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# A PATCH of GREEN

Official Publication of the  
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# 50th GCSAA International Turfgrass Conference and Show Breaks All Records!

Over 6,500 conferees attended the golden anniversary edition of the Turfgrass Conference and Show in Atlanta, Georgia. Despite the unseasonably cold and windy weather, the trade show significantly surpassed last year's show in attendance and this makes 1979's show the largest ever for GCSAA.

The educational programs during the week were once again exceptional and they were well attended. Several new seminars were presented also.

Charles Tadge, CGCS, was voted in to the presidency and Mel Lucas, CGCS, was voted as the new Vice President. Mike Bavier was re-elected to a three year term as a Director and Ed Dembnicki was the only new Director to join the Executive Committee.

George Cleaver replaces Ted Woehrlé as the immediate Past President and acts as Ex-officer.

## Bill Milne Honored

During the annual meeting, President, George Cleaver, recognized Bill Milne, Superintendent of Country Club of Detroit, with his "Quarter Century" pin. Bill joined this illustrious Club after having spent twenty-five years as an active member in GCSAA. Congratulations, Bill!

## Bob Hope receives another Attestors Award in Atlanta

Several years ago, GCSAA began a new program whereby members who attest the applications of at least five new members during the year receive an award for their efforts. This year,

Bob Hope, CGCS, Superintendent of the Lochmore Club received this award for the *third time*. This is an excellent example of what can be done with a little effort and we hope to see more names on this list next year.

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## GCSAA SEMINARS

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### *Golfer's Etiquette*

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When a golfer starts to swing.

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Across another's putting ball.  
Never doubt an opponent's score,  
You saw 6 but mark it 4!

Never kick one from the rough,  
Play it fair when luck is tough.  
Never cheat in deepest wood,  
God is watching, so be good.

Never raise your voice or swear  
When you top or fan the air.  
Never, even as a joke,  
Fail to count each single stroke.

Don't improve a hanging lie  
"Accidentally" - on the sly.  
In a sand trap, it's a rub,  
Never, never ground your club.

# How fertilizer moves and reacts in the soil

by Wayne C. Morgan

Knowing something about what happens to a fertilizer in the soil might help you plan a better fertility program. An article in the November, 1972, issue of *Crops and Soils* on "How Fertilizer Moves and Reacts in the Soil", contains valuable information on how to receive greater effectiveness from a fertilizer. It was written by J. Harold Parker, editor TVA National Fertilizer Development Center.

It will be well to keep in mind that fertilizers replace or supplement the soil's supplies of elements required in plant nutrition. Also, commercial fertilizers are chemical compounds. Thus, it is normal for them to change chemically when put into the new environment of a moist soil.

Generally, only five things can happen to a fertilizer applied to the soil: It can be used by the crop. It can become part of the soil complex. It can leach downward through the soil in drainage water. It can be washed away by erosion. Or, it can volatilize and escape as a gas.

## NITROGEN

Nitrogen, the plant food needed and added in largest quantities, is the only fertilizer element entering into all five processes to a significant extent.

Nitrogen in fertilizer may occur as free ammonia, urea, or salts of ammonium and nitrate. The chemical form of the applied nitrogen isn't too important under most conditions since all forms tend to be converted to nitrate ( $\text{NO}_3$ ). In warm aerated soil, urea hydrolyzes to ammonium nitrogen in a few days. Similarly, soil bacteria convert the ammonium ( $\text{NH}_4$ ) form to nitrate in a few days or weeks.

But there are important exceptions. The ammonium form persists inde-

finately in flooded soils and the ammonium ions are absorbed by rice plants. When urea is left on the soil surface much of the nitrogen is converted to gaseous ammonia and lost. The same is true for ammonium sources on alkaline soils. This can be avoided by using appropriate application methods. Volatilization also occurs in the soil through biological reduction of nitrate to nitrous oxide ( $\text{N}_2\text{O}$ ) and nitrogen gas ( $\text{N}_2$ ). Scientists estimate 10 to 30 percent of your fertilized nitrogen is lost this way.

Perhaps the most important part about the chemical form of the nitrogen is that when it becomes nitrate it moves freely in the soil water. Nitrate nitrogen is absorbed weakly or not held in any way by soil particles.

