



One of the early horse-drawn gang mowers.

A better title for this article might well be, "What Else Can We Do Mechanically to A Green?" Mechanically, we have drilled holes, sliced in deep cuts, rolled, dressed, cultivated, spiked, mowed, (many different ways), intermittently slotted, brushed, combed, detached, syringed, sprayed, dragged, sponged, and now we are even sub-surface gassing greens. To make a uniform approach, it seems best that we cover mechanization on a basis of the work to be performed.

TOPDRESSING

Let's begin with topdressing. In the beginning, topdressing was done by dumping or shoveling the material on the green and spreading it. Devices such as old screen doors, pieces of fence, and whipping poles were used to smooth it out. Generally, an old greens mower was used to break up or pick the larger particles; but, the process was slow and generally not very uniform. Along came the powered top dressers simply because they were faster, and gave the greens a more uniform covering of the material being applied.

To eliminate more costs, at least two or

three equipment manufacturers have shown a top dresser mounted on a truck. About 50 per cent of the time required to lay on the topdressing can be saved.

AERIFYING

Initially, pitchforks or some other home-made devices were rammed into dry spots or made holes in the green to permit better moisture penetration.

A faster method was found by removing cores of dirt, leaving them on top, and doing whatever was necessary to the greens, such as adding sand or fertilizer. Then the plugs were broken up, dragged back over the holes with fencing material or poles. In later years when the concept of more sand, or adding amendments to greens became popular, coring served to help change the structure of the soil. Plug pulling is still the most popular method used, and it leaves the surface in fairly good condition if it is done during a period when turf recovery is rapid.

Recently machines have been offered that cultivate through a slitting effect. Less soil is brought to the surface, but this principle of

Mechanization on Golf Courses

By Roger J. Thomas, Jacobsen Manufacturing Company

cultivation, while growing in favor, has not achieved the popularity of the hollowtined cultivator.

Another new method of relieving compaction is a unit which penetrates from 5-7 inches below the surface. A blade oscillating fore and aft shakes the surface from two to three feet around the slits. This process permits heavier and deeper penetration of water into the soil. If calcined clay mixes are placed on the green prior to the sub-airing, remarkable results can be shown on the penetration of these calcined clays to improve porosity of the soil and hold more water in the top four inches of the soil without "puddling."

Recovery is fairly quick if a light topdressing is done, and the surface is generally playable shortly after the work is done. Again this process is used at a time when the turf is in its best growing period.

DETHATCHING

The terms "mat," or "thatch," has had a cloudy definition for some time but for our purpose here, we may refer to it as a surface organic accumulation which limits water and fertilizer penetration. In addition, it prevents good root growth and produces a spongy and rough putting surface. Dethatching machines were developed to cut the strands of stems and leaf sheaths which fail to decay over a period of years. The purpose of the machine was to slice the runners or vascular strands, accumulate them at the surface and remove them.

Much has been written regarding proper soil topdressing of a putting green to reduce thatch accumulation. In recent years however, the mower has also become popular. Vertical mowing can reduce the nap and/or graining that develops on a green, improving the putting surface. *Properly adjusted*, vertical mowers merely "tick the tops," leaving the playing surface in good condition. Over a period of time, thatch will be removed in this manner and deeper slicing may not be required. Vertical mowers are now available up to 60 inches in width as attachments for triplex greens mowers. The increase in the use of vertical mowers on greens probably stems from the fact that

runners, etc., can be cut and caught at the same time. Also, the time and effort required to do the job permits course operators to do "dethatching" more often without damage to the green.

AERATING

This term is often confused with aerifying, but it too is a form of cultivation. We have already discussed the subject of deep slicing, but more recently aerators using a straight 4-inch to 6-inch blade being pulled across the greens in cross patterns has proved to be effective for getting better water penetration. The play is disturbed less than through the method of punching holes, and if it is properly used, it can produce fine turf. We have known of fairway aerators for many years, but the penetration of the 4- to 6-inch blades being used on greens seems to satisfy the need for breaking up sub-surface compaction; hence, smaller aerators have been developed for greens.

