

on

05/2014

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CAPILLARY DRAINAGE

HISTORY OF AERIFICATION

Andy Morris

Country Club of Peoria



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front cover

The image of the sixth hole at Country Club of Peoria captures some of the rolling hills and valleys that make the course unique and a popular place to play in Central Illinois.

PHOTO: Andy Morris

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Brett Ziegler

I4

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Capillary Drainage

Luke Cella



Thanks to Andy Morris, Golf Course Superintendent at The Country Club of Peoria, the club has become a place of international appeal. Andy mentors an intern from China each fall in conjunction with his alma mater, Michigan State University. One of his interns from 2012, Yuan Hu "Willie".

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- 05/05 Midwest / ITF Combined Meeting, CC of Peoria
- 06/16 Midwest June Meeting, Aurora Country Club
- 7/10 Midwest Nine Hole Event - Woodstock CC
- 8/26 Midwest Golf Championship, Harborside International

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We Spoke Up

As most of you know Illinois SB3565, a bill drafted and introduced by Senator Don Harmon, 39th District of Illinois never made it out of committee. The proposed legislation would allow communities in Cook County with a population greater than 50,000 residents to institute “home rule” concerning the regulation and use of pesticides.

For those who never paid attention to Saturday morning cartoons the steps it takes for a bill to become a law (in Illinois):

Article IV of the Illinois Constitution governs the process of making laws. It states,

“The General Assembly shall enact laws only by bills. Bills may originate in either house, but may be amended or rejected by the other.” In general, a bill becomes law after passing both houses of the General Assembly with a majority vote and receiving the Governor’s signature of approval. A bill may start out in either the House or the Senate. The State law-making process uses committees, much like the Federal government. The process is almost the same, no matter where the bill originates. Bills, except bills for appropriations and for the codification, revision or rearrangement of laws, are confined to one subject.

Each bill must be read by title on three different days in each chamber before it can be passed. The first reading introduces the bill. The second reading allows for amendments. When a bill is called for its third reading, it is voted on. A bill passed by both houses must be sent to the Governor within 30 days. The Governor then has 60 calendar days to sign it, or to return it with his veto. If the Governor does nothing, the bill will automatically become a law after the 60-day period. If the Governor vetoes a bill that has been sent to him, the bill can still become law if the General Assembly overrides the veto by passing the bill again by a 3/5 vote in both houses.

EACH BILL MUST BE READ BY TITLE ON THREE DIFFERENT DAYS IN EACH CHAMBER BEFORE IT CAN BE PASSED

- Bill Drafted
- Bill Introduced
- Referred to Committee
- Committee Hearing
- 1st Reading – Introduces the bill
- 2nd Reading – Allows for amendments
- 3rd Reading – Voted upon
- If passes – moves to the other chamber to through same process
- If passes both – goes to Governor for signature or veto

Because of quick and intelligent action, SB3565 the bill was read on 2/14/14 and never read again – meaning it never made it out of committee. The Midwest and other green industry groups reached out to local leaders to inform them why this bill would not make a sound law for the people

Column continued on page 21

Kicking a Ball

Outside the Box

Brett Ziegler, Progro-Solutions

The last decade has not been the most promising for the golf industry. According to the National Golf Foundation, since 2005 nearly 300 golf courses have closed. The NGF also estimates that there are roughly 4.3 million fewer American golfers than in 2005, an 8.5% decrease.

It is no secret that the golf industry is currently facing a serious challenge. One of the main challenges being faced, in my opinion, is the age of golfers. According to the NGF, only 5% of golfers are thirty years old or younger. Compare that to the 61% of golfers who are over the age of fifty and it does not take long to realize that does not bode well for the future. The

PGA realizes golf needs new blood and is addressing the issue by promoting more junior golf programs and launching programs such as "Tee It Forward." These are moves in the right direction and will certainly help fortify the popularity of golf into the future.

When thinking outside the box, however, one cannot help but think "are there ways to bring new, young people to golf courses and generate revenue other than just by adding golfers?" In years past, perhaps there was not. With the creation of FootGolf as an official American sport in November 2011, however, the answer is yes.

To describe it in simple terms, FootGolf is a soccer-golf hybrid. Instead of a golf ball, a soccer ball is used and instead of clubs, your leg. A 21" diameter cup replaces the 4 1/4" cup used in golf. A flagstick is placed in the center of the cup to provide a target for the player to aim at. Scoring in FootGolf is identical to golf; one stroke for each "swing". The object of the game is to complete the holes in the fewest strokes possible. Just as in golf, there are nine or eighteen holes in FootGolf, although they are considerably shorter in length. The eighteen holes of FootGolf are etched out of just nine golf holes. This is of significant importance since the entire golf course is not shut down to golfers when footgolfers are in action; the two sports can coexist simultaneously on the same piece of property. The typical FootGolf layout consists of three holes on par-5's, two holes on par-4's and one hole on par-3's. This format may be different depending on the golf course but seems to be the norm.

If a golf course wants to host FootGolf, it will need to contact the Illinois FootGolf Association (IFGA) for courses in Illinois, or the American FootGolf League (AFGL), which is FootGolf's national governing body. Ample information is listed on their websites which I included at the end of this article.