Thus, heavy rainfall or irrigation may move nitrate nitrogen out of the reach of plant roots. This is one of the dilemmas you face in applying nitrogen fertilizer - to provide enough in the root zone for efficient crop growth without risking either excessive plant growth or excessive leaching from the soil.

In contrast with nitrate, ammonium nitrogen is absorbed by fine soil particles. It is largely held by the clay minerals, from which it is released slowly.

Regardless of its chemical form, very little nitrogen, or any other nutrient for that matter, is retained in extremely sandy soils with low organic matter contents. Little ammonium nitrogen will be found in field drainage waters.

As a result of various losses, up to half or more of the fertilizer nitrogen applied to the land is not recovered by the crop to which it was applied. Controlled-release products

Continued on next page

## How Fertilizer Moves cont.

hold potential for reducing this economic loss and for minimizing pollution of ground and surface waters by nitrates. Products that release nitrogen slowly are on the market, but they are expensive to manufacture. The main objective is to shorten the time between availability in the soil and uptake by plants.

### PHOSPHORUS

Fertilizer phosphorus presents sharp contrasts with nitrogen. First, the chemical forms generally are more complex than those of nitrogen fertilizers. Second, when phosphate is added to the soil it reacts rapidly to form dozens of new compounds. Third, the phosphate stays where you put it, except as it may be washed away by erosion.

Leading phosphate fertilizers in the U.S. are the superphosphates (mono-calcium phosphates) and the ammonium phosphates. The latter is a series of compounds containing both nitrogen and phosphorus and used in both dry and fluid forms. Both general types are water-soluble and thus readily used by crops.

These phosphates, however, react quickly with other compounds in the soil complex. All of the reaction products will be less soluble than what you applied.

Phosphate tied up in a compound of low solubility is not necessarily lost. As long as it remains in the soil it has a plant food potential which may be realized as the changing soil environment stimulates additional chemical reactions.

Water - Insoluble phosphates generally are more effective when applied in nongranular form. With small particles, there is a greater opportunity for chemical reactions in the soil that will make the phosphorus available to plants.

The tendency of phosphates to form insoluble compounds means that very little phosphorus is present in the soil that will make the phosphorus

available to plants.

The tendency of phosphates to form insoluble compounds means that very little phosphorus is present in the soil at any given time. The concentration usually is less than 0.1 ppm and rarely more than 1 ppm.

In localized zones around granule sites, however, the concentration of phosphate ions may be 1,000 times greater than in unaffected soil a few inches away. This local high-phosphate status can persist for several months and is a factor in meeting crop needs.

Research has clearly established that phosphorus mobility is quite limited. Diffusion in soils with medium or high clay contents may range from a few millimeters to a few inches. In one experiment, phosphate applied to a pastured area moved no more than 8 inches in 50 years.

Movement may be much greater in sandy soils and peats. But even on such fields, downward movement likely will stop in the lower soil horizons, which tend to have more clay. Thus, phosphate leaching usually presents little problem.

### POTASSIUM, CALCIUM AND MAGNESIUM

These three plant food elements are discussed together because of their similar reactions in the soil. Upon dissolution, each produces cations (positively charged ions) which are attracted to the highly negatively charged micelles (minute particles of clay and organic matter).

When any cation is added to the soil it must either displace another in the semi-permanent soil complex or hook with a free anion and become mobile in the soil solution.

The quantities of potassium added are so small in relation to the total soil volume that the displacement causes only small losses of other cations. The more massive additions of calcium and magnesium cause significant changes in the soil chem-

Continued on page 17

# In-depth study on the General Manager Concept

For several years now there has been a growing feeling among club officials that the concept of operating their clubs with a General Manager is the answer to one of their pressing problems - lack of cooperation and coordination between department heads.

Persons who for years have been "doing their own thing" as clubhouse Managers, Golf Professionals, and Golf Course Superintendents, responsible to club committees, suddenly found themselves under the direction of another paid employee, a General Manager.

As more clubs considered and tried the *General Manager Concept* in the late sixties and early seventies, our professional associations - CMAA, PGA, and the GCSAA became concerned, and met to discuss the problem.

