The 1928 Great Britain/Ireland team that was trounced by the American squad.

Wheaton, Illinois with bus service between Wheaton and Chicago Golf Club. Chicago Aurora & Elgin R.R. trains between Wells Street Station, Chicago and Chicago Golf Station, one-minute walk from clubhouse. A public parking space for automobiles has been arranged, with entrance from Roosevelt Road, one-quarter mile west of Chicago Aurora and Elgin tracks at Wheaton. An entrance has been provided from this parking space directly to the Chicago Golf Station of that railroad where a ticket-selling booth will be established.

In 1928, Robert Jones was the playing captain and driving force behind the USA team's one-sided 11-1 win. At the time, four 36-hole foursomes were played on the first day followed by eight 36-hole singles matches on the next day. The USA squad was a perfect 4-0 after the foursomes. Jones won his singles match by a record margin, 13-and-12. Other notable players for the USA were Chick Evans, Watts Gunn, Francis Ouimet and Jess Sweetser.

Preparing for 2005

Fast forward to 2005 and the course is essentially as it was in 1928. Maintenance standards have changed dramatically, though, enabling us to provide near-perfect playing conditions from tee to green.

The USGA has been working with us over the last five years preparing for the event. This has entailed numerous site visits, telephone calls, e-mails and meetings. Each visiting committee has a little more to add in regard to changes and logistical ideas. This includes merchandising, catering, press, television, player accommodations, volunteer coordination, parking and spectators. We have been fortunate to have two USGA staff members onsite since September 2003. Sarah Adams and Emily Hobart worked during the 2003 U.S. Open at Olympia Fields Country Club. Robbie Zalzneck, U.S. Open manager for odd years, is overseeing the entire operation. For Robbie, this is an especially busy year seeing that the U.S. Open was at Pinehurst.

Robbie will be at Chicago Golf Club from the beginning of July through the end of the tournament in mid-August.

Tom Meeks and Tim Moraghan, both of the USGA, are directing us for setting up the golf course. With regard to how the course will play, it will depend entirely on the weather. Here are some of the specifics desired for the tournament.

Fairways: As tight as you can get them, generally around 3/8″.

Intermediate Rough: Tom Doak, our consulting architect, requested that we remove our intermediate rough three years ago due to the vast width of our fairways. In regard to this, the USGA also felt that our fairways were wide enough to not require a cut of intermediate rough around them. We do, however, mow a 21-inch strip of intermediate rough around the collars of greens.

Primary Rough: The primary rough is to be 3″ on Monday, August 8 of Walker Cup week. The USGA will evaluate it then and decide if it needs to be topped off or let it go. This, of course, will be contingent upon the weather and the growth rate of the grass.

Teeing Ground and Collars' Grass Height: Slightly lower than fairways. During the practice rounds, no

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This map illustrates the extensive space allocated for the television compound.

tee markers will be used and Enka mat will be used to cover any teeing area that could be subjected to excessive divoting. During the two days of competition, we will be using the white markers normally used by the club.

The Putting Greens: The putting greens should measure between 11 feet 6 inches to 12 feet on the USGA Stimpmeter. This speed should also be in effect on Monday, August 8. *"Please understand we might try to have the greens a little faster, or slower, depending on our reaction to putting on them once we arrive and test them on Monday at that speed. We plan on using a different hole location for each of the four segments of the Walker Cup matches on Saturday August 13 and Sunday, August 14. Also, in order to avoid tournament hole locations we plan to use, we will determine hole locations for practice rounds."*

Mowing Putting Greens: Aside from morning and evening mowing, the greens will be single-cut in between morning and afternoon matches. This mowing is to smooth the putting greens, not to pick up additional speed. As I write this article in the early part of June, we are presently mowing the greens at the height of .095" with Toro Flex mowers. Double-cutting and rolling in the morning provides green speeds of 10.5 to 11 feet. We will be mowing and rolling in the evening as well for the tournament in order to achieve the USGA-desired green speed. We may lower the height of cut incrementally if we are not able to meet the goal of 11.5 to 12 feet.

Now one of the top-rated players in the world, Phil Mickelson (back row, fourth from left) was once a member of a Walker Cup team.