Once the association has been contacted, a representative will survey the golf course and design the layout. The FootGolf holes ARE PLACED OUT OF THE RANGE OF GREENS! In fact, many of the holes are placed in areas of the rough. Once the course is designed, the next step is purchasing and installing the 21" cups. The eighteen cups cost roughly \$2,000. They include lids which are used to cover the large cups when they are not in use. I asked Luke Strojny, Golf Course Superintendent at Prairie Bluff GC in Lockport, IL about his experience installing these cups (last fall, Prairie Bluff became the first golf course in Illinois to be an

your golf course with minimal monetary investment. I genuinely believe that FootGolf could be a popular sport in this country. Here are some facts:

- FootGolf is not even two and a half years old in the United States, with its first official tournament held in July 2012.
- Of the sixty-seven golf courses that are members of the AFGL (at the time this article was written) nearly fifty joined the organization just this year, with many more expected to join during the year. That is a significant increase.



Changing cups for FootGolf could be a cruel April Fools Day joke.

accredited FootGolf course). Luke said that installation required a decent amount of man-hours. The cups are 18" deep, so a large hole must be dug to accommodate them. Prairie Bluff has extremely gravelly soil, so Luke thought it necessary to rent an auger to expedite this process. Once the hole is dug and the cup and flag installed, the work is pretty much done. The cups will remain in the same area for the entire season. If the hole is located in the rough, occasional mowing a few yards in diameter around the cup is needed to provide a "green" to speed up play and facilitate "putting".

Obvious concerns a superintendent might have with footgolfers are damage to the golf course and a lack of golf course etiquette. Footgolfers are not allowed to wear cleats on the golf course. They must either wear gym shoes or turf shoes which cause minimal to no turf damage. Furthermore, footgolfers do not take divots or make ball marks on the greens. Teaching golf course etiquette is extremely important to the FootGolf Associations. The AFGL realizes that footgolfers are visitors of the golf course and stress that respect must be given to the course, golfers, and other footgolfers. There is even a dress code and a 46-page rule book that describes in detail the etiquette that is expected.

FootGolf is not a fit for every golf course. I'm not a betting man but I would wager that Augusta National is in no hurry to apply for its AFGL membership. However, if the club you are at could use more revenue, then I think it is wise to at least take a few moments to research this sport. The worst that could happen is solidifying your distaste for the game of soccer. The best that could happen is providing a new stream of revenue for

- The roughly \$2,000 for the eighteen cups that need to be purchased is a small investment. Even if this venture turns out to be a complete failure, the financial risk is practically non-existent.
- Your golf course will receive publicity. With so much competition amongst neighboring courses, it is beneficial to be recognized for doing something different.

I realize FootGolf is not for everyone. Undoubtedly, there are a few of you out there that wished they had the few minutes it took to read this article back. However, for those of you that are interested, I would recommend checking out the National and State FootGolf Association websites and contacting our Illinois FootGolf representative, Carlos Stremi. Here is some contact info:



- Carlos Stremi – 312.622.1638, Email at cstremi@footgolfillinois.com
- www.footgolf.net – American FootGolf League website
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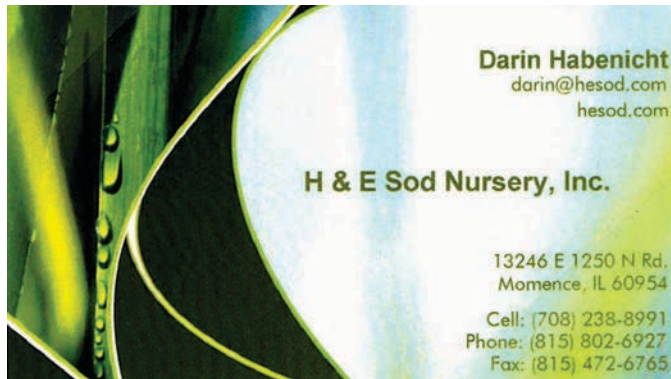
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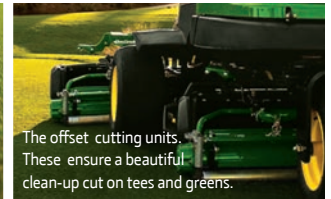
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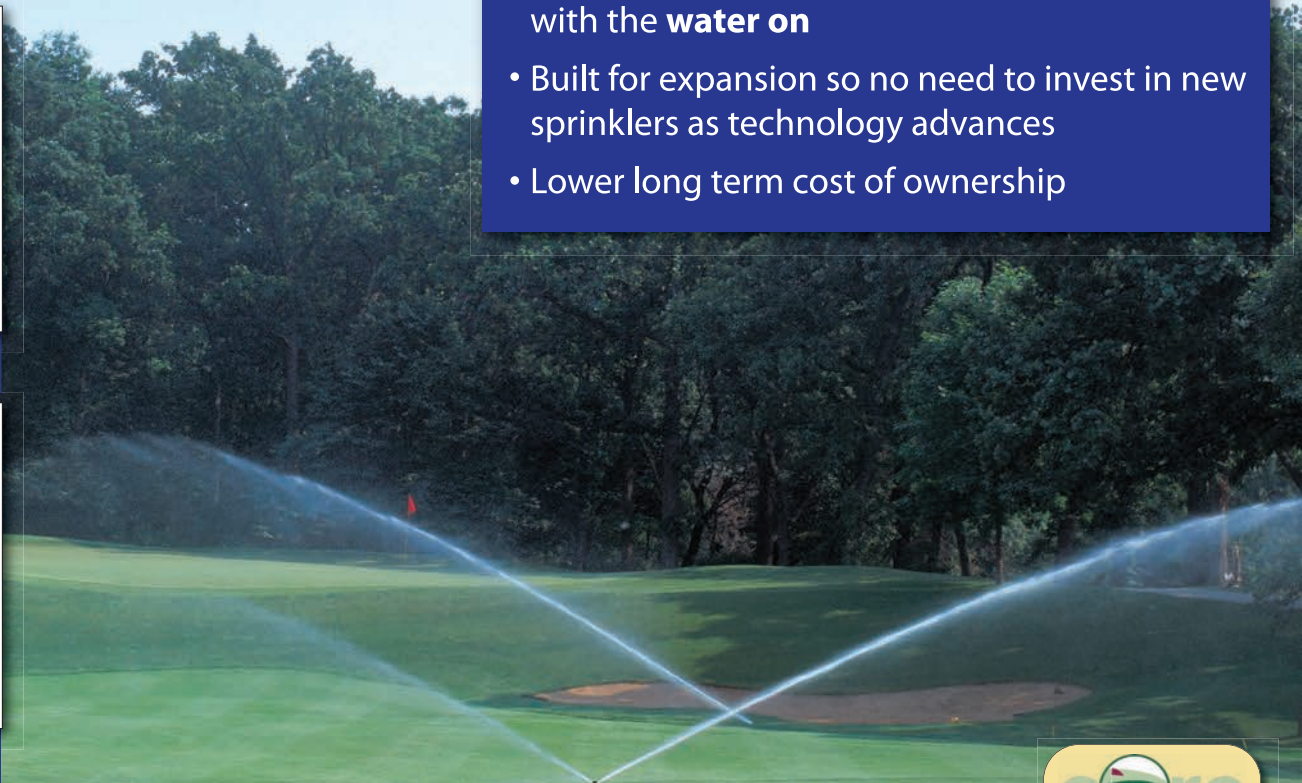
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BullSheet