Past President, Norm Kramer recognized the problem of the General Manager Concept, and in his President's Message found in the January 1971 issue of the GOLF SUPERINTENDENT recognized the misunderstandings of the concept by those holding the title and by club officials. He called for an agreeable/acceptable definition that all three associations could live with. This has never been accomplished. Our association did, however, adopt his message as our official stand on the General Manager Concept.

In 1977 the CMAA came forth with an "Information Release" advocating the General Manager Concept. It was recommended that *Overall Club Management* should be the responsibility of a single professional with the title and authority of GENERAL MANAGER. This is the first public recognition of this concept by the CMAA.

Proponents of the General Manager concept argue that:

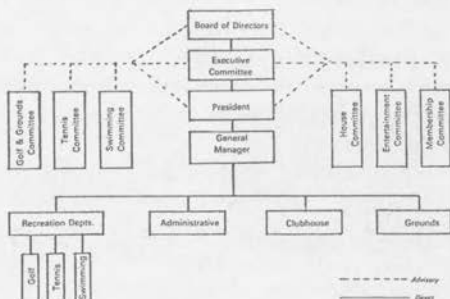
1. Club members no longer are willing to devote time in committee activities.
2. Boards of Directors are content in establishing and maintaining policy.
3. General Managers are needed to fill a "Leadership Void" in private clubs.

The CMAA urges timely adoption and vigorous promotion of this "Sound" management principle, and also recommend that club officials follow this criteria in establishing their management policies:

A "Professional Administrator" should be hired to conduct all club activities. He must be accountable for the entire club operation. The basic flow of authority is from the club board to the General Manager, to all other employees.

A typical General Manager organization chart and the CMAA GUIDELINES for the General Manager concept follows.

*This chart, distributed at the CMAA general manager workshop in Boston by Milton E. "Doc" Meyer, Jr., shows how the general manager concept might work in a country club.*



## GUIDELINES

The General Manager reports directly to the club's Chief Elected Official, or his authorized representa-

Continued on next page

## General Manager Concept cont.

tive. He also works in tandem with the full body of governing authorities.

The General Manager serves in the capacity of Chief Operating Officer of the entire club and implements the policy established by the governing authorities.

The General Manager develops operational policies and is responsible for creation and implementation of standard operating procedures for all areas of the club.

The General Manager prepares the annual budget and, after board approval, manages and controls the operations to attain the desired results.

The General Manager supervises all department heads, including the Club House Manager, Food and Beverage Manager, all Professionals, Golf Course Superintendent and the Controller/Auditor.

The General Manager coordinates all management functions of the club.

Board of Directors

Club Managers Association of America

November 1977

Josef Auerbach, CCM - President

Under this chart and these guidelines, we realize that the General Manager is the administrator of ALL club policies and the coordinator of ALL club functions. He is responsible for the success or failure of all operations to the Governing body of the club.

Too often, a General Manager is given the title or takes it without a

clear understanding, by all parties concerned, of his responsibilities. Other times he is given, or shamelessly takes, the title without having the authority necessary to fulfill his responsibilities. The fact remains that the assignment of responsibility, the transferring of authority, and the acceptance of accountability are inseparable.

A job description is mandatory - not only for the General Manager, but also for all his department heads. This is the only way the flow of command can be accomplished without having misunderstandings develop.

The GCSAA finds little fault in the General Manager concept as presented above. We can find fault, however, in the success or track record of its use.

Almost daily we hear reports of unhappy experiences suffered by our members and unnecessary failures of the concept where it is being misused. The General Manager concept may be worthwhile and beneficial to the country club operation, but why doesn't it seem to work?

Unfortunately in many cases the title of General Manager is forced upon an unwilling individual that is not prepared to accept the responsibilities. There are others that lack the ability and are doomed to failure and others are poor organizers, or are unable to delegate authority.

