

# It's The Same Game, But How It's Changed!

*Constant vigilance helps to keep the challenge and enjoyment in golf.*

by FRANK THOMAS

I HAVE TO ADMIT I don't know anything about nematodes, dollar spot, *Pythium*, or any of the pesticides I've heard about today. I have learned about Milorganite, and I know many people who will no longer lick their golf ball if they find out where it comes from. My focus today is the advances in technology in the game of golf.

Has the USGA lost control over the game through advances in technology? The answer is **NO**. That is the short and long answer.

Life is peculiar in that we want to get rid of all of the obstacles and all of the difficulties in our lives. We work hard to do that. Technology seems to be alive; it bites us back every now and again. This is called the revenge effect.

We want to be able to travel around the country, so we invented automobiles, the most efficient and effective way to transport ourselves. What fol-

lows is we have automobile accidents. So even though this is a marvelous invention, we lose 40,000 people every year in automobile accidents. This is the revenge effect.

We really try to get rid of all obstacles in our lives. Then we gather together a bunch of artificial difficulties, introduce them into our lives, and call it a game. We have this subconscious urge to challenge and evaluate ourselves.

I don't know whether anyone listens to *Prairie Home Companion*, but it is broadcast live on public radio on Saturday evenings. The host is Garrison Keillor, and he talks about his experiences in a place called Lake Wobegone, in Minnesota.

I had a 20-acre lot at Lake Wobegone. I had three acres on the side of this lot that I didn't know what to do with. So I fenced it in with some boundaries and built some hurdles, obstacles, and other little difficulties. As

I was developing it, a friend of mine named Jack came up and asked, "What are you doing?"

I said, "I am developing a course with a bunch of little obstacles and difficulties with the idea of presenting a challenge to those who wish to run it."

Jack said, "That is interesting. Let me see if I can do it. What are the rules?"

"Well, you jump over this one and that one and around the next one, etc." I went through the entire course for him.

He asked, "May I try it?"

I said, "Certainly you may."

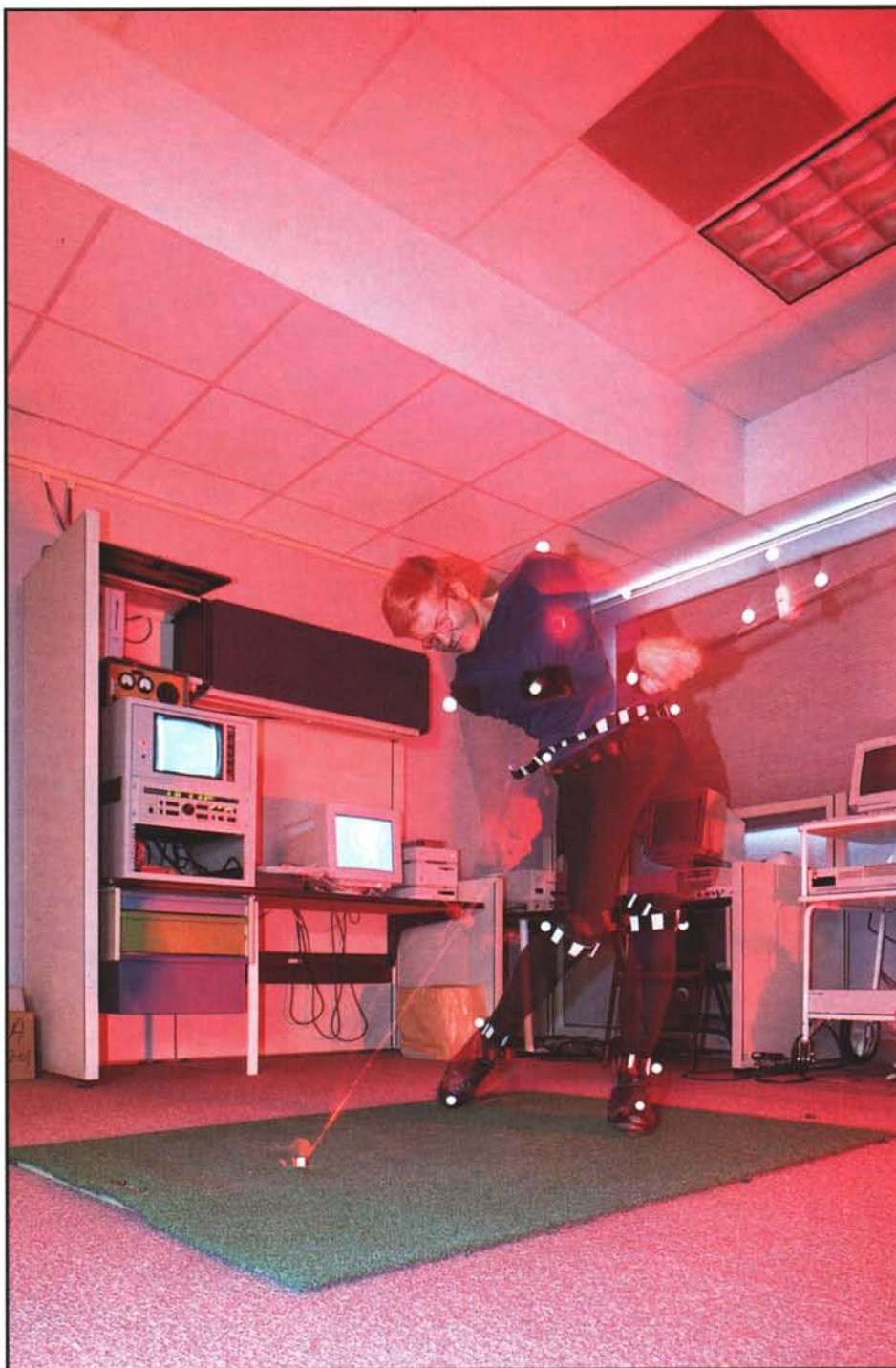
So he jumped and ran all around this little obstacle course I made. When he completed it, he said, "Wow, that was fun. May I do it again?"