MAY 2014

Dates to Remember

May 15-17 – NCAA Division I Men's Regional hosted by Northern Illinois University at Rich Harvest Farms (the "Home of the Huskies") in Sugar Grove, IL, Jeff Vercautren host.

June 6 – Deadline for applications for the MAGCS Scholarships—forms available online at www.magcs.org.

June 16 – MAGCS monthly meeting at Aurora Country Club, John Gurke & Aaron Reinhart host.

June 23 – 2014 U.S. Senior Open Qualifier at Village Links of Glen Ellen, IL, Christian Pekarek host.

July 1 – Deadline for the Call for Nominations for candidates for the 20-15 GCSAA Board of Directors.

August 26 – Midwest Golf Championship at Harborside International, Ryan Tully host.



Congratulations and the best of luck to **Jeremy Duncan**, (left) formerly of Cantigny Golf who is the new superintendent at Fox Run Golf Links in Elk Grove Village, IL. Jeremy takes the reins from the retired-and-loving-it Greg Thalman, CGCS.

Also best wishes to Chris Flick, the new



Hopefully Jeremy's new job doesn't make him feel like he's in too deep.

superintendent at Cog Hill Golf and Country Club in Lemont, IL. Chris hails from Ohio, where he was most recently the superintendent at National Trail Parks and Recreation District in Springfield, and was previously an assistant at Muirfield Village Golf Club in Dublin.

He did it! **Bosco**, **Dave Kohley's** 11-year old lab and December, 2013 Lebanon Turf Dog Days of Golf calendar cover girl has been named the Dog of the Year! Along with the award comes a \$500 donation to Dave's local Humane Society, \$500 to the Kohleys, and a \$3,000 donation to his chapter—MAGCS—which Dave graciously accepted at the April meeting held at his own club. Congrats Dave, Bosco, and Silver Lake!



Bob Bethel from Lebanon Turf presented Dave with a check for MAGCS.

Now that winter is a memory (although its scars will last until who knows when), we all were blessed with an uneventful and mild April. Yeah... Uneventful until the 15th anyhow.



Geneva Golf Club the morning of April 15.

Uneventful until we charged our irrigation systems.



This WAS a piece of 2" PVC pipe

Uneventful until the ice finally melted and we saw what was underneath:



Luckily, most of us are blessed with the latest and greatest in equipment technology, and have already broken out the aerators and seeders to address the damage left behind by Mother Nature Good riddance, April!



Another result of our winter that you may have experienced was "Stinky Pond Syndrome," caused by excessive floating, bloating fish that somehow couldn't figure out how to breathe in solid ice. The fish kill in small lakes around the area was worse than what one state fisheries official said he'd seen in 34 years on the job. Peee-yoooo!

So you've spent another winter cutting down ash trees, and now you have a big pile of cut up trees that you don't know what to do with? How about making some tacky lawn furniture? Pretty simple—cut a slab, burn some artsy-fartsy



decoration into it, cut down a smaller tree you don't want anymore to use as a base, throw it on with a few brackets, and start the party! You'll be a BIG hit with the neighbors...



Andy Dauksas (Glen oak Country Club) pretty much had his trip to Orlando for the Golf Industry Show paid for by stopping by the Arysta LifeScience booth. How? By having his badge scanned he was entered in the company's contest, and he was one of the winners! There were seven in all, each of whom received an iPad Mini and a

case of DISARM fungicide courtesy of the Arysta LifeScience Turf & Ornamental team. Congrats, Andy!

Happy Birthday to an old and familiar friend to all of us in the golf business—WD-40 turned 60 years old last month! Sixty years ago, the Rocket Chemical Company, a fledgling business in the aerospace industry, gave this challenge to its entire staff (of three): Create a solvent that would prevent rust, displace water, and work as a degreaser, too. In a lab not far from where SeaWorld San Diego is now located, the crew mixed up 39 formulas. With 39 failures. On the next try, WD-40 (Water Displacement-Recipe #40) was born and the rest is history. Today, over a million cans per week are sold, many to golf course equipment technicians whose bloody knuckles are evidence of the need for it.