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In order to meet the maintenance demands of the USGA, we have enlisted the assistance of 65 volunteers to supplement our staff of 22. The volunteers, the majority of whom are from local courses, will be joined by others from across the United States and as far away as the United Kingdom. The greenkeeper from Ganton Golf Club, host of the 2003 Walker Cup, and the deputy greenkeeper from Royal Jersey Golf Club will be with us for the week. We have been planning a maintenance schedule for the past year and anticipate it taking three hours to mow the entire golf course, rake all 114 bunkers and set hole locations and tee markers.

The volunteers will attend an organizational meeting Wednesday evening, August 10 at 5:00 p.m. Beginning Thursday morning, August 11 at 4:30 a.m., we will start our first day of tournament maintenance. Volunteers will have a chance to check back at their home facilities after the morning set-up. Evening mowing will commence at 4:00 p.m.

A major portion of the planning has resembled that for a wedding. We will have an air-conditioned volunteer hospitality tent for meetings, meals and resting in between morning and afternoon shifts. A large television will be provided for viewing the matches during the day. Breakfast,

FIGURE 1.
Chicago Golf Club
Hole-by-Hole
(as it will play for the Walker Cup)
6,782 yards, par 35-35—70

Hole	1	2	3	4	5	6	7	8	9	Out
Par	4	4	3	5	4	4	3	4	4	35
Yards	450	450	219	550	328	395	211	445	409	3,457
Hole	10	11	12	13	14	15	16	17	18	In
Par	3	4	4	3	4	4	5	4	4	35
Yards	149	414	442	149	356	400	525	465	425	3,325

A view of no. 18 looking from green to tee.

lunch and dinner will be served to the volunteers Thursday through Sunday, all catered by local restaurants. MAGCS member Mark Gilmour will close our event with a pig roast for our volunteers and staff.

Saturday morning will be the real thing. Our group will gather at 4:30 a.m. for a meeting and job assignments. At 5:00 a.m., we head onto the course for morning set-up and maintenance to accommodate the schedule of play. On Saturday, August 13, and Sunday, August 14, there will be four foursomes matches (18 holes each) each morning and eight singles matches (18 holes each) each afternoon. Starting times on Saturday are 7:30 a.m. for foursomes, 12:30 p.m. for singles [tentative]; on Sunday, 7:30 a.m. for foursomes, 12:30 p.m. for singles [tentative].

We will remove all bunker rakes from the course during competition. We will have one person walk with each group in the morning and afternoon who will rake any bunker into which a player may hit a ball.

Recapping 2003

The Great Britain-and-Ireland squad won five of the eight afternoon singles matches and halved another on the last day as it rallied from two points down to capture its fourth consecutive win, 12½-to-11½. In the closing two matches, reigning British Amateur champion Stuart Manley beat the USA's Trip Kuehne, and Nigel Edwards halved USA's Lee Williams. The USA had built a 7-5 lead after the first day and held a 9-7 advantage heading into the final singles matches. Brock Mackenzie of Yakima, Washington went 3-0 for the USA. He was the only player on either squad to go undefeated.

After losing the last three matches of Walker Cup competition, we are hopeful that some of the magic from 1928 will return, leading the United States to victory in 2005.

References

The Walker Cup 1922 – 1999, Golf's Finest Contest. *Gordon G. Simmonds.*

The United States Golf Association.

Bobby Jones' pride in the U.S. team's victory at the 1928 event is evident.

Dan Glitto *Prime Turf*

The Use of Ultrasound to Control Algae

The use of ultrasound for controlling algae has been known for some time. However, the practical use of such technology is relatively recent and involves the resonance effects of ultrasonic waves on the algae cell. The ultrasonic waves are derived from the creation of certain sound vibrations with periodic interruptions. A submerged transducer that is specifically designed and purposely built to be small and water-resistant generates the ultrasonic vibrations. These sound shock waves are directed at the vacuole of the algae. Initial observations show that the shock waves probably weaken the cell membranes, causing the algae to collapse in on themselves and sink out of suspension.

Ultrasonic waves appear to disrupt connections between the plasmalemma and algal cell walls, causing loss of membrane integrity, probable leakage of cytoplasm and cell collapse.

This new approach is environmentally friendly, cost-effective and uses no chemicals. These ultrasonic vibrations, which are inaudible to people, are no threat to human beings, animals or fish.

These ultrasonic devices are used in horticulture, aquaculture, potable and wastewater applications. The transducers used are capable of emitting ultrasonic vibrations up to a range of 500 feet, covering a radius of 180°.