Quite often we hear that "The job of overseeing the three departments in

Continued on page 13

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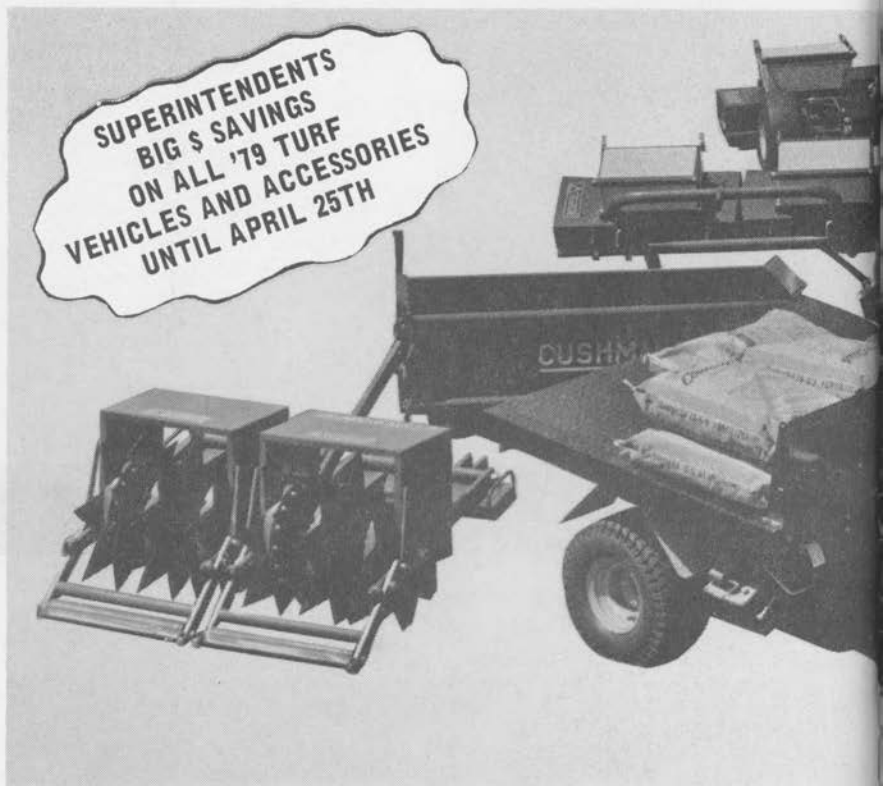
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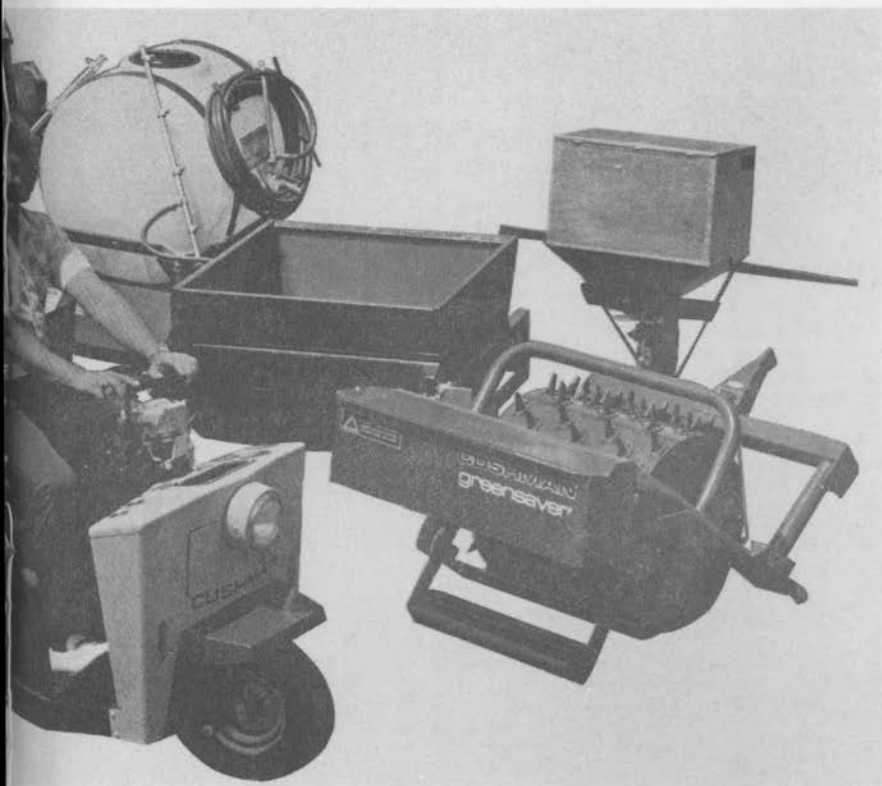
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## General Manager Concept cont.

a typical country club operation is too enormous for one individual to handle, he couldn't possibly know enough about each job to do justice to them all." This of course is one of the biggest misconceptions of the General Manager concept. The General Manager need not know the intricate workings of each department, he simply must hire competent people under his direction, and coordinate their efforts. If this simple premise was understood and followed by more people, the concept would be more successful.