On March 26, the Wee One Foundation held its Annual Meeting and Election. The results of the election are as follows:

- President **Rod Johnson**, CGCS of Pine Hills Country Club in Sheboygan, WI
- Vice President **Paul Bastron**, CGCS of Kenosha Country Club
- Secretary **Mark Petitgoue** of the Lake County Forest Preserve
- Treasurer **Dave Radaj**, CGCS of Green Acres Country Club
- Immediate Past President **Dan Quast**, CGCS

Continuing to serve as Directors are Chad Ball, CGCS of Conway Farms, Bruce Worzella, CGCS of West Bend Country Club in West Bend, WI, and **Brian Baker** of Chicagoland Turf. Newly elected Directors are **Jim Johnson** of Great Lakes Turf, **Dale Parske** of Reinders, and **Dave Schlagetter**, CGCS of Indian Hill Club. Congratulations to all, and many thanks for serving such an important cause.

Did you hear? The Royal & Ancient Golf Club of St. Andrews, exclusively for men since it was founded 260 years ago, will vote in September on whether women can join the club. A statement from the club said that all committees were strongly in favor of the rule change, and asked members to go along with it. Stay tuned.

Reinders announces some organizational moves within the company. **Joe Etten** has taken over outside sales responsibility for commercial equipment in the northeast Illinois counties of Lake and Cook. Joe has been a territory manager for Reinders since 2001. Also, **Grant Rundblade**, formerly with Tyler



Joe Etten and Grant Rundblade

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Bull Sheet continued from page 10

northwest Illinois territory. Congratulations and good luck gentlemen!

Our sympathies go out to Grant on the passing of his father, Richard Rundblade on April 26th. Mr. Rundblade passed away after battling Merkel cell carcinoma.

Q: What is the oven in **Brian Stout's** shop called that heats metal to a point where it can be pounded into shapes?
A: An Edgewood Valley forge.

John Deere Landscapes recently announced that Doug Black has been named Chief Executive Officer, succeeding Dave Werning, who will remain with JDL through the end of the year to work with Doug and ensure a smooth transition.

Condolences to the Arden family with the passing of James Leo Arden, father of MAGCS members **Jerry** and **Dave Arden**. Mr. Arden passed away on April 2nd at the age of 85.

A couple of our area clubs received good news when GolfWeek came out with its Best Modern Courses list for 2014. Butler National Golf Club (Mike Sauls superintendent) made it to #45, an improvement from #51 last year, and Black Sheep Golf Club (Dave Biery superintendent) jumped from #74 last year to #56 this year. Congrats guys!

Rain Bird International Services Division has named Dustin Peterson its Sales Specialist for the Illinois and Wisconsin market. Dustin started his new gig on March 24th. Prior to joining the Rain Bird team, Dustin was a superintendent for

the PGA Tour's TPC network of golf courses, having worked at TPC Scottsdale and TPC Deere Run for the past 13 years. Congratulations and best wishes Dustin.

This is a stretch, but is it possible that Clark "Frankly my dear I don't give a damn" Gable is alive and well and selling turf equipment in our very midst under the alias of **Roger Johnson**?

MIDWEST Doppelgänger



Roger Johnson - Clark Gable

Mike Bavier has been a busy man lately. After being called upon to accept the Colonel John Morley Distinguished Service Award in Orlando on behalf of his old friend Frank Lamphier, and a quick stop at the Golfdom booth to give Editor-in-Chief Seth Jones his annual gift of an ancient copy of the magazine

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(this year it was a June, 1967 issue—see page 42 of the March edition of Golfdom for more on that), it was off to the other side of the world, where Mike and his wife Mary found themselves at the foot of the Petronas Towers in Kuala Lumpur, the capital of Malaysia. From there it was back stateside for a quick seven days of shot charting (a problem I've dealt with on several occasions—they say after 50 never trust a ... oh never mind) at the Masters in Augusta. Then it was home sweet home finally, where Mike is still sleeping off the jet lag.



were going to be really toxic and really bad to the salamanders. But what we found was quite the opposite: Golf courses can actually provide a wonderful habitat for salamanders and other organisms, where they can survive and thrive." ©

News from GCSAA

Congratulations to **Jon Jennings, CGCS** and **Joel Purpur, CGCS** on recently attaining re-certification through GCSAA's certification program.

GCSAA's new Government Relations Online is now live. Members can have quick access to critical and relevant advocacy and compliance information and resources in one location. Go to www.gcsaa.org for more.

Bruce Williams is keeping some pretty fancy shmancy



company lately. Here's Bruce hangin' with his new best buds Vince Neal and Slash of Guns 'N' Roses. And now he's got Slash's DNA on him—if you know Bruce you might want to call and wish him well before stuff starts falling off the man. Just sayin'

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 - 1989 Ryan Rollaire Turf Roller in working order--\$100
- Call Brian Palmer at Shoreacres for details: 607-237-1969.

Good news from the University of Missouri regarding the golf industry. Findings of its study which focused on stream salamanders found on 10 different golf courses in the southern Appalachian region of western North Carolina (east was the odd direction out in that sentence)(until I added it) suggest that a golf course can serve as a viable habitat, and that the enhanced management practices of many golf courses are in fact beneficial to ecosystems within those courses. One U of M professor said, "We went into the research study thinking these things (chemicals and fertilizers used on golf courses)

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Capillary Drainage

Luke Cella, MAGCS

Just about every golf course superintendent that I know is either an efficiency freak or has someone on their staff that is always looking for new ways to solve problems, do things better, or use new methods. It is the reason that you can walk into a room of nine superintendents and share a problem at your facility and you'll walk out with nine successful ways to solve the hitch in your giddy-up.