I said, "Of course you may."

He came back and looked at his wristwatch and said, "You know, I did that in ten minutes. I am going to try and do it a little faster next time."



*The USGA Research and Test Center, Far Hills, N.J.*



*The Research and Test Center uses biomechanics to understand how playing golf affects the various joints and muscles of the human body.*

As he was finishing, some other neighbors came around and asked, "What is going on?" I explained the obstacle course to them, and they asked, "May we try it?" Upon completing the course they said, "This is fun."

Jack had started to improve his technique and reduced his time down to nine minutes and 30 seconds. In the meantime, I had so many neighbors who wanted to get onto my course

that I could not accommodate all of them. So I designed another obstacle course. Eventually, courses were springing up all over the place. Before long, we had hundreds and hundreds of obstacle courses all around the country. Jack and I, along with some others who were involved with me in the development of my course had to write out the rules, and we gave them to all to enjoy this wonderful game.

What happened then was that this game attracted some clothing manufacturers. They said, "We can develop a special line of clothing for this game." From then on there was a special line of clothing that most of the participants bought. After a while, another manufacturer, recognizing the size of the market, decided to design and introduce shoes that were better than the shoes being used. This manufacturer built shoes to improve one's ability to get over the hurdles more easily and around the obstacles more quickly. He was catering to what people seemingly wanted. They were striving to improve their times, so he introduced something that allowed this to happen.

They all were trying to improve their skills and compete with each other. The manufacturer was catering to their wants, but not their needs. Jack put on the new shoes, and sure enough, he broke his record. It was now down to nine minutes — he was very excited that he had finally broken his record. But Jack didn't sleep well that night. He got up in the morning knowing it wasn't anything he did to break the record; it was those darn shoes.

So we called a meeting and identified the problem. What are we going to do about these shoes? Are we going to allow them into this game or not? Jack said, "Why don't you just lower the hurdles, since that is exactly the effect these shoes have on the course?"

The decision was unanimous. We said, "One cannot, under the rules, compete using the new shoes."

Well, the manufacturer went to his lawyer and said, "I am going to sue Frank Thomas because of this decision. I deserve to make a living. I've gone public with my shoe company and will not deprive my shareholders of their income. They should be allowed to enjoy the rewards of any profit that I make."

### **Technology and Golf**

I ask you very sincerely, *what has this world come to?* Let's hold that thought for a while and let me tell you about distance. Distance is something that has been of concern to us for a long time. The USGA is now using technology to control technology. We have been working very hard for a long time to control distance. I have been at it personally for 25 years. I have worked for the USGA and on this problem for a quarter of the time the USGA has been in existence.