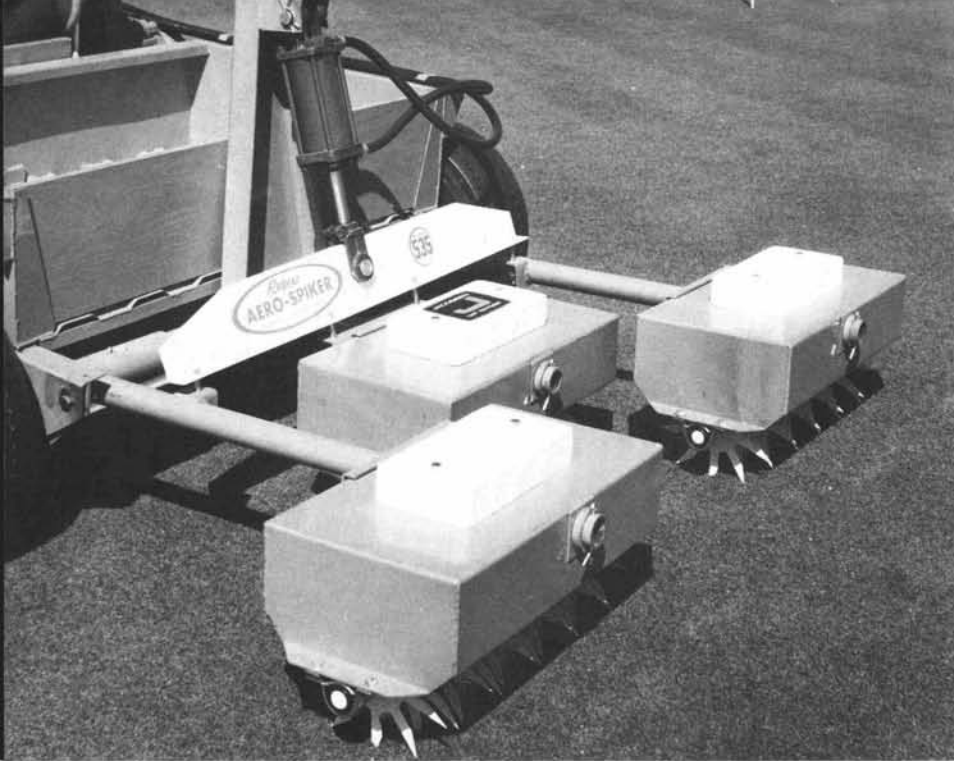
Spiking is another method of cultivation primarily used to break up surface crust. Originally, hay forks or spikes on boards were used to break the crust. Finally power spikers came into use because they were faster, and spiking could be done more often, which resulted in better putting greens. The first machines were about 18 inches in width, and now 60-inch units are available as attachments for triplex greensmowers.

SPRAYING

Times have changed since spray tanks were strapped to the shoulders of the man sent out to spray the green. Today small vehicles with 16-foot booms are available to spray greens quickly and get out of the way of the golfers.

MOWING

Probably the biggest strides that have taken place in the area of the greens maintenance has come about in mowing. From early hand mowers as small as 14 to 16 inches, a single power head was developed to pull three traction-driven hand mowers across a green. These units succumbed to the engine-driven 18- and 19-inch power mowers in the early '20s,



An aero-spiker.

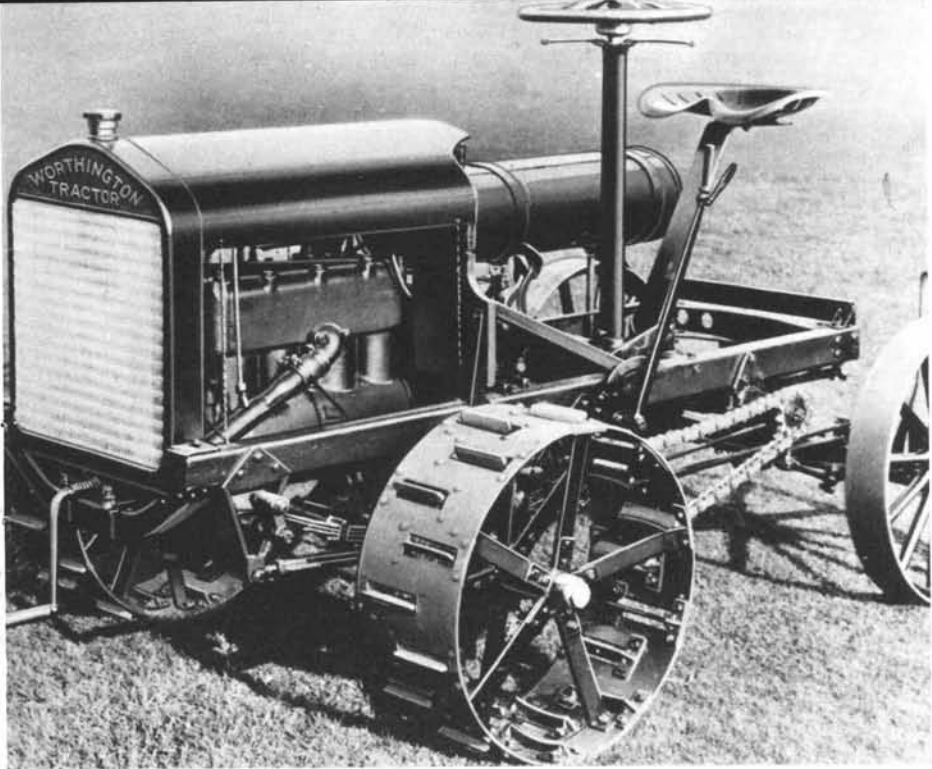
and the size grew to 24 inches during that period. Undulations in the greens caused manufacturers to reduce the units to 22 inches in size.