Formal investigations of the mode of action of ultrasound on algae have revealed some interesting data. The featured light micrograph pictures of *Selenastrum* were taken from algal samples exposed to ultrasound for eight weeks. The pictures of *Spirogyra* were taken over a three-week period from a tank experiment performed in controlled conditions.

The mode of action appears to be by disruption of the connections between the plasmalemma and the algal cell walls. This causes loss of membrane integrity, probable leakage of cytoplasm and a collapse of the cell into a dense brown mass. The cells remain buoyant for at least 4-5 weeks after exposure, although they are no longer viable.

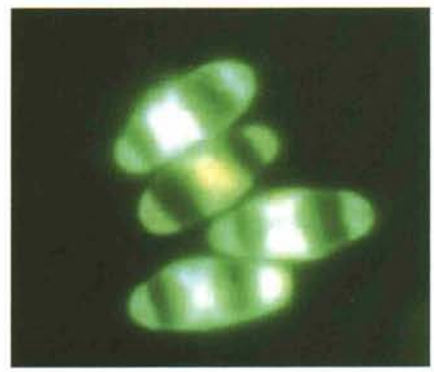

Figure 1.

Figure 1 shows *Selenastrum capricornutum* with the cytoplasm bunched towards the center of the cell. This is a result of separation of the plasmalemma from the cell wall; clear gaps can be seen where the dark stripes appear. The cytoplasm has split into three sections in this species, an indication of complex binding patterns between cell walls and plasmalemma in different species of algae.

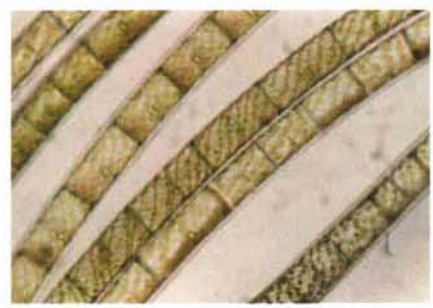

Figure 2.

Figure 2 shows healthy *Spirogyra*, with cells full of cytoplasm, and the characteristic spiraling chloro-

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plasts. The alga was sourced from a controlled growing tank and had been healthy for at least five years.

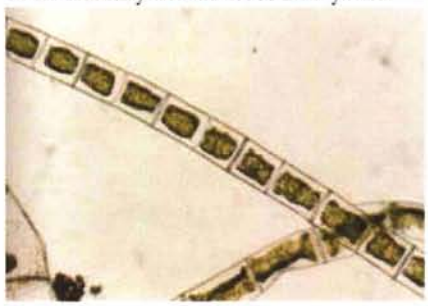


Figure 3.

Figure 3 was taken after only seven days' exposure to ultrasound. Already the plasmalemma is coming away from the cell wall, and the cells have shrunk. There is increased granulation of the cytoplasm, indicating loss of chloroplast structure, and loss of connectivity with other cells and the external environment.

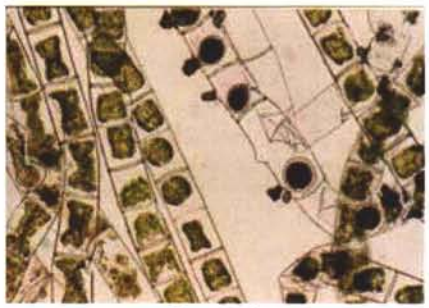


Figure 4.

Figure 4 was taken after 14 days' exposure. The cells have continued to shrink, with some forming denser, circular, brown agglomerations in the center of the cell. There is some evidence of cytoplasm leakage from the cells, indicating further damage to the cell walls.

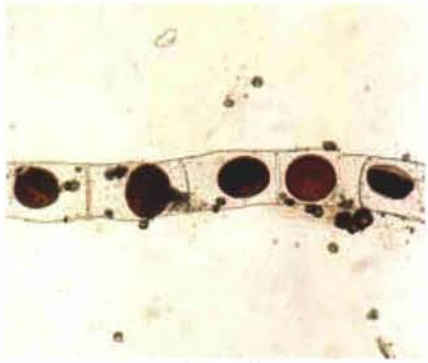


Figure 5.

Figure 5 was taken after 21 days, and shows complete breakdown of cell structure.