In the past few years, several golf course superintendents have taken a new approach to removing subsurface water from their putting greens and other fine turf areas using a system that pulls water out through capillary action.

Capillary action is important for moving water on earth. It is defined as the movement of water within the spaces of a porous material due to the forces of adhesion, cohesion, and surface tension. (water.usgs.gov)



Capillary action at work – water is drawn from the tubs of water on the counter up and over each tub and eventually ends up in the bucket on the ground because the adhesive properties of water.

Capillary action occurs because water is sticky, thanks to the forces of cohesion (water molecules like to stay close together) and adhesion (water molecules are attracted and stick to other substances). Adhesion of water to the walls of a vessel will cause an upward force on the liquid at the edges and result in a meniscus which turns upward. Surface tension acts to hold top layer intact. Capillary action occurs when the adhesion to the walls is stronger than the cohesive forces between the liquid molecules. The height

to which capillary action will take water in a uniform circular tube is limited by surface tension and, of course, gravity. That's when water is moving upward in a column or if you remember from plant physiology the movement of water and nutrients upward in plant tissue.

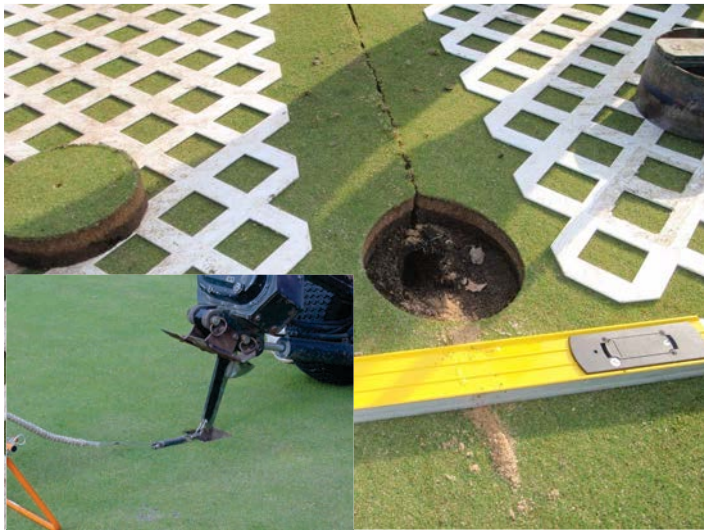


The PC element is a stainless steel mesh tube shrouded by woven fiberglass.

Not only does water tend to stick together in a drop, it sticks to glass, cloth, organic tissues, soil, and, luckily, to the fibers in a paper towel. This sticking action of adhesion is the principle that helps this new product to overcome problems in our putting greens; specifically perched water tables where layering is a problem.

Layering often occurs in our putting greens from top-dressing with sandy mixes over finer textured native soils, top-dressing with inconsistencies in sand particle size over long periods of time, or even through design (USGA con-

struction method – sandy root zone mix over a gravel bed). When layering occurs between two distinct and differing soil textures a boundary between the two occurs. The boundary is



A plug is pulled when starting with the vibratory plow on the putting surface.

created by the physical differences between the two, and the problem it causes with water movement is from the difference in pore sizes in the overall soil profile. Excess water may sit above the boundary and be perched above the layer interface. If this layer is near the putting green surface, the surface can be considered “wet” – a problem for growth and play.

This new system was designed to pull the water out of that perched table – using some gravity but also using the same cohesion and adhesion forces that keep the water tied to the soil profile in the first place. It does this by decreasing the texture difference between layers by having a very similar texture as the sandy root zone – moving the water off the perch and into an outlet. The process is known as passive capillary drainage or PC Drainage.

The material used to create the capillary action is a woven fiberglass rope, a material that has the permeability similar to fine gravel. The fiberglass creates a continuum of water attracting pores from the perched root zone to the outlet. It is wrapped around a stainless steel mesh core that helps to move greater amounts of water when the soil is at or above field capacity.

A number of area golf course superintendents have had this system installed to alleviate different circumstances where excess water is problematic inhibiting plant growth and impacting playability.

One of the first clubs to install the system was Midlothian Country Club. I recently ran into Dave Behrman, CGCS the Superintendent that decided to give it a try. Dave was very pleased with the system, installing it in most of the greens at the time.

“It definitely pulled water from the root zone of the greens at Midlothian and continues to do so,” Dave said. “We all know how important it is to be able to remove water, especially from our putting surfaces when we are trying to grow healthy turf and dry things down,” he continued.

Luke Strojny, CGCS experimented with the system in 2012 by having it installed in one green at Prairie Bluff Golf Club. He followed that installation with several more greens in 2013 and most recently two more this spring. He really likes how little the putting surface is disrupted and how quickly the greens are ready for play. The trouble greens are 15-year old California sand based that have black layering and poor drainage.

While the most tedious part of the install was connecting it to the existing tile, Luke feels it is all worth it. His “test” green (the one where it was first installed) was his worst green on the course in 2011 and now it is one of his best.

“The front of the green dries out and there is no turf loss,” Strojny said.

Ben Kelnhofner at Mistwood Golf Club too has roughly the same age California greens and put the system in to alleviate problematic areas in a few greens. “We had the system installed in site-specific areas where we were experiencing problems, not the whole green.” For some, this has been the beauty of this procedure: only installing the system in troubled areas.

As long as I’ve known Dan Dinelli, CGCS he’s been trying to get the water out of his native push up greens at North Shore Country Club. Dan has tried the system in a one of his putting greens and a few approaches as well.

