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PRESENTS THE COACHING SERIES…

"A PANE IN THE GLASS"

The Window of Velocity

by Bill Tschirhart

I don't know about you but I'm one of the historical junkies who love to look at those old trophies and photographs many curling clubs still display. I think it's important that we retain our links to the past. Even though the faces that stare back at me are unfamiliar, each represents an athlete who experienced in his/her day, exactly the same emotions I experience playing today. The old, slightly tarnished trophies represent similar dedication and commitment then as now.

But, to be sure, the game has changed in many ways and those ancestral compatriots would be amazed at the advances in technology, instruction, rules and styles of play. Culture shock would be rampant should they ever return to the modern game of curling.

One skill that I find most difficult to imagine was the delivery of the stone with virtually no slide in the delivery motion. To my mind, the kinesthetic pleasure of sliding effortlessly across the frozen surface was what attracted me to the sport in the first place (along with the grace, strength and sound of "sweeping"). Oh, I forgot, some you reading this article won't remember, "sweeping". It was when men were men and… (OK, enough already).

The flat foot balanced slide delivery has replaced the old "stand-in-the-hack-and-fire-it" style of yesteryear. The material used on the sole of the sliding foot has changed as well. I vividly, but not happily, recall the first pair of curling shoes I used. It was a pair of regular hard-soled street shoes. The word around the K-W Granite Curling Club in Kitchener ON was that a "neolite" sole was the way to go with a "toe rubber" on the other shoe for grip. So, that's what I did and I could almost slide to the hog line on a take-out shot. Wow!

It didn't take curling equipment manufacturers long to begin marketing a shoe that was specifically designed for curling. I don't recall the manufacturer (but I wager I'll get one or two e-mails from old timers who will tell me) but the earliest pair of curling "boots" in my memory

bank were made of felt and like Henry Ford's model "T", came in every colour of the rainbow as long as you wanted black, had at least ten eyelets and a "slider" attached directly to the sole made of (drum roll) teflon. With this new sliding material and a big backswing (oh, you don't remember that either?) you could slide most of the way to the other end of the sheet! Now we're talking cool here gang! The signature skill of delivering the curling stone had changed forever.

One of the manufacturers of curling shoes with a "teflon slider" had a factory in Kitchener. The company was well known for its hockey skates. It was the Bauer Skate Company. They made a low-cut curling shoe in a variety of bright colours. They were the exact opposite of those army boots described earlier. A kid living in the same town where these shoes were made just had to own a pair! I recall watching the CBC's "Cross Canada Curling" with Doug Maxwell providing the shot-by-shot commentary on Saturday afternoons in the winter. Many of the great players of that time wore the Bauer shoes.

Today of course, everyone uses a quick type of sliding material on his/her sliding shoe. Teflon still seems to be the industry standard but stainless steel is also popular. There is even a slider that is a combination of the two. The quick sliders of today and great sliding surfaces in combination with the current "no back swing" delivery gives rise to this article.

I have wondered for quite some time how many curlers really understand the importance and implication of a long slide. Well, here's my two cents worth on the topic.

First, a review of some terminology from a previous article in the series ("*Delivering the Curling Stone 101*"). In particular the terms "park" and 'bottom out".

Park you'll recall was the second position in the "hack-park-bottom out-slide-rotate-release" sequence in the no backswing delivery. A note at this point; I now get many juniors and adult novice curlers who ask me why we describe the curling delivery in negative terms (i.e. the "no" backswing delivery). The follow-up question inevitably is, "What's a backswing delivery?" We gotta come up with a new name for the curling delivery now used by over 95% of curlers. How 'bout "the curling delivery" (that's why I get the big dollars)? But back to "park" and "bottom out".

What this article is really about is "weight control". The single most important skill in my mind. Those who employed a true back swing delivery (any you might see now I would suggest are hybrids) controlled the velocity of the stone by the length of the backswing. In essence, the longer the back swing of the stone, the faster it moved past the hack leg and leg drive, the most often cited source of weight control by the way, simply allowed the athlete to "follow the rock". You see, in a pure or true back swing delivery, leg drive had absolutely nothing to do with weight control. Now back to that "hybrid" thing. The very few backswing deliveries you see now are not pure back swing deliveries. Watch them closely and I'll wager the athlete swings the stone back to pretty much the same position for every shot attempted. The stone passes the hack leg traveling at a constant velocity. Weight control then is attributed to leg drive (and some fine tuning with the extension of the delivery arm).

In “the curling delivery” (there you go, it’s been inaugurated and you saw it here first) many curlers still would answer the question, “How do you control the velocity of the curling stone?” with “leg drive”. Do you realize that leg drive is controlled by the quadriceps, a bundle of four large muscles in the thigh which by the way, due to their very structure, are not well suited to the task? Think about that for a moment! That’s why elite curlers slide just a hair slower than necessary and allow those two “gorillas” with brushes in their hands to do the fine work and take the stone to its exact destination. They’ve got world class brushing. Why wouldn’t they use it whenever possible?

When you bring the stone and hips back to a particular point, that’s the “park” position. Sometimes there’s a noticeable pause, sometimes not so much. It doesn’t matter. But from that position, you move forward and down to a point where the sliding foot just begins to cross the back line. That’s where you really enter the slide portion of the delivery. We say you’ve “bottomed out”.

Now, here’s a revelation for some you. Weight control can be thought of as the “time” you take as you go from “park to bottom out”. If you take less time from park to bottom out, your body will be moving more quickly (as well as the stone by the way). If you take more time from park to bottom out, the reverse is true, your body (and the stone) will be moving more slowly. Clearly there’s leg drive involved but my point is this. Thinking of weight control in terms of ***time from park to bottom out*** has provided a new reference point for weight control. There are more. How about sound? Sound? Yes, sound, didn’t you hear me (lol)?

