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## **Clarifying the Tangent Line**

Some great people are remembered most for the impressions they leave with us just before or immediately after they depart this world. If the legend of Oscar Wilde's last words is the truth, that utterance alone ensures his immortality for me. Some live on for their epitaphs; Groucho Marx comes first to mind for his. If someone can write honestly on my headstone, "He mastered the stop shot," I am sure to rest peacefully.

Now that we have our goals laid out let's get to work. There is an aspect of position play so fundamental to controlling the cue ball's track off of the object ball that the term associated with it has taken root in every player's vocabulary. I fear that as the words "tangent line" become a cliché their meaning and, more important, their understanding will dissipate for some players. We discussed the concept here almost three years ago and shall review in order to simplify our understanding and clear up any misconceptions.

I worry that the term "tangent line" may confuse some players since a circle or sphere has an infinite number of lines tangent to it meaning that any track traced by the cue ball after contact can be defined as tangent to the object ball. Call it what you wish as long as you have a clear picture of what is meant. We wouldn't want such an important concept to go the way of the word "stun," which now has a stunning number of different meanings in billiards parlance.

Look at the shot in the diagram and note the line drawn perpendicular to the line of the object ball into the pocket. Set up the shot with the cue ball at point A, mark the positions of the balls and draw that perpendicular line lightly with the chalk. Now shoot the shot to pocket the ball and keep the cue ball on that line. Shoot the shot repeatedly while altering speed, stroke, and the spot you hit on the cue ball and noting where the cue ball tracks for each shot. You will find that only one shot keeps the cue ball on the perpendicular line, the stop shot. It may be a firm stop shot hit just below the center of the cue ball or a soft one hit down near the bottom but only a stop shot will keep the cue ball on that line. If you need to nail down your stop shot for this distance move the cue ball to point B to make the shot straight and shoot some stop shots from there at different speeds.

Move the cue ball back to point A and consider the shot for a minute. Why is there so much talk surrounding the so-called tangent line when it accounts for only one cue-ball track among so many possibilities? Because so many shots offer such a daunting number of choices, players desire certainty especially when under a little pressure. A precise knowledge of where the cue ball will track is extremely powerful and knowing that one specific shot, the shot that you've mastered, will yield that track every time is very reassuring. While studying the shot further consider how many places on the table you can leave the cue ball by playing the perpendicular track and changing only speed.

Play the shot in the diagram now to track the cue ball on the perpendicular line at various speeds. Observe where the cue ball lands after every shot. Work on your low, soft stop shot to track the cue ball along the line with just enough speed to get to the short rail. Can you add speed and use this track to move the cue ball two rails to the center of the table? Can you add more speed to move the cue ball through the center of the table for a good shot on a ball lying at point X? For that position try a firm stop shot with a touch of outside english, right in this case. Does that affect the cue ball's track? You will find that when you use english and maintain your punch stroke, the english will not move the cue ball off of the perpendicular line. Play for the ball at point X with just a little outside english to move the cue ball into position without excessive speed. Get comfortable with using english in this way, just enough to give you a natural roll off of the two rails, and find the right speed to land on at least five separate, precise points along the entire path.

You can reflect on your work now and consider two important results. Note how comfortable the perpendicular track can feel and how many possibilities are at your disposal when you choose it. Set up and play other shots with the same technique as you predict and observe the possible outcomes. Watch the best players and note how often they choose the track and reliable punch stroke that you are mastering today. You may be amazed by how frequently you see successful position resulting from one consistent choice.