Continued on page16



A vibratory plow is used to install the drainage element into the soil with minimal disruption to the surface.

"The ropes do drip water when the soil is wet, helping to dry the root zone," Dan explained.

Dan plans to push the envelope even further this year overlaying the PC system on top of an existing an XGD system (more traditional - gravitational based drainage system) in hopes of enhancing drainage from his pushup green.



The discharge end of the PC Drainage is hooked up into existing or new conventional drain lines.

"I want to test it for myself to see how well it works in other areas because it is very quick and easy to install," Dan went on to say. He's even planning to install the system in a troublesome bunker that is heavily shaded with no air movement to see if it will help to get the sand to dry out.

Jeff VerCautren has been using the system since 2009 in approaches and areas surrounding his greens with his latest install in the fall of 2013.

"The initial install site is still working and meeting my expectations, that is why I keep adding a few areas every year." Speaking of the original area, Jeff explained, "we couldn't even mow that approach in the morning after running a light set of irrigation the prior evening until we installed PC there. Now we mow that area in the mornings as part of our normal rotation and schedule."

What attracted Jeff to the system was the ability of the system to draw water up and out of problematic areas. Jeff wants to keep the sand channels open to the rope and schedules two aerifications and topdressings to those areas each year.

Mark Kosbab of Sportsman's County Club regrassed the native push-up greens with A4 in 2005/6. Two of the greens with low spots struggled for several years after the grass conversion. Mark noticed the grass really seemed to weaken after periods of rainfall and excessive moisture. After the July 23, 2011 storm that dumped 8" of rain overnight, Mark needed to take action on these greens to get rid of the ponding water that was impacting the turf quality. Once Mark was able to

nurse the greens back to health, he had PC Drainage installed in the whole first green and a partial install of the second.

Mark does not worry about surface drainage on those two greens anymore. PC Drainage has alleviated the "bird baths" that used to form after rainfalls. "We are seeing a dramatic difference in the quality of turf due to the ability to remove water more quickly. I have noticed that it works very well removing the surface water from the green. In the past, puddles would form and take at least a day to go down. Now, the puddles drain quickly and I no longer worry about surface drainage on those two greens."

Mark does see a difference in the amount of water these



This is a drawing from North Shore's 13th green that shows the PC element (blue lines) and where it will connect to the existing drainline (red line).

two greens hold after a rainfall event, noting the first green is a little wetter than the second. He attributes this difference in the soil texture between the two, citing much more clay content in the first green.

Each superintendent has found success with this new system. Whether they are using it in newer putting greens, native push-ups or high impact areas, all have expressed positive sentiments about the system. Overall, they've been happy with the installation process, minimizing the impact to play and restoring their putting surfaces quickly. After the areas are selected and mapped for installation, a vibrating plow is used to pull the rope into the green. The channels created by the plow are backfilled with sand during the process, the channels are rolled and the turf begins to heal. The ropes are then connected to a drain tile (usually off the green) and installation is complete. On average, it takes about a day to install the system on an average size putting green with play being restored the next day or as soon as the work is done.

The superintendents polled explained that the most labor intensive part of the process was "hooking up" the system to existing drain tile or installing a new drain line off

the green to complete the system. After having an outside contractor (Hollembeak Construction) install the drainage component in the green or approach most clubs completed the hook up to existing tile in-house.



A little rolling over the slits from the plow and the area is ready for play.

The other question that all seem to ask is how long will the system work? Stainless steel and fiberglass will last hundreds of years in a landfill, so there is little worry about deterioration of the physical components. Sedimentation can compromise any drainage system by fines clogging pore space. It is believed movement of fines in this system is minimal because of the installation method, (little disruption of the soil profile) the low velocity of water flow through the system, and by the product having a similar texture to the sandy rootzone. Time will tell as more courses install this system to help them grow better turf today using an application of an old principle of nature. ©

Images: Dan Dinelli, CGCS, Dave Marquardt, Dr. Ed McCoy

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Andy Morris and The Country Club of Peoria

Kyle Haines, Onwentsia Club

PHOTOS: ANDY MORRIS

Located roughly 2.5 hours from both Chicago and St. Louis one will find the dividing line between Cubs and Cardinals fans in the far southwest town of Peoria Heights, Illinois. Known for its booming economy with the likes of Caterpillar, Maui Jim and several renowned medical facilities, Peoria Heights is a thriving region located just outside the tollways.

In addition to this thriving location are a number of fun, challenging and historic golf courses. The Country Club of Peoria is no exception.

Founded in 1897, The Country Club of Peoria has a rich history including the 1937 Western Open along with several men's and women's state amateur championships. The Club is located along the scenic rolling terrain of the Illinois River and plays 6,232 yards from the championship tees. It has a strong membership with several reciprocals throughout the United States and Chicagoland area. Since 2004 the Club has undergone various stages of renovation



The Country Club of Peoria is one of the jewels of Central Illinois golf.

tions including new irrigation, regrassing greens, bunker renovations and releveling tee boxes.

Managing the property is golf course superintendent, Andy Morris. Andy has been at The Country Club of Peoria since 2000 and was the assistant superintendent at Weaver Ridge Golf Club in Peoria prior. In his tenure he has served as the President of the Central Illinois GCSA as well as a national committee member of the GCSAA. Andy attended two years at Ohio State University before transferring to Michigan State University to earn his bachelor's degree in turf management and minor in soil chemistry. What some of you may not know about Andy is that the turf profession was actually his second calling – his first being in culinary arts.



Andy and wife Sherri, with Maxwell (11) and Madison (8).



