

# Does Court Speed Matter?

---

## Preface

As chairman of the USCA Courts and Greens Committee, and having come back from a tournament where the lawn was very slow, I posed some questions to members of the Committee: Michael Albert, William Mead, and Edward O’Laughlin. I also included Bob Kroeger and Bert Myer in the conversation because of their long experience and knowledge of the game. These were the questions:

1. Should there be a standard range of speeds for tournament play?
2. Should the speed of the court be revealed in the tournament invitation, along with the sizes of the courts, so players can make a judgment as to the tournament’s suitability?
3. What kind of device should we use to measure speed?
4. Should the USCA provide plans for the making of such devices (or provide them for sale)?
5. Should we just ignore speed as just a trivial pursuit?

## Measuring Speed

### On a Golf Green

Long before croquet was played on manicured greenswards, golfers putted on extremely low cut greens. The history of the green (and golf) loses clarity in the murkiness of the Scottish countryside, but suffice it to say that the green progressed from a naturally found grass with a sheep and scythe “treatment,” to planted seed greens groomed with revolving, scissor-like cutting machines that produced a consistent and quality height-of-cut. Drs. Charles D. Piper and Russell A. Oakley in their 1917 book, *Turf For Golf Courses*, said, “Mowing machines are most essential implements on every golf course.”<sup>1</sup> We universally subscribe to that

statement now as we acknowledge the myriad of mowers available to us.



**Figure 1 A very early hand-powered Greens Mower.**

Most of the credit for advancing beyond the scything era should go to Edwin Beard Budding, an engineer from Gloucester, England. In the mid-1800s, he adapted rotary knife machines to remove nap from cloth and invented what is believed to have been the first mechanical lawn mower. Its main advantage was that it could cut dry grass.<sup>2</sup>

---

<sup>1</sup> Charles D. Piper and Russell A. Oakley, *Turf For Golf Courses* (New York: The MacMillan Co., 1917), 203.

<sup>2</sup> Clay Loyd, “Golf course equipment: A history of progress initiative,” *Golf Course News*, December 1999, PDF of an article (accessed July 9, 2016)

By the 1930s one could putt with consistency on relatively fast greens. As golf became more competitive, not only among players, but among golf courses, the quest for speedy greens intensified. "Edward Stimpson, a Massachusetts amateur champion, devised the first Stimpmeter in 1935, after watching Gene Sarazen putt off a green at that year's U.S. Open at Oakmont and deciding it was unfair."<sup>3</sup> He reasoned that there needed to be a way to measure speed and his early attempt was a device constructed out of wood. The device was grooved and had a hole at a fixed distance (30") from the end. When a golf ball is placed in the hole, it will eventually begin to roll as the device is raised. By design the ball will start to roll at a 20° angle and the distance traveled from the end of the Stimpmeter at the ground, was designated the speed of the green.



Figure 2 The evolution of the Stimpmeter.

The USGA adopted Stimpson's concept in 1978 and began making its own out of metal, which it sold with some trepidation.

The fear was like that of a nuclear warhead falling into the wrong hands. Some untutored yahoo would get hold of one and sneak around measuring the green speeds of rival courses. Apparently that actually happened, sometimes under the cloak of darkness, resulting in pressure on the home-course super to goose up speeds by whatever means necessary, even if that meant scalping the greens or taking other measures likely to cause long-term damage. "The Stimpmeter in the hands of the amateur is a troublesome device," huffed one super in a 1983 USGA magazine article titled, "A New Turf Menace." He dubbed the devices "antigrass."<sup>4</sup>

There is no question that golfers who played "faster" courses, very often come back to their greens committee with requests for the superintendent to increase the speed of their greens.

An issue golf greens have, that croquet courts do not, is "slope," so a golf green has no significant flat and level areas, thus "Stimping" the green in opposite directions to get an average speed is required. A simple formula from the mind of Sir Isaac

---

<http://archive.lib.msu.edu/tic/gcnew/article/1999dec11a.pdf>

<sup>3</sup> John Paul Newport, "Ta-Da! Stimpmeter Makeover," Wall Street Journal, Golf Journal, January 25, 2013.

<http://www.wsj.com/articles/SB10001424127887324539304578263953206840258>

<sup>4</sup> John Paul Newport, "Ta-Da! Stimpmeter Makeover," Wall Street Journal, Golf Journal, January 25, 2013.

