

WHAT HOUR SHOULD YOU MOW?

By MARTIN C. HIGGINS

Pro-Grnkpr, Fall River (Mass.)

BEFORE determining the time of day best suited for the mowing of putting greens, a few fundamental facts must be considered.

All the food manufactured in a plant by photosynthesis is synthesized in the green portions of the plant. Photosynthesis means simply the chemical combination of water with carbon dioxide within the plant, in the presence of light and chlorophyll, to produce carbohydrates of food. Chlorophyll is the green pigment which imparts to plants their green color. It is only natural to assume that any injury to the green part of the plant, such as cutting away green tissue, will be detrimental to the process of food manufacture.

Nature determines the size and the shape of the leaf, and if some unnatural force, such as clipping, cuts this necessary leaf surface in half, then the plant's source of food supply and manufacture is limited to one-half of its original capacity. The manufacture of food is dependent upon the surface area of the leaf, and upon the amount of this area which is exposed to the sunlight to activate the process of photosynthesis.

Light Needed to Make Food

The manufacture of food in a grass plant cannot occur after sunset, because of the necessity for light.

A plant loses considerable water, mineral food and chlorophyll from an open wound, because the osmotic pressure from the roots accentuates transpiration through the new and unnatural opening. This excessive transpiration automatically increases evaporation. All of these conditions coupled with dry weather and intense sunlight will cause a depletion of soil moisture, which, in turn, will cause wilting.

Increased activity in photosynthesis causes a greater production of food. It is reasonable to believe that nature can and would accommodate this demand for additional food storage space by an increase in root growth. Cultural practices that promote a more intensive root growth

will allow the plant to draw on larger volumes of soil for nutrients and moisture, and consequently resist more unfavorable weather conditions, than would otherwise be possible. Soil nutrients assure the production of sugars and starches in the leaves which, in turn, take part in the formation of the internal chemical energies that account for the entire plant growth.

Leaf and root growth should be relative or balanced in order to resist all conditions unfavorable to a growing grass plant. This is accomplished only by keeping all of the working parts of the plant in operation.

Past experiments also show that in general, root growth will not respond to applications of fertilizers if photosynthesis is hindered by close clipping in the sunlight. Such being the case, your fertilizer applications will be much more effective if mowing takes place after sunset.

It is a known fact that grass growth is most abundant in the evening. In consideration of this fact, it would be wise to capitalize this abundance of plant growth. With the added strength from growth, a plant becomes much more resistant to drought, fungus disease, temperature, evaporation, and competition of its neighboring plants, such as clover, dandelion, crab grass, knotweed, and plantain. These plants, by their prostrate habit of growth can escape the severe injury of cutting.

Many Factors Affect Best Mowing Time

Other facts and approximate statistics which have been results of experiments and which should be kept in mind because of their bearing on the subject at hand are:

That the stomata in bluegrass leaves are 78% open at 12:00 noon, 96% open at 6 A. M. and 58% open at 6 P. M.; the stomata of the Red Top are 15% open at 6 A. M. and the majority are closed at 6 P. M.; Red Fescue: 72% open at 6 A. M.,

A. A. Needham, supt. of maintenance, Rockford (Ill.) CC, made a wise investment in business stationery and has on his business letterhead his identification as supt. of a fine plant in a manner befitting the responsibilities of the position. It's an idea that many other course supts. could adopt to their profit and with strong advertising effect.

the majority are closed at 11 A. M. and 88% open at 6 P. M.

Experimental statistics show that uncut putting green grasses double their degree of growth every second day, varying from $\frac{1}{4}$ inch on the odd days and $1\frac{1}{4}$ inches to $1\frac{3}{4}$ inches on the even days.

Bleeding of leaves from cutting necessitates 3 to 5 hours of sunlight for healing.

Infrequent mowing promotes a coarse grass, higher tillering of new leaf blades, and more shade for root protection.

Frequent cutting will cause an increase in basal leaf growth, and lower tillering of new leaf buds.

And finally, regardless of our cultural practices and conditions, we should always remember that a perpetual vegetative reproduction and a lack of seed reproduction caused by frequent close cutting, will eventually develop a degeneration of all putting green grasses.

I have not given any consideration or explanations, regarding golf playing conditions. I feel that this is an important problem by itself, and should be discussed only after one has reached a decision as to what is the best time for mowing putting green grasses. From the foregoing, I believe that the best time to mow is between 12 o'clock at midnight and 2 o'clock in the morning, or during that part of the day when the manufacturing of food is at a standstill and the accumulated product has been completely translocated to the roots. Realizing that this is quite impossible because of that ever important factor, namely light, my second choice would be to start mowing putting greens at an hour that would enable me to do a careful and thorough job just before dark.