Right out of high school Andy left his small town in central Iowa and headed west to attend the California Culinary Academy in San Francisco. After school he took a job in Napa Valley before eventually becoming the executive chef of the Anhauser-Busch Entertainment Corporation based in California. Here his responsibilities included supervising and training chefs and apprentices at company locations. He was put in charge of projects, oversaw budgets, and reported directly to company officials – very similar to responsibilities of today’s turf professionals.

While Andy was happy with his career in food service, the turf industry presented itself when he and his wife uprooted their family for his wife to pursue her Ph.D. at Ohio State University. It was here, during the golf boom of the mid-1990s, when Andy decided to follow his love for the game and go back to school to pursue a degree in turfgrass management. After ultimately graduating from Michigan State University, Andy quickly moved up the ladder utilizing his years of related experience along with hard work and dedication.

Andy emphasizes how positive mentors have helped him succeed and he is passionate about giving back to the indus-

try. Similar to his training and placement responsibilities with Anhauser-Busch, Andy started an internship program at his golf course with his alma mater. While attending a local seminar five years ago, Andy ran into a Michigan State instructor spreading the word of a growing internship program with Chinese MSU turfgrass students. It didn’t take long for Andy to decide this was something he wanted to partake in.

Officially, the program is called the Michigan State University America-Sino Turfgrass Management Program and is led by instructor, Yusong Mu. Here students earn joint B.S. degrees from one of four local universities in China as well as Michigan State University. Once accepted into the program,

Continued on next page.




students are subject to extensive English training and undergraduate coursework. Mu notes that on average 15 professors from the University travel to China each year to teach accelerated turf and other-related courses that they teach in East Lansing. During the Fall semester of their senior year students come to the United States and are placed into an internship program at a participating facility. Prior to starting their internships, however, students go through two weeks of hands-on training with turf equipment at the Hancock Center in East Lansing. For many, this is the first time they've seen or ran turf equipment since the market in China is still evolving. To date the program has graduated 354 students with a 100% graduation rate and continues to grow each year. Participating facilities include many top 100 clubs and research institutions.



The historic Country Club of Peoria sits atop the Illinois River using the natural elevation and undulations to test one's golf skill. Pictured above and right.

"It's been a tremendous success and something I look forward to participating in each year," says Andy. "It's very rewarding seeing how The Country Club of Peoria can have such a global impact for the industry and benefit these students' careers in the booming Chinese golf market." The program is well supported by the membership, too, with members often interacting with interns and bringing their children to learn about life in another country.

Each year Andy takes on one Chinese intern from August through Thanksgiving. He notes how the timing is great for exposure to cultural practices and projects that typical summer interns may not experience. He exposes interns to all facets of the business including making them financially responsible for a project, letting them act as the assistant for two weeks, and conducting their own green committee meeting. After completing their internships, students return to China for their final semester before entering the turf profession. "I would encourage anyone to participate in the program," Andy noted.

Andy will be hosting the MAGCS/ITF Spring Golf Day in May. Those interested in this program can contact instructor Yusong Mu at ymu@msu.edu. 



of Illinois. Our voices were heard and we impacted legislation or lack thereof. This was a highly reactive approach on our part. By getting involved, making phone calls, sending emails and visiting with local legislators on this issue, I was reminded how important it is for all of us to not wait until the next bill is introduced to take action. Reaching out and getting to know local lawmakers is easy to do, and can be done when time permits. It offers us the opportunity to help guide sound legislation and that will impact our lives and our occupations. Later this month I'll be heading out to Washington DC as part of the GCSAA Government Relations Committee to meet with federal legislators to build relationships and convey our message.

The GCSAA is ratcheting up their Government Relations program. They've developed a comprehensive website that will be used to educate members on issues impacting the golf course management profession and serve as a portal to engage all with advocacy efforts.

One such effort is the newly formed GCSAA Grassroots Ambassador program. The goal is to match a member of GCSAA with each Member of Congress, and to build strong relationships between them. The program will establish a network of committed volunteers to serve as the "go-to" people for lawmakers and their staff on golf course management issues. There is a job description that you will need to complete during the 2-year appointment and specific training that you will receive to give you the tools and resources to become a more effective advocate for our profession.

More can be found at the Government Relations section of the GCSAA website or please contact me and I can help you get involved. @

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History of Aerification

Michael Paciga

(excerpt from Mike's in depth survey)

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West Point Aerifier; Olympia Fields Chicago July 18 1947

Without doubt, the most critical and common agronomic practice is aerification. Aerification, or aeration, is the process of exposing the soil to oxygen. Oxygen depleted soils can often lead to summer decline of turfgrass. Golfers often believe that aeration is not always necessary and doesn't need to be performed during peak play months.

The science and agronomics involved in aeration of all finely manicured turfgrass needs to be applied to provide the conditions golfers demand during the summer months. Aeration allows turfgrass to handle the stresses of summer and provide superior playing conditions. As golf course management techniques vary among courses, the same is true regarding aeration practices. Each superintendent may be doing things a little different. There is no one correct answer: however, each superintendent is trying to pursue the same objectives. There are many different types of aerification practices ranging from hollow vs. solid to new processes such as dry-ject, hydroject, and drill and fill. Additionally, during summer months the superintendent may wish to "vent" the greens using practices such as needle tines or hydroject. The entire aerification process will be explored in this paper along with suggestions and/or applications that can speed up the recovery process of the aerification holes.