<http://www.wsj.com/articles/SB10001424127887324539304578263953206840258>

Newton overcomes this obstacle with the following formula:  $\frac{2xS\uparrow xS\downarrow}{S\uparrow+S\downarrow}$  (where  $S\uparrow$  is the speed up the slope and  $S\downarrow$  is the speed down the slope on the same path).<sup>5</sup> This methodology gives the average speed on a sloped green.

### On a Croquet Court

As several members of the USCA's Courts and Greens Committee have reiterated, why use any other method besides the Stimpmeter when it has been the gold standard for years in measuring the speed of greens? The hang-up for me is the difference in mass of the two balls. A golf ball weighs approximately 1.6 oz. whereas a croquet ball weighs one pound. That's 10x the mass. That makes a big difference in the roll of a croquet ball versus a golf ball in certain situations. For example, there are some greens, golf and croquet both, that have a "puffiness" to them because of the build-up of thatch or because of the lack of topdressing, have unsupported and elongated crowns. I remember walking with my grandfather on the Blink Bonnie Golf Links greens in Sorrento, Maine and being amazed at how my feet would sink into the grass, leaving an impression, while the ball rolled smartly across the green surface fairly quickly. In the photograph below, this green is so "puffy" that a one pound croquet ball would sink, but it is dense enough to support a 1.6 oz. golf ball. The discrepancy between the two balls in this situation would be profound, and a croquet ball measurement would be more indicative of actual playing conditions.



Figure 3 Very heavy thatch with raised crowns and a huge need of topdressing.<sup>6</sup>

---

<sup>5</sup> Wikipedia contributors, "Stimpmeter," *Wikipedia, The Free Encyclopedia*, (2016) [https://en.wikipedia.org/wiki/Stimpmeter#cite\\_note-9](https://en.wikipedia.org/wiki/Stimpmeter#cite_note-9)

<sup>6</sup> Golf Green with heavy thatch.

<https://www.google.com/search?q=golf+greens+with+elongated+crowns&biw=1200&bih=2048&source=lnms&tbm=isch&sa=X&ved=0ahUKEwj142rvubNAhXDdB4>

So I set about the task of creating a “Stimpmeter” for a croquet ball. The groove at 30” in the Stimpmeter secures the golf ball in place until the back end is raised to approximately 20°, at which point it releases and rolls onto the green. It seemed that a croquet ball would roll freely down a 4” ID PVC pipe, so I sawed a 5’ section in half lengthwise. Then at the 4.5’ distance I placed a small roundhead bolt (#8-



32x3/4”) and tightened it down in the center of the pipe. The idea, as in the Stimpmeter, was to place the croquet ball behind the bolt and then slowly raising the pipe until the ball releases. The pipe is held at that angle until the roll is finished. Bert Myer suggested it be a plain board affixed to the hoop height (to assure consistency). He playfully named this device “Bert’s Precision Ball Velociometer.” He said it could also double as a cribbage board!

It turned out Bert’s idea had already been invented (but not as aptly named), as Ed O’Laughlin graciously reminded me, by Louis Nel. Dr. Nel, from South Africa, moved to the Ottawa area to become professor of Mathematics while at the same time



immersing himself in croquet.<sup>7</sup> What better person to develop a method for measuring the speed than a professor with a Cambridge doctorate in mathematics. And he made it remarkably simple! Prepare a 3 foot, 1”x6” board. Lay the board’s edge on the top of a croquet hoop (already a fixed height if set properly) and let the ball roll of its own weight from the highest point. Measure the

KHdSBBaYQ\_AUIBygC#tbm=isch&q=golf+greens+with+heavy+thatch&imgdii=zin6dAfAWldoyM%3A%3Bzin6dAfAWldoyM%3A%3BnitEVvm8VoVORM%3A&imgrc=zin6dAfAWldoyM%3A

<sup>7</sup> Peter Freyd, “Louis Nel in the news,” CanWest Interactive, Ottawa Citizen, July 26, 2006. <http://permalink.gmane.org/gmane.science.mathematics.categories/2403>

distance from the end of the board on the ground to the middle of the ball. Repeat this several times in one direction and then in another. Find the average in inches and convert it to feet.