In San Francisco in 1968, a completely hydraulic-driven greens mower was introduced.

Having been introduced at the same time that labor shortages were appearing on the golf courses contributed greatly to the popularity the triplex greens mower enjoys today. There are five manufacturers of such mowers today. It appears that triplex greens mowers will be



A roto-spiker.



*An early tractor for
golf course use.*



A greens mower.

around for many years. Many attachments are available now and more attachments will be coming soon so that the main unit can be used for work at other places on the course.

WHAT'S NEW AND FOR THE FUTURE AROUND THE GOLF COURSE

Many old tractors and mowers have had their day, and several new products will become available during the next few years. One that soon will be introduced will be equipped with pressure tanks to inject a gas three to seven inches below the surface for nematode control. Who knows where this development can lead? Some of the chemicals now restricted from being sprayed may be acceptable if laid in below the surface. It may also lead to new methods of getting soil amendments into the top five inches of the soil. Self-contained 9-gang tractor/mower combinations will become more popular again with the idea of reducing costs. Several efforts will be offered to mechanize sand trap work by using riding sand trap rakes. New styles of seeders as well as new methods of seeding will become popular in the market this

year. And there will be many new products in the next few years to further mechanize golf course maintenance.

SUMMARY

If we really analyze it, with the exception of a few items, the major changes in golf course maintenance equipment have come from the concept of "push to power" and "walk to ride." True necessity will cause more riding equipment to come to the fore regardless of what has been done in the last 10-15 years. The future developments also seem to be headed for the replacement of mechanical drives to hydraulic methods as well as simplified overall design for less mechanical maintenance of a product. We forecast a greater need for education in the field and we as manufacturers will have to accept responsibility for providing it.

So for the future, a host of mechanical products will be forthcoming to help golf course operators reduce effort, time and costs. The requests operators have made toward these new developments in mechanization involve products aimed at minimum maintenance with maximum benefits for better turf.

Overcoming the Charlie Brown Syndrome

By **Don S. Marshall**, General Manager, Montclair Golf Club, Montclair, New Jersey

It is not quite clear to me with a title such as this whether I have been selected for the program as a successful failure, or a failure at success. From the position on the program, the odds seem to be stacked, but then again wouldn't that be the way with Charlie Brown? My factual Charlie Brown experience is limited to the local Newark paper, which conveniently went on strike during the 90 days this short talk was being formulated. In fact, by my recollection they struck just about exactly the day Holman Griffin called, and they haven't gone back since.

Closer to life, when Holman did call in regard to this topic, I quite naturally closed the conversation with the normal rhetorical, "How's your family?" The answer I received just had to be straight from the comic strip. "Well," said Holman, "everything's just fine, but my father-in-law just had an attack, and my mother-in-law broke her arm the next day, so my wife is in Texas. Of course you know I was just transferred to Charlottesville, Virginia, so

I'm up here; my youngest is in Hillsboro, Texas, and the cat is in Atlanta, Georgia; but actually we're very happy, the furniture's in the moving van!" Now I ask you: who should be giving this talk?

There is probably no group of people more highly subject to a sense of consistent and heart rending failure as golf course superintendents. If it isn't the weather, it's the members; if not the members, the help; and if not the help, it's the indoctrinated wife who doesn't understand why you can't visit mother-in-law over the long 4th of July weekend.

A lot of this feeling is true. Nature does seem to have a way of continually attempting to return your golf course to the primeval forest, and if you stop to think of it, that's the bulk of your problem—you are in charge of an un-natural arrangement. The September issue of *Scientific American* indicates that it will take her just about nine years from the time you toss it in to erase your recognizable presence.

Crabgrass and *Poa annua* are naturals evolved