With the introduction of the Haskell golf ball (a wound golf ball) in 1898, concerns were developing about distance. One article said that if the USGA doesn't do something soon about the ball, the average drive will be 300 yards. That article was written in 1907. In 1921, we introduced the weight and size restrictions of the golf ball. In 1925, we reluctantly approved steel shafts. In 1930, we decided distance was still a problem, so we changed the weight of the ball to 1.55 ounces. That didn't go down very well with the players, and

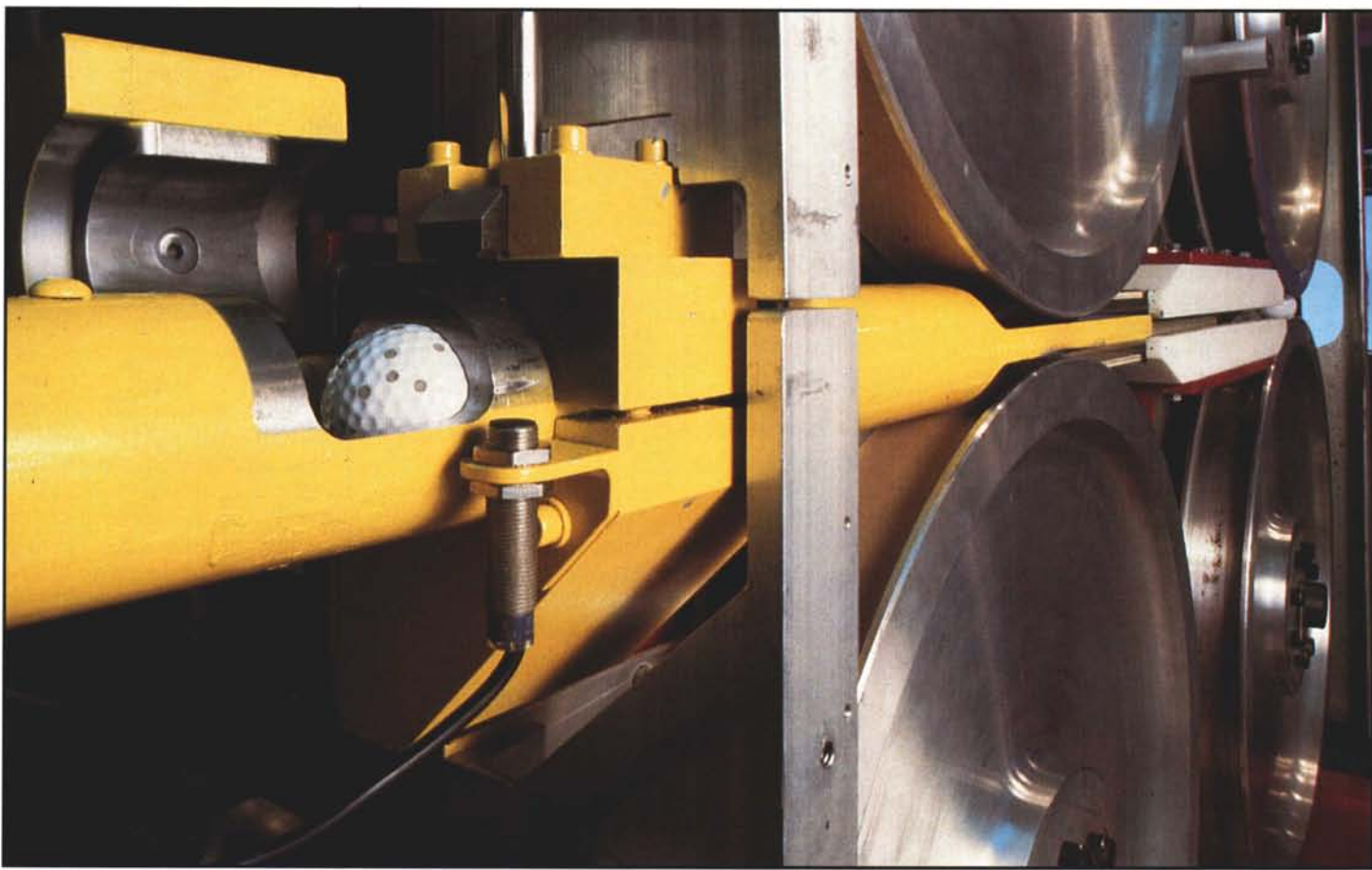
first performance standard for golf clubs. This is known as the spring-like effect standard.

