

JUMPING BACK

Drawing more conclusions with the help of video.



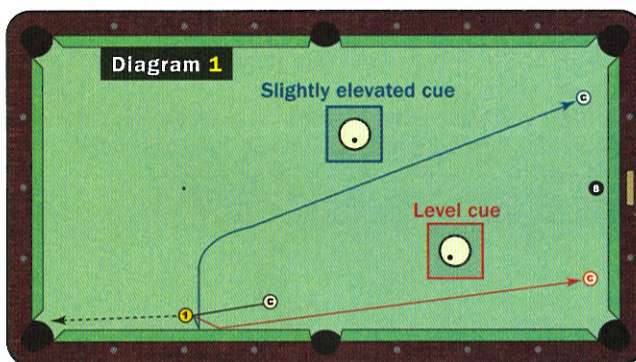
NO MATTER how I try to spin the various habits that have woven their way through my life, the bad ones always outnumber the good. But my latest compulsion, taping pool shots with Dr. Dave Alciatore and his famous high-speed camera, is perfectly beneficial, providing education and more fun than I've ever had around a pool table. Too bad he lives 75 miles from me while the price of gas races toward five dollars a gallon.

After our first session uncovered a false belief of mine that I reported here in April, I knew I was onto something big and looked forward to subsequent work with eager curiosity. But the enthusiasm was tempered with a measure of self-doubt, as I began to wonder just how much of my knowledge is reliable and how much of it is, as Dave would say, hooley. Thankfully, that first humbling experience remains unique, as all of our subsequent findings have failed to reveal any further falsehoods in my library of billiard beliefs. In fact, the camera recently came to my aid to confirm something I've long suspected but could never quite see with an unusual but useful shot.

In **Diagram 1** we see the end of an 8-Ball rack with a shot on the 1 ball and then the game-winning 8 ball waiting in the middle of the short rail at the other end of the table. If the first shot on the 1 ball were straight in, we would draw the cue ball straight back along the bottom side rail for a shot on the 8 in the upper-right corner. With more cut angle than we have in the diagram, we would draw the cue ball back and across the table with a little left-hand english for a shot on the 8 ball in the lower-right corner. For the angle that we see in the diagram, we can get the cue ball to either side of the 8 by employing two widely divergent techniques.

For the first shot, imagine a stripe ball hanging in the lower-right corner, blocking the 8 ball's path to it. With that obstruction it becomes necessary to draw

the cue ball back as closely as possible to the bottom side rail, as shown with the red line that goes to the red cue ball. To keep the cue ball close to the side rail, I use a long, somewhat slow stroke with draw and left-hand English while keeping my cue as close to level as possible. The English helps the draw by spinning the cue ball toward its destination after rebounding from the side cushion, as it also widens the rebound angle to keep it closer to that cushion. As the cut angle



grows wider, the slow stroke with low, outside English becomes critical for keeping the cue ball close to the side rail.

If we imagine a stripe ball blocking the upper-right corner, it becomes necessary to draw the cue ball back and across the table as we see with the blue line going to the blue cue ball. With only a little more cut angle, drawing the cue ball back and across would be a piece of cake. Doing so with the angle in the diagram presents a daunting challenge. When the angle is this shallow, I hit a firm draw shot with no English and a slightly elevated cue to give the cue ball a small hop. If the cue ball is airborne as it hits the 1 ball, it will move straight along the shot's tangent line into the side cushion and then bounce away from the cushion on that same line before drawing back. And if the cue ball moves far enough right after hitting the cushion, it can follow the blue path back and across the table.

(To see our video of the shot, go to Dr.

Dave's Web site, billiards.colostate.edu/index.html, and click on Normal Video (NV) Clips and go to NV B.26.)

I've always felt pretty confident with my understanding of this shot and what occurs to make it work. But because everything happens too fast to see in real time, I could never be absolutely certain. In the high-speed video, we see clearly how the slight hop makes the shot work. First, we see the cue ball hop straight sideways along the tangent line to the cushion, the movement I always suspected but could not prove. Then, in the moment following its rebound from the cushion, we see a second element of the hop that helps the cue ball move farther laterally before it draws back. After the airborne cue ball leaves the cushion, it bounces along the cloth perpendicular to the cushion before the draw grabs and moves the cue ball backwards. The draw

delay that accompanies a bouncing cue ball is not something I suspected, but the video shows it to be a critical component of the shot's success. The video also shows how much draw a bouncing cue ball loses with each hop to illustrate the necessity of a firm hit with maximum draw. For an exaggerated but clear demonstration of that phenomenon, go to the High Speed section of Dave's site and view HSV B.31.

Take the time to watch the video to see how this clever shot works and to see an unexpected and humorous, alternative way to play it. The video also shows a little of the fun we have filming. But since Dave's main source of fun is giving me a hard time — and since he does all the editing — viewers only see a small fraction of the total laughs. He's not all bad though. He was kind enough to schedule our next session in my neighborhood to shoulder the burden of fuel prices and eliminate my newest addiction's only downside.