There is one other method that Bob Kroeger brought to our attention and it is the Plummer method. It is used in many countries outside the United States and it is named after Dr. Ian Plummer. Dr. Plummer is an accomplished croquet player with a chemistry degree and earned his doctorate by designing and developing a new electron microscope. His lawn speed method is to strike a ball down the length of a court (105') in such a way that it comes to rest at the other end. The event is timed in "Plummers" (or seconds). Less than 8 (<8) is considered very slow and perhaps unplayable. 10 is normal and greater than 13 (>13), very fast and difficult. The nice thing about this method is that it requires only a mallet, a ball and a watch; all generally available at most croquet courts.

Plummers	Patel	Clark	Aiton	
5		Swimming pool		A Joke
6	Unplayable	Swamp		
7		Ploughed Field	Unplayable	Meadows
8	Slow	Heavy		
9		Slow		Rugs
10	Normal	Slow-Medium		
11		Medium		Sponges
12	Fast	Medium-Fast		
13		Fast		Average
14		Very Fast		
15		Lightning	Playable	Not Bad
16	Difficult	Icy		
17		Motorway		Okay
18				
18+				Quite Nice

This chart put together by Samir Patel gives a tongue in cheek observation by Chris Clark and Keith Aiton of the Plummer's calibrations.

8

## What Court Speed Means to a Player

Speed of a court affects all players in various ways. Bill Mead says, "...if I am traveling to an event I may want to bring out the old lignum vitae 3.6 pound mallet if it will be slow. I normally play with a very light 2.6 pound mallet for top level play." I have been to courts where it was all but impossible to hit a single ball shot from side to side (the 84' dimension) and totally impossible from end to end. Roquets and croquet strokes may well come up short because the energy needed for execution just isn't there. According to Samir Patel at such slow speeds, "break strategy needs changing because some shots become unplayable. (For example, at this pace, the roll from hoop 1 to 2 and 3 becomes a test of strength rather than

<sup>8</sup> Samir Patel, "Which is the Right Lawn Speed?" Oxford Croquet, 2007-9. <http://oxfordcroquet.com/tech/lawnspd/index.asp>

accuracy, and so there is merit in putting the hoop 2 pioneer further south, so there isn't so far to go if you don't get a rush after 1.)”

A very similar situation happened to me after an American rules attack on the sideline at Woodlawn (Ellsworth, Maine). I was unable to give my partner ball the rush after setting up the break, so when it was partner’s turn, I was forced to do a monstrous roll shot with a great deal of force. Well I overdid it, tore a muscle in my arm near the shoulder and took a huge divot out of the lawn—like a 160 yard nine iron shot with lots of back spin. The croquet shot, of course, went nowhere and dribbled out of bounds to end my turn. The photo to the right tells the story. Slow lawns can be a decided disadvantage to those who are not physically strong, and that includes my aged self.



The play at the National Croquet Center back in March of 2016 saw courts that were very fast, mainly because they were coming out of the winter dormant state and had little new growth. Compared to most courts in the Northern United States that were not synthetic, these courts needed some getting used to because of their relatively excessive speed. But with courts “running” at this speed, it was never a problem to hit an unforced, full-length shot or even a full roll between 1-back and 2-back—even for the weakest of us all. When adaptation to speed had been reached, play proceeded rather normally. Having fast courts levels the playing field for all competitors.

## A Method of Court Speed Comparisons

There is no doubt that the most common method for green speed is the Stimpmeter. Unfortunately they are not readily available to the public. In fact use by anyone other than a golf course superintendent is discouraged. Stimpmeters from the USGA, although well built, are somewhat expensive (although there are some aftermarket Stimpmeters available). So, for our purposes, I have adopted the Nel method for determining speed because it is simple and cheap and reliable (See page 4), and it uses a one-pound croquet ball, which will have different properties from court to court that may not be represented reliably or proportionately accurately with a golf ball. After discussing the merits with members of the Courts and Greens Committee, we decided to include the other methods mentioned and try to figure a conversion factor to cover our bases. The result of that effort is represented below. We hope that other facilities from around the United States and other croquet countries will send in their speed measurements in order to keep the chart complete. It really should be updated annually.

