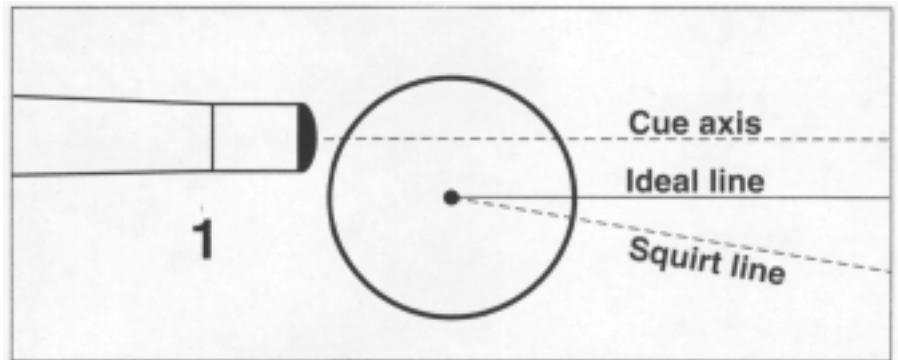
Squirt is the single most important characteristic of a cue stick. Less is better. More squirt means more aiming compensation on any shot with side spin. It is remarkable that many good players are unaware of the existence of squirt.

The amount of squirt depends mostly on the cue stick and the amount of English. Sometimes it appears as if a softer hit has less squirt, but this can be explained by the curve of the cue ball back towards the ideal line, due to spin on the ball. If the shot is played slowly enough, and with just a little cue elevation, it's possible to get the two effects to cancel. At any rate, more English gives more squirt.

Squirt also varies tremendously with the type of cue stick used, and most of the variation is from the shaft. All sticks I've seen have significant squirt, more than enough to cause a miss if not compensated for. The worst can deflect more than a ball and a half in a table length of travel. If side spin is an important part of your game, accurate compensation for squirt is a must for consistency.

Because I'm an engineer, as soon as I'm told a phenomenon exists, I want to measure it. It's hard to put a gauge on deflection, and no one is selling a squirmeter, but the following test will allow you to compare cues under extreme English conditions. There are several steps, each of which must be followed carefully. If you're not a "detail" person capable of careful observation, skip past this part.

Place the cue ball on the head spot.



Shoot along the main axis of the table over the foot spot to the middle of the foot rail with extreme left English, with the tip contacting the cue ball on the equator. You should be able to hit the left side rail near the side pocket. Remember to chalk. Play the shot with enough speed, so that the cue will hit the far rail a second time.

Once you are comfortable and consistent with spinning the ball that much, place an object ball frozen to the middle of the foot rail. Shoot the same extreme left English shot, trying to hit the rail just barely to the right of the object ball and then spin into the ball. Hit correctly, the object ball will be pocketed in the corner. See Figure 2. If you miss the object ball entirely, the cue ball should still hit near the side pocket. Be sure on the final stroke that the stick comes straight through the cue ball without any curving to either side.

Now, note (or have a friend note) where your cue stick points on shots when the object ball is pocketed. If the stick points somewhere toward the object ball, it's pretty good. If the stick points to the wrong side of the object ball's origin (left side, from your viewpoint), it has too much squirt (deflection) to be usable. It is unlikely that the line of the stick will be parallel to the desired path of the cue ball. If that's the result you get, you're probably ignoring one of the cueing instructions above. If several cues are available, compare them.

If you do the squirt measurements, please drop me a note in care of this magazine. I'd like to know the amount of squirt and what kind of cue you are using.

Now that you know how important squirt is on spin shots, and are able to measure it at least crudely, I bet you'd like to know

what causes it. So would I. There are people who claim to understand squirt, but I've never seen an adequate explanation of why it occurs or what's necessary to minimize it. There are no clear causes or cures, but here are some additional observations that may suggest further experiments to you and things to seek or avoid:

I figured that a stiffer shaft would help, so I glued a tip to a solid aluminum rod with a $\frac{1}{8}$ -inch diameter. The result was about three times more squirt than with any normal cue.

Jim Buss, a cue maker in Houston, sent me some special shafts with brass inserts in the first four inches, presumably increasing the stiffness there. These have almost as much squirt as the solid rod, and make an excellent demonstration of one of the perils of English for new students.

Joel Lehman, a fellow pool instructor from Oakland, got a 63-inch cue to match his height. It had a fairly flexible shaft and unusable squirt and had to be cut down.

Cues with small tips and tapers that start increasing near the tip are often more than twice as good as so-called "pro" taper shafts, which start with a larger diameter tip and stay that same diameter for the first 12 inches or so from the ferrule. Some cue makers offer a taper between the two, nearly cylindrical for the first six to eight inches, before the major flare starts building out to the joint. The idea is to give most of the ease of stroke of the cylindrical taper, yet maintain reasonable accuracy when using sidespin.

An aiming technique has been developed to achieve approximate compensation. It is an old technique that I call "aim and pivot." First aim the shot without English; for example, a full ball hit on an object ball two diamonds away. Now, without moving your bridge hand, pivot the stick to hit the cue ball with side spin, and shoot firmly. With luck, you'll hit the object ball full. A little thought will convince you that the pivoting is in the right direction to compensate for the squirt. Unfortunately, the amount of compensation depends on the length of your bridge, which will have to vary from six to 20 inches, depending on the stick. Another factor is the speed of the shot, since a slow shot allows the cue ball to curve back towards the ideal path.

There is only one way to avoid squirt completely, and that is to stay on the cue ball's vertical axis. Most players prefer to use English, at least occasionally. If you're one of them, you've got to learn to compensate for squirt.

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