The move to a General Manager concept is met with great resistance for other reasons:

1. Most clubs do not understand the concept.
2. Most clubs will not give that much responsibility to one individual.
3. Committees are too strong and will not relinquish their power.
4. Reluctance of department heads to accept a new concept that has such a poor track record.
5. General Managers that are elevated from within the club tend to favor the departments in which they have the most experience.
6. It is far more expensive to operate under this concept.

Conclusions about the concept have mostly been negative because of numerous past failures.

### HOW CAN THE GENERAL MANAGER CONCEPT BE APPLIED SENSIBLY?

In a recent national survey the CMAA found that only 35% of their members presently holding the title of General Manager truly have the responsibilities and authority to manage their clubs at the professional level of a General Manager.

We would strongly recommend that the title of General Manager be reserved for individuals that have qualifications in management skills and the willingness to follow the CMAA guidelines.

Continued on next page

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### General Manager Concept cont.

It is not the GCSAA's intent to take a stand for or against the General Manager concept, but instead to take a leadership role in enlightening our members and the clubs that our members work for, about all aspects of the General Manager concept. We should attempt to point out the merits of the system when applied properly and the shortcomings when the concept is not fully understood.

We do not completely disagree with the concept, as long as a General Manager is truly a General Manager as outlined earlier.

We do, however, strongly object to anything less than outlined.

We as an Association do not wish to dictate the type of operation our clubs choose, but because of our concern for providing our club with a quality golf course, we want to insure that we have the cooperation and understanding of all concerned and the facilities to do

the best job possible.

It would be in our best interest to help promote the true meaning of the General Manager concept for the well being of the clubs and a brighter future for our members.

On rare occasions our own members are offered the positions, and some accept. Surely not all Superintendents are interested in moving up to the General Manager position, but those who want to better themselves economically and professionally and are willing to accept the responsibility, should do so.

This new person will assume the responsibility of the club's program and give the officers, directors and key committee members a chance to enjoy their club. With the help of competent department heads, it should become a better place for members and employees.

One fact remains. Even under

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## General Manager Concept cont.

the General Manager concept, clubs still require committee involvement. This is the only way the General Manager can receive input into his decision making. Ideally the department head should do this, but they are not always aware of membership feelings about the success of the operation. Too often membership complaints are not passed on to the people in authority that are in a position to correct mistakes. Committees are more important than ever - they are the inspectors of our work.

Should our educational programs offer help in training those interested in becoming General Managers, or to those already in such capacity? The GCSAA feels that help should be offered in the form of "Turf Appreciation Courses" to the CMAA similar to those presently being offered to the PGA General Management Seminars.

In turn we should offer our members

a General Management Seminar with courses presented by the PGA in "Golf Appreciation", and by the CMAA in "Club Appreciation". This would create and insure *harmony through understanding* - we would better understand the problems of our co-workers and a successful club operation would be the end result.

There are still many successful and efficient club operations where the triumverate management principle is used. They usually have three very professional department heads, who have learned the secret of success. *Together they are able to communicate, cooperate, and coordinate their work.*

Until such time as the concept is better defined and understood by all parties, we as an Association must oppose the General Manager Concept. As it is presently being used, it presents a threat to our identity, stability, profession and salary.