Our objectives are very clear. We want to try and preserve the integrity of some of the great old golf course designs. It is a tough thing to do and I am not too sure if we will be able to do it, but that is one of our objectives. Another reason is to avoid contributing to the increase in the cost of play. If we have to continue to increase the length of the golf course, it is going to cause a problem. We also don't want to con-

bunkers. I don't understand all of this hard work on bunkers. I thought a bunker was considered to be a hazard.

### Spring-Like Effect

We don't want to stifle innovation, while at the same time we don't want technology to spoil the game. In that context, let me explain the spring-like effect. This is like a trampoline effect exhibited by some large titanium drivers. Manufacturers have tried to increase the size of the club heads to



*A launching device is used to fire a ball for a distance of 70 feet. During the process, scientists are able to identify exactly where the ball is in space at any time in its flight down the range. Using this information and a computer, the carry distance of the golf ball can be simulated.*

the next year we changed it back to 1.62 ounces and fixed the size at 1.68 inches in diameter.

In 1942, we introduced the initial velocity standard. At the time, we thought that would finally limit the distance the ball would travel. The weight, size, and initial velocity were limited, and distance was no longer a problem. Unfortunately, this was not the case. In 1975, we worked on and developed the overall distance standard. I used the mechanical golfer "Iron Byron" to launch balls onto a test range. In 1998, we introduced the

tribute to slow play. Most important, however, is to protect that which attracts all of us to this wonderful game. We must protect the challenge.

I don't think we can preserve the game. If we did, we would have to go back a 100 years when the game was considered by some to be at its peak. We would draw up a precise definition of the game and, in so doing, specify exactly what the club would look like and the material it was made of, specify the material and number of dimples for balls, do away with mowers, and we would stop raking

increase the size of the sweet spot. In so doing they had to look for different materials. Steel was not adequate, so they turned to titanium.

They could make the club even bigger with a bigger sweet spot. The object was to make the game a little easier for the average player. The superstars don't get that much of an advantage from the bigger head because they always hit close to the sweet spot. The newer, bigger heads had very thin faces. They had to make the face thin because the size of the head was so big that a thick face would make the club too heavy.

Unfortunately, at this point the face deformed on impact.

The thin faces bend upon impact and recover during those 450 microseconds of impact. This gives the ball a little extra kick, which is basically the trampoline or spring-like effect. We evaluate this effect by measuring the rebound velocity of a ball fired at a clubhead. We have now established an SLE (spring-like effect) standard. This particular phenomenon allows a golfer, specifically the elite player, a slight increase in distance, as it does for the rest of us when we make contact with the sweet spot on the clubface.

We set the standard, and believe it or not, we now have somebody who says, "You are limiting my right to make a living and the interests of my shareholders' need to be protected. If you disapprove my club, I'm going to come after you legally." Déjà vu, Lake Woebegone.

We are going to stand firm because here is somebody who really doesn't get it. We are protecting the challenge that the game offers. We are protecting the needs of golfers. We are not going to let somebody spoil this game.

### Overall Distance Standard

I developed the overall distance standard in 1975. It was my first major project when I joined the USGA. The launching device I used was a mechanical golfer, Iron Byron. Now we have become much more sophisticated in understanding those properties of a golf ball that contribute to the way it flies.

We fire a golf ball indoors for a distance of 70 feet. We are able to identify exactly where the ball is in space at any time in its flight down the range. From these measurements we can calculate the lift and drag properties of the ball. Using the computer and this information, we can simulate the carry distance or how far the golf ball is going to go. The distance standard is an overall distance, so we take into account the bounce and the roll as well.

Superintendents can grow grass practically anywhere today, and now we can even control the turf's bounce and roll conditions. I would like to see some sort of recommended standard of what the turf should be with regard to the softness and the length of turf, specifically for fairways. We now have turf conditions that are almost perfect, and we keep striving for shorter and more manicured fairways. This bothers me.