The damage to the cell structure is correlated with a decrease in the chlorophyll *a* concentration in the treated tanks. In contrast, in the control tank, chlorophyll *a* continues to increase. This can be seen clearly in Figure 6 below

In a 28-day regrowth experiment, the chlorophyll concentration continued to increase from day 1. However, the increase in the ultrasonic-treated *Spirogyra* was significantly less than in the control treatment. See Figure 7. This indicates significant structural damage is associated with cell death in *Spirogyra*.

In summary, exposure of *Spirogyra* and *Selenastrum* to ultrasound waves causes irreversible structural damage to the cells, loss of chlorophyll and loss of viability.

Reference:

SonicSolutions Product Bulletin.

Figure 6

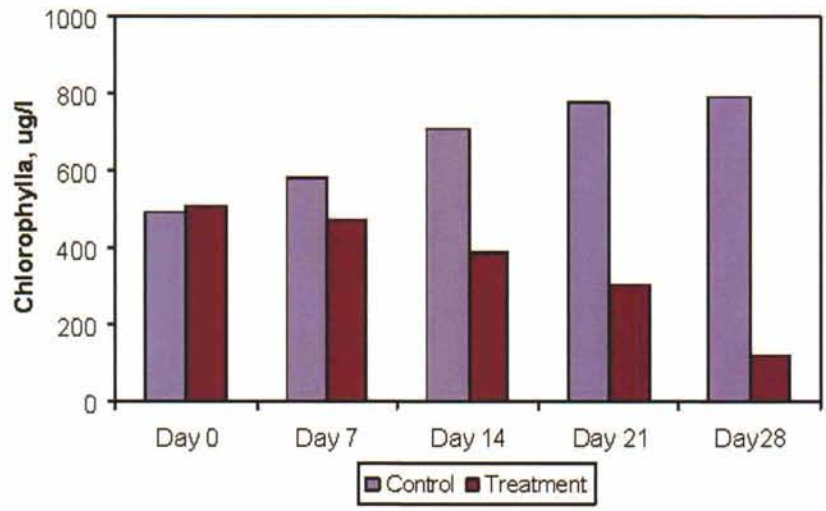
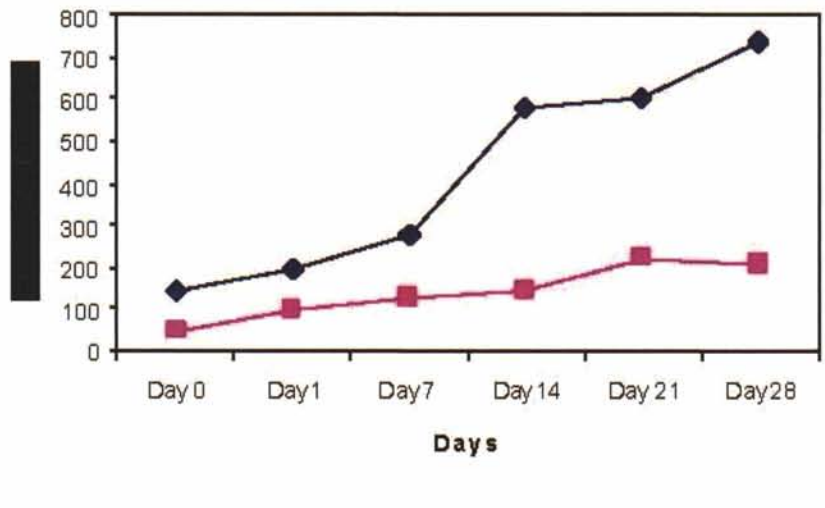
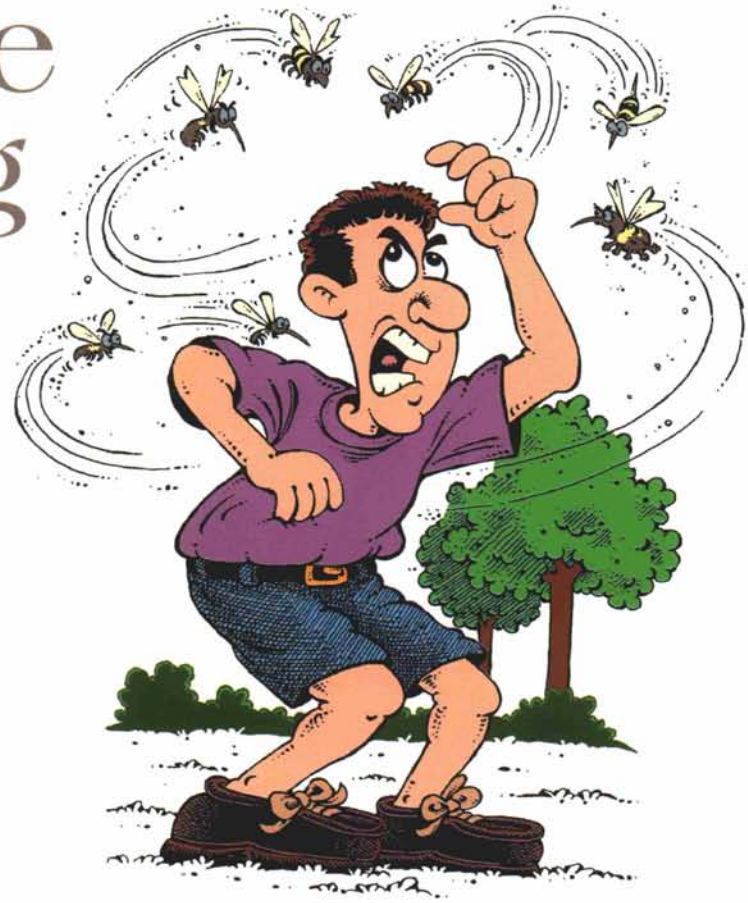