### Croquet Lawn Speeds

<i>Court</i>	<i>Surface</i>	<i>Date</i>	<i>Size</i>	<i>Nel</i> feet	<i>Stimp</i> feet	<i>Plum- mers</i> Sec.	<i>Comments</i> Nel= 1.67xStimp (Stimp=Nel/1.67) on natural grass Nel=1.56xStimp (Stimp=Nel/1.56) on artificial grass
Woodlawn, Ellsworth, ME	bentgrass	7/16	Full	9.7			Hitting from one end to the other is nearly impossible except for the very strongest player. Most shots are forced.
Mabee Court Kennebunkport, ME	bentgrass	7/16	<1/4	9.7	5.6		Shots are easy because the court is so small, but it is slow. Anyone could play here.
Strawberry Banke CC, Rye, NH	Synthetic	7/16	2/3	15.2	12		Shots are easy to make for most anyone. Very fast. Nothing is forced. All levels can play here.
National Croquet Center, West Palm Beach, FL	bermuda	11/16	Full	15.2			Hitting a ball the long distance is relatively easy and performing big rolls is also relatively easy.
Cedar Creek Racquet Club Cashiers, NC	Synthetic	7/16	80 x 100	13.5			Hitting end to end and two ball shots are easily accomplished. Any level player can play here.
Burlingame Cashiers, NC	bentgrass	7/16	Full	14.1			Quite fast and very level with no personality. Anyone can hit from corner to corner
Country Club at Sapphire Valley, Cashiers, NC	bentgrass	7/16	Full	12.7			Single ball shots across the court are easily accomplished by all players.
Chattooga Club, Cashiers, NC	bentgrass	7/16	Full	11.4			Fine courts and easy to play on.
Mission Hills, Rancho Mirage, CA	Bermuda/ rye	7/16	Full		9-11		Advertised as perfect lawns and fast especially for tournaments.
Sorrento Croquet Club, Sorrento, ME	bentgrass	9/16	4/5	11.5			
Woodstock Croquet, Woodstock, VT	bentgrass	7/16	Full & 2/3	13.4			Long splits are made with ease
Lenox Croquet Club Lenox, MA	bentgrass	8/16	Full	8.6			
Hinckley Court Southwest Harbor, ME	Synthetic	9/16	3/4	7.5			The Nap is long, but the court is very flat and true. Players seem to be able to negotiate just fine.

## Why Measure Speed?

Croquet players like to know what they are getting into. When I tell a fellow croquet player that the prospective courts are extremely slow, they will shy away from playing a tournament on those courts unless, perhaps, the courts are reduced in overall dimension. For championship players, speed probably isn't a legitimate factor in the quality of their play, but they definitely prefer a fast court. For 1st flight players and above, speed probably doesn't factor as much into the thinking, but it will severely handicap play. Without having the strength to make a sizable, unstrained split shot, failure will result—over and over again.

So with some advanced knowledge of court speed, one could decide whether or not to visit that court, or practice on a court of similar speed in preparation for a visit. There is another reason to measure speed and that is to try to hold court managers to some standard. Golf course superintendents compare (and reconcile) differences in the speed of their greens with other courses, with painful regularity. It is priority ONE. And it should be in our sport as well. So for a standard speed on a full sized court, or any court for that matter, the NCC courts in West Palm Beach represent a speed that is reasonable: Nel @ 11.8- 13, or Stimp @ 7-9. Maintaining a court's speed in this range would be ideal. For a synthetic turf, the addition or subtraction of sand within the nap is the usual way to control speed. For natural turf, it is the combinations of cultural practices (topdressing, verticutting, core and solid tine aeration).

## Answering the Questions

1. Should there be a standard range of speeds for tournament play? Yes. Not only should sanctioned play demand a narrow range of speed so there is some consistency in play, but turf managers should maintain recommended speed for the health of the grass.
2. Should the speed of the court be revealed in the tournament invitation, along with the sizes of the courts, so players can make a judgment as to the tournament's suitability? Yes. This is only fair to the participant.
3. What kind of device should we use to measure speed? The Nel method is the simplest for croquet players, but because of cross references, the Stimp method will do too.
4. Should the USCA provide plans for the making of such devices (or provide them for sale)? Plans are specified in this article and are very simple. Stimp meters can be bought as well.
5. Should we just ignore speed as just a trivial pursuit? No. Absolutely not! Just as it reigns supreme in the golf industry, so should it be so for croquet.

## How to Manage Speed

Below is a companion article written by Adam Moeller and Todd Lowe (sourced from the November 4, 2016, Vol. 54 (21), *USGA Green Section Record*--Copyright United States Golf Association, All rights reserved.) that is an excellent reference for the control of thatch and speed on greens of natural turf.

<http://gsrpdf.lib.msu.edu/ticpdf.py?file=/article/moeller-lowe-managing-11-4-16.pdf>