*The USGA Research and Test Center is using science to control new equipment technology to protect the challenge of the game.*

### Golf Clubs and Balls

We now have about 2,000 golf balls on our conforming list, and last year I made rulings on 715 different clubs. Every year we get a new batch of interesting clubs. For example, the air wood is a club with a little valve in the back of the grip, with a hollow shaft and a hollow head. What you do is pump it up with 90 psi and it is meant to give you 20 extra yards. The problem is it leaks a little, and on the way to the golf course you need to take your clubs to the gas station to fill them up.

We also get putters with mirrors. I had one the other day that had a 45-degree angled mirror you looked in with your left eye to see not only the ball, but also the flag. With the second mirror, you look only with the right eye. It takes about 15 seconds to get that thing lined up, and when you do, you don't dare move it.

To play the game of golf, some say you have to keep your head still. We recently had dark glasses submitted with a small, clear, horizontal strip right in the middle of the left lens and a vertical clear strip on the right lens. The idea is to line up the ball by looking through the clear section with each eye. You can't move your head again, otherwise you lose sight of the ball.

Another submission was the putter wipe to substitute for cleaning the face

of your putter on your sock or pants. You remove a toe spike from your shoe and before replacing it, attach a plate, which is angled and has some bristles protruding forward from the plate. You can't walk very well with this thing attached to your shoe, but at least you have clean pants.

### Frank's Golf Bag

Why do we all believe in magic? We believe that a new club is going to improve our game. Year after year, we buy a new driver believing it is going to hit the ball 20 yards further. If that was true I should be driving the ball about 395 yards now after the four new drivers I purchased recently. It is the placebo effect. With a new club, we swing properly with good results; we are convinced this club is working for us. We paid \$800 for it and we are not about to accept anything but an improvement in performance.

I made decisions on 715 clubs last year, and as a result people believe I must have the best equipment. Wherever I go people try to look in my bag. This is annoying, so I am going to tell you what I do have in my bag. I've got the new double-faced driver, which gives me the maximum spring-like effect. I have the condor armor-piercing coating on my three wood. I have a seven wood because Johnny Miller says if you've got the seven wood you don't need any long irons.

My irons range from a four to the pitching wedge, and they are made of a liquid metal. Have you ever heard of liquid metal? Well, it is the newest thing out there, and I can tell you that these irons are perimeter weighted and I am enjoying them very much. My wedge is the Check-Mate wedge. This has five carats of diamond dust stuck to the face. I spin the ball so much with this wedge that I approach all of the greens from the back.

I am thinking very seriously of getting the Yipper Chipper. It's the new long-shafted chipper. I have the Optic Z putter — this is one putter head welded on top of another putter and it literally looks like a Z.

My shoes have Turf Grippers on the sole. They don't call them shoes anymore; they call them launching pads. I use Eco tees made of fertilizer. A recent purchase of mine is the Q-Ray band. It sorts out electrical charges in your body to solve all of your problems. I am also trying magnetic shoe inner soles. Most recently, I've acquired some of those

dark wrap-around glasses because you can read the greens a lot better.

### Statistics

We have been collecting statistics for some time, and I think you would be surprised as to what we have found. The average stats for the PGA Tour regarding greens in regulation and accuracy haven't changed much from 1968 to 1998.

While greens are improving, the number of putts per round experienced a fairly significant decrease. Today, greens are almost perfect and since 1990 things have leveled out fairly well.

From 1968 until 1994 we have had an increase in average driving distance of about one yard every four years. In the last four years, we have had an increase of eight yards; I think this is something to do with equipment. It is not the natural progression we have seen for the last 27 years. I hope that we will be able to halt this trend by introducing the spring-like effect standard.

With statistics you have to be careful because many people read and interpret them incorrectly. There was a report recently about how 90% of all automobile accidents happen within 20 miles of your home. When my neighbor read this he decided to move.

Let me conclude by saying I think the answer to the question "Has the

USGA lost control?" is "absolutely not." We are moving ahead rapidly using technology to control technology. We understand why people play the game of golf. We respect the game and we are going to protect the challenge.

We have recently adopted the first performance standard for golf clubs. We are working on a more sophisticated standard for golf balls. We are not trying to stifle innovation specifically for the average golfer.

Through the biomechanics study, we are learning more about how the

body's flexibility and strength affect performance and how to prevent injury. We also are learning more about the mental side of the game.

I think we are doing a lot, and this is only in my area. We believe that all of the above will allow golfers to enjoy the game more and for a longer time in their lives.

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