Figure 7



George Balis *Clarke Environmental Mosquito Control*

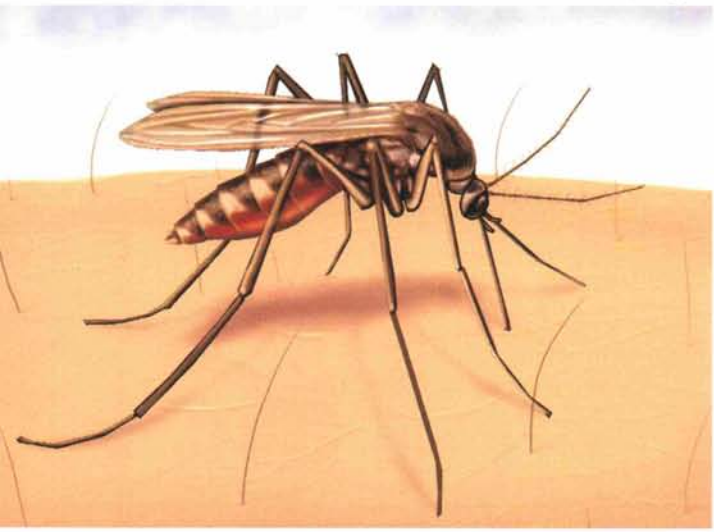
Battling the Marauding Mosquito



Ah, early mornings on the links: that slightly cool, just barely moist air welcomes you as the sun begins to creep over the horizon. As you prepare for your day, the birds twitter, the mowers in the distance hum their dull roar and the sprinklers twitch on your perfect turf. And then—the slap of a hand on the back of a neck, curses from the golfers and the horrifying hiss of aerosol DEET torching your tee box. Your pleasant, zen-like morning has turned into another chapter in man's battle with the mosquito.

Like sand traps and water hazards, mosquitoes are often just another nuisance on the course: irritating distractions for the players, and headaches for those focused on customer satisfaction.

"When mosquitoes are bad on the course—we hear about it," says Tim Davis, superintendent of Shoreacres in Lake Bluff.



But nuisance mosquito control goes beyond keeping golfers from being annoyed—a regular program of mosquito control can actually save money in the long run.

Barrier, Not Burnout

One of the telltale signs of mosquito season is the slightly burned-out patch of turf at the tees. Golfers often douse themselves with a spritz of DEET-based repellent after a few bites. Unfortunately, aerosol-based personal protection is tough on grass, creating brown patches from the propellant ingredients in the spray.

"We joke that you can tell a golfer's shoe size after he sprays himself for mosquitoes," says Davis. "We provide DEET wipes for golfers in our pro shop, and tell the clubhouse staff not to stock the aerosol cans."

Barrier treatments can be effective spot treatments in areas most commonly afflicted with turf damage from personal mosquito protection. Barrier treatment is a water-based product that kills mosquitoes and repels them for up to 10 days.

While the rough is treacherous for errant golfers, it also harbors another threat: mosquitoes. Many mosquito species enjoy the cool habitat of shady thickets and bracken during the day, then emerge in cooler evening or early

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