BOTTOM OUT

PARK

I worked with a team earlier this season with the focus on weight control and its judgment by both the shooter and the brushers. We were using the “speed trap*” data to confirm judgment. In a word, it wasn’t going all that well. Then it struck me (I get these flashes of brilliance once a century). I positioned the team along the side of the sheet where the brushers would normally be positioned in readiness for that task. I had another curler who was at the club practicing, to assist. I asked the team to close their eyes while my volunteer delivered two consecutive shots, pre-ordained at different velocities. I asked the team to compare their relative velocities. They did and got it right! After several more pairs of shots, some with differing velocities and some the same, the team judged each pair’s relative velocities correctly and remember, the only stimulus they had was “sound”. What made that sound? There were three sound generating agents. One

was the sound of the stone as it slid across the pebbled ice surface. Another was the slider and the other the sliding device (in this case a brush). Each contributed to the “pitch” of the sound. You don’t have to be a certified audiologist to know that that higher the pitch, the faster the agent causing the sound is moving and vice versa.

A coaching/instructing note; explain the same teaching point in as many ways as you can. What makes perfect sense to one might be ancient Greek to another but when it’s explained differently, it now just might make sense to both. But let’s return to the focus of this article, the window of velocity.

The instant that an athlete leaves the hack, he/she begins to decelerate. The co-efficient of friction between the ice and the athlete cause this phenomenon. The rate of deceleration is determined by two main factors, the "speed" of the sliding material and the delivery technique (i.e. weight on the trail leg). But, let’s not concern ourselves with the value of each factor for now. I first want to establish the premise that a rate of deceleration that allows the athlete to maintain the velocity generated from the hack for a longer period of time is going to make the delivery of the stone with the proper weight easier. I feel this way because an athlete with a "longer slide" has the window of velocity open for a longer period of time during which adjustments (i.e. fine tuning) can be made!

First, let’s consider the athlete who generates velocity to deliver the stone with enough force to cause the stone to travel the distance required to make the shot without the aid of brushing. We’re going to call that the maximum velocity. During the deceleration process, the stone, if released without any fine tuning (i.e. arm extension) would not travel the required distance and would therefore require the efforts of the aforementioned teammates who just live to brush their hearts out when needed (and now would be one of those glorious times). Finally, the deceleration process would bring the athlete to the point that again, without any fine tuning, the stone would have just enough velocity that with all the effort those brushers can muster, the stone just makes its way to the promised land. I’m calling that, minimum velocity. Beyond that magical deceleration point, all the brushing in the world would not make your skip deliriously happy with you which I’m sure is the normal state of relationship between the two of you. The distance that the athlete travels from maximum velocity to minimum velocity is the window of velocity.

It seems to me (to restate my initial premise) that a curler with a window of velocity that remains open for a relatively long period of time is going to have a greater opportunity to monitor the velocity of the stone and make the necessary adjustments than an athlete with a relatively short slide (and subsequently a short period of time during which to monitor the velocity of the stone).

Perhaps I’m simply stating the obvious but when I’m asked about sliding material I encourage the athlete to use the "quickest material" he/she can control. Now you know why!

Allow me to make another point about the slide delivery. Let’s assume that I’ve convinced you that a long slide is beneficial. Technique is critical to the long slide just as much as the speed of the slider. We encourage the athletes to feel that the weight of the body on the slider foot is evenly distributed over the entire surface of the slider. There are a variety of reasons for this not

the least of which is balance. But, almost as important is getting the maximum benefit from the speed of the slider.

Let's take a page from the world of speed skating. The object of the exercise for a speed skater is two-fold. First, the athlete needs to generate as much speed as possible given the distance of the race, as quickly as possible. Second, once that speed is achieved, the athlete wants to maintain that speed. To this end, biomechanics of skating action are key of course but equipment plays a significant role as well.

Do speed skates have an "iddy biddy short blade" or to they have blades as long as possible? Of course the blades are very long. Not only that, but modern skate design is such that when the athlete pushes off one skate, the blade is hinged at the front (the so-called "clap" skate due to the characteristic sound created when the blade snaps back to its original position) so that the blade remains on the ice as long as possible (more blade on the ice for as long as possible, hmmmm…)!

Heh, you paid for a whole slider. Use it! You will maintain your initial velocity from the hack longer if you keep the entire slider on the ice surface with your weight evenly distributed! When you go up onto your toe, or shift the weight on the slider to the outside edge, you not only put your precious balance in jeopardy, you lose momentum! You begin to close the window of velocity.

Before I close, I'll answer a question posed to me frequently by recreational curlers. What type of slider should I put on my sliding shoe? For recreational curlers, I would caution against steel. Go with Teflon. Steel is fast but is always slippery. Teflon is fast, but after a few games, the slipperiness is greatly reduced.

And, for those of you reading this who have anything to do with the archives at your club, don't discard those old photos. They were you many years ago!

Enjoy working with your athletes and I'll see you soon behind a pane in the glass.

*A wireless speed trap is my constant companion when I'm working with a curling team. I'm so convinced that it's an essential practice tool that I encourage every curling facility to purchase one. Essentially it's a laser activated series of sensors that can be placed at various locations on the ice to accurately record the time taken by the stone as it makes its way down the ice (from the hack to final resting place). The data allows an athlete to better measure the control of the velocity of both the body and ultimately the stone. It can confirm the accuracy of a team's timing system and judgment. It will aid in knowing how far your brushers really can extend the path of a stone. It will help match pairs of stones. It can reveal release issues.