Early History of Aerification

Generally speaking, most of the practices and/or products the turf market uses originated from the agricultural side. Aerification is similar to the process utilized by farmers when they cultivate. Aeration replaces cultivation of soil on the golf course. Farmers cultivate, or turn the soil over between crops, to redistribute the nutrients and relieve compaction throughout the profile. This practice, however, is not practical during the golfing calendar, so the process of aerification was developed. As stated by Bob Vavrek, USGA regional agronomist (2006), "Cultivation...the word is derived from the Latin word *cultus*, to till. Cultivating or tilling the land became important long ago when prehistoric people evolved from nomadic hunter-gatherers to farmers. Indeed, cultivation was around long before golf courses. How long? References can be found very early in

the Bible (Genesis 3:23)" (p. 9). Early turf publications don't provide information on the importance of aerification due to the disturbance to the putting surface. It was originally thought that this disruption caused damage to the root systems and its benefits were not discernible.

During the mid-1800's, the importance of getting oxygen to the rootzone was apparent to Old Tom Morris at St. Andrews. At this point in time, it was a common practice for many "greens keepers" to poison or collect earthworms for disposal because of the problems the castings caused during periods of high moisture. Statistically, earthworms can bring approximately 20 tons of soil to the surface per year over an acre of good soil. Their burrows are most numerous within the first six inches of the surface, but they can, in some cases, reach six feet below the surface. Old Tom Morris recognized the importance of this "aeration" and did not collect the earthworms. He realized the potential of this "free" aeration to the turfgrass. The tunnels created by these earthworms allow for the exchange of gases such as carbon dioxide and oxygen and the infiltration of water further into the soil profile. The oxygen supplied through aeration helps prevent the buildup of gases such as carbon dioxide, methane, and ethylene (Labbance, 2004). In the period following Old Tom Morris 40 year tenure, the greens quickly declined as his successors began collecting the earthworms. The greens began holding water after a rainfall and compaction increased from play on the course and foot traffic. The importance of aerification was clearly demonstrated by Old Tom Morris and the condition of his course.

Horace Hutchinson, author of the 1906 book, "Golf Greens and Green-Keeping" also recognized the importance

of aeration and stated, "if you remove them (earthworms), you must do something to help the richness and aeration of the ground" (Labbance, 2004, p. 2). "To supply the aeration, when there is a tendency for the ground to become packed too hard, rest and dressing are recommended, and, above all, raising the ground with a form in such a way as to loosen it and make holes in it without breaking the surface continuity of the turf" (Labbance, 2004, p. 2). At this point in history, the first aeration tool had been developed: the pitchfork. Two men would work six inches of the soil. Using a pitchfork, they would stab the ground, rock it back and forth and continue this process throughout the course. This form of aeration was very labor intensive and slow. This quickly led to the development of the next aeration tool: a hollow tine pitchfork developed in Great Britain in the early 20th century. This process was also labor intensive since the plugs needed to be cleaned up. Quicker and more efficient aerifiers needed to be developed.

In 1917, the development of a spiked roller debuted in the book, "Turf for Golf Courses." The spiked roller was used more for topdressing and seeding. The spikes did not penetrate deep enough into the soil, and it actually caused a compaction issue in the soil just beneath the depth of the spiker (similar to what occurs when a farmer continually tills his fields or a plow pan develops). These early spikers merely pushed the soil into the subsoil. This led to the development, in the early 1920's, of the first spiker with hollow spikes mounted on it. The developers design included hollow spikes with a slot on the side with a spring loaded mechanism to push the plug out before the roller contacted the soil again. Problems arose since the plugs needed constant attention because of constant jams. Continued innovation resulted in hand held discers that would slice into the soil (similar to today's verticutters). Developers even added spikes to the bottom of shoes and walked the greens to achieve spiked aeration. This idea was quickly scrapped after a couple of broken ankles.

It wasn't until the 1930's that Chet Mendenhall, greens keeper at Mission Hills Country Club outside Kansas City and



Wilder Strong Spiker 3-gang unit for Fairways; Toronto C. C. Can 4-21-42

GCSAA president in 1948, developed the Turferator. This aerifier was a machine that had two rows of drills that would drill 7/8 inch holes 4 inches apart. The drill bits would go down 5 inches and then the machine would move forward 4 inches and repeat the step. A colleague of Mendenhall's developed a turf saw in

the 1940's that had a series of 10-inch saw blades that would cut slits about 1/2" wide into the soil. This was a good idea but the practicality was limited because it made putting very difficult, especially when putting perpendicular to the lines.

In 1946 Tom Mascaro revolutionized the greens keeping market with a machine that finally was named the "Aerifier." Tom Mascaro was diagnosed with polio when he was child and was classified 4F by the military. He worked as a military defense subcontractor and helped develop steel struts for gliders that were used in the invasion on Normandy to fly troops past enemy



The Aerifier trademark was registered on August 2, 1946 from website.

lines. Tom and his brother, Tony, developed a device named the "Aerifier" which was purchased by West Point Lawn Product. Mascaro states, "It cultivates by means of curved, open 'spoons.' The contact spoons remove soil as the full-round hollow tine does, but the open spoons have the advantage that they can't block up with soil. Spoons are curved to minimize tearing as they enter and leave the turf" (Labbance, 2004).



Chet Mendenhall Shows His F. G. Aerifier; Oakwood C. C. Kansas City 3-21-49

Future innovations led to the development of the West Point GL 5 during the 1950's. This machine was reported to be a bear to move and turn. It was reported that it would even lift the operator off his feet when making a turn. Nonetheless, it achieved the desired results: compaction was reduced and holes were extracted to promote oxygen and water into the soil. The process of aerification has evolved considerably since Old Tom used a pitchfork. Today's speedy machines are able to quickly and efficiently achieve the desired results. ©

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