Continued on next page



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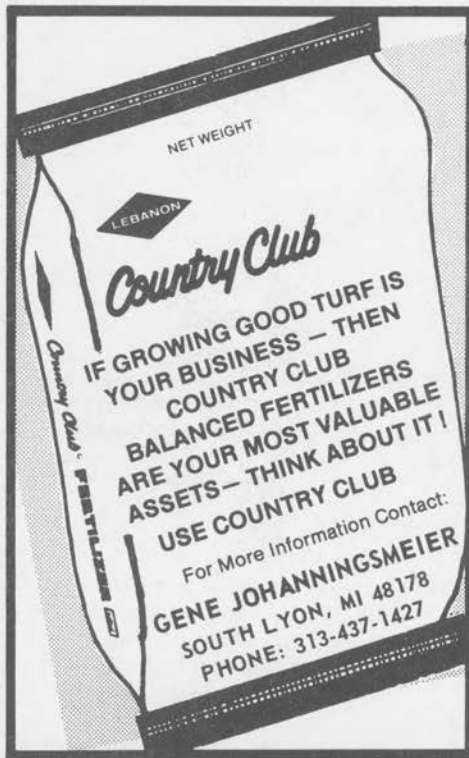


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### General Manager Concept cont.

Worst of all, it isolates the Superintendent from the membership. Our success depends to a large degree on our ability to sell ourselves and our programs through contact with the Committees, the Board of Governors, and the general membership.

Respectfully submitted,  
Theodore W. Woehrle, CGCS  
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## How Fertilizer Moves cont.

istry. They tend to neutralize large quantities of hydrogen and aluminum, which are characteristic of acid soils. This raises the pH and alters the chemical makeup of the soil, Nitrogen fertilizers tend to acidify the soil and thus have the opposite effect.

Overall, potassium mobility is much less than that of nitrate but more than that for phosphate. Leaching losses generally are insignificant except on sandy soils.

### OTHER NUTRIENTS

Part of the sulfur applied in fertilizers to well-drained soils ends up in the sulfate form. Sulfates may be absorbed on clay minerals. They also are retained for plant use through other reactions. Yet, sulfates are moderately mobile. They may be leached into the subsoil in humid regions and even into groundwater from medium or coarse soils under high-rainfall conditions. Under poorly drained conditions, they are converted to hydrogen sulfide (H<sub>2</sub>S) and lost to atmosphere.

The micronutrients - boron, copper, iron, manganese, molybdenum, and zinc - are fairly immobile in soils. Boron is most mobile and some will leach from sandy soils.

Copper, iron and zinc move less than one inch from point of application in most soils. Chelated micronutrients move farther because they react slower with soil compounds. Movement depends on the micronutrient source, the NPK fertilizer with which it is applied, and both physical and chemical characteristics of the soil.

Because movement is limited, it generally is advisable to apply micronutrients so as to achieve widespread contact with the soil. This is done by incorporating small amounts of powdered materials with or on each fertilizer granule. Dispersion also is achieved by dissolving or suspending micronutrients in fertilizers.

Continued on next page

# w

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### How fertilizer moves cont.

Some micronutrient sources react with soil to become very slowly available to plants. Acid-forming fertilizers often are used to help keep manganese in an available form. Also, certain combinations of micronutrient sources and NPK fertilizers should be avoided because of reactions which make the micronutrients unavailable at the granule site.

Credit - Divots, official bulletin of the Miami (Ohio) Valley Golf Course Superintendents Association, Dave Mastroleo, or the Divot News, publication of the Golf Course Superintendent's Association, So. California chapter. Volume 22, No. 2, March, 1973.

### "THE BALL"

In my hand I hold a ball,  
White and dimpled, rather small.  
Oh how harmless it does appear,  
This innocent looking little sphere.  
By its size I could not guess,  
The awesome power it does possess.  
But since I fell beneath its spell,  
I've been through the fires of hell.  
My life has not been quite the same,  
Since I chose to play its game.  
It rules my mind for hours on end,  
A fortune it has had me spend.  
It has made me curse and cry,  
And hate myself and want to die.  
It promises me a thing called "Par",  
If I can hit it straight and far.  
To master such a tiny ball,  
Should not be very hard at all.  
But my desires the ball refuses,  
And does exactly as it chooses.  
It hooks and slices, dribbles and dies,  
Or disappears before my eyes.  
Often it will have a whim,  
To hit a tree or take a swim.  
With miles of grass on which to land,  
It finds that tiny patch of sand.  
Then has me offering up my soul,  
If it would first drop in the hole.  
It's made me whimper like a pup,  
And swear that I will give it up.  
And take to drink to ease my sorrow,  
But "The Ball" knows I'll be back tomorrow.



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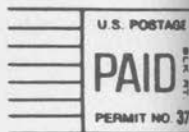
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