TABLE OF ARSENICAL POISONS

Name and Formula	% Metallic Arsenic	% Water Soluble Arsenic	Adhesiveness	Suspensibility	Compatibility	Toxicity	Remarks
Arsenious Oxide White Arsenic	76	1.2—2	Fair	Good	Very poor	High	Burns foliage severely
Paris Green	39	1.5—3.5	Poor	Poor	Fair	High	Burns foliage easily
Acid Lead Arsenate	21	less than .75%	Very good	Very good	Good Reacts slightly with lime sulfur	Low	Slight foliage injury. Best for sprays.
Basic Lead Arsenate	15	less than .75%	Poor	Poor	Good	Very low	Not as efficient as Acid salt.
Calcium Arsenate	35	less than 1%	Very good	Good	Good except with slaked lime	High	Some foliage injury. Must use fresh material. Most efficient dust.
Zinc Arsenite	29	1%	Very poor	Poor	Good	High	Burns easily. Sold as Zinc-Bordeaux paste.
Magnesium Arsenate	21	1.25	Good	Very good	Good	Low	Does not burn bean foliage, and is cheap.
Sodium Arsenite	61	100	Poor	Water Soluble	Very poor	High	Burns severely; used as weed killer.

"LOW PAY IS THREAT TO GREENKEEPING'S FUTURE": SAYS SPRAGUE

DR. HOWARD B. SPRAGUE of the New Jersey State Agricultural station, speaking before the New Jersey Golf Course Supts.' Assn., at Twin Brooks CC, July 11, made a common-sense suggestion about greenkeepers. Qualified observers have noted that present generally low wages are not only discouraging many of today's good greenkeepers, who are unable to make ends meet, but risks the future of the profession and golf course maintenance standards.

Sprague advocated that the greenkeepers make a statistical survey of greenkeepers' salaries, so the findings of the survey would be guidance for club officials and greenkeepers. In discussing the situation Sprague said:

"Three things my fellow diners and I have talked over are in need of general consideration. "The first is, 'What does the profession of greenkeeping yield?' From the aesthetic side, we have a healthy occupation outdoors, and diversified so it does not become boresome. After your day's work is done, there is nothing to worry about except turf disease, insect invasion, drainage, drouth and budget, so you go to bed for a sound, untroubled sleep! ! ! (*Loud and long laughter.*)

What Is Average?

Other than this mention "satisfaction," no one seems to know what the average salary yield is. Generally speaking, I do know it is small compared to other forms of specialization. If separate individuals were each paid for the many services one man, the greenkeeper, renders a golf club, the total cost would be very large.

"It would be well if you all got together, made a statistical survey of your incomes and make the findings known. I might ask, 'How can any of you place monetary value on your services if you have no basis for comparison?'

"Greenkeeping is a profession that is

bound to go ahead. By our living standards the rating of recreation is increasing.

"Another topic we have discussed was the enlistment of newcomers to continue the work of present greenkeepers. You in charge of courses today are certainly more qualified than others to select the right men, if you can locate them and 'sell' them on your profession. Agricultural colleges can handle the technical training, but you men alone can teach the art or practical side of greenkeeping.

"Boys who come from farm homes, we find, are the best material for agricultural training at college. Some greenkeepers claim their foremen (who are prospective greenkeepers) are better versed in golf maintenance than the superintendents themselves were at the same time of the career. This is a healthy indication, and leads to the professional becoming as respected as you, yourselves make it."

"The last subject we have talked about deals with the importance of what turf research work we can do for you. Your interest shows that it has value to your courses, your employer and yourselves. Research appropriations in times like these are the first to be cut, and last to be restored. Relief funds are more important, but research work continues in industry, even during times of retrenchment, so that when the time comes, slack can be quickly taken up.

"Research is a long and laborious assignment. We are nearing the time when you will want new information quickly, and we will not be able to furnish it. By reduction of funds the bank will fail. You know the results of turf starvation and neglect when required soil treatments are postponed too long."

Program of the Penfold Pro League round robin tournament held in June at Sandy Lodge GC, Northwood, Middlesex, Eng., contains illustrations and golfing biographies of all the players. That's the sort of information that could appear in far more detail than it's used in U.S. tournament programs.

Japanese Beetles Prove Too Strong; Club Decides to Fold

JAPANESE invaders are not feared by China alone, but by northern New Jersey golf clubs as well. Although fairways and greens are not being torn apart by bombs, the lethal inroad being made by Japanese beetle hordes was forcefully indicated when the Summit GC in Murray Hill, N. J., gave up its property late in June due to ravages of the beetles. The property, held by the golf club for 15 years, has been turned over to a holding company for the mortgage.

Progress of the beetles was slow but sure at the Summit club. The club treated its greens with arsenate of lead each fall, but neglected application to fairways. As a result, greens now stand

out undamaged in contrast to burned fairways.

It is believed the Summit club may be reopened as a golf club in the future when means are found for financing more thorough Jap beetle extermination.

GOLF'S MARKET PLACE

W. F. Fillbrandt of Aberdeen, S. D., certainly must admit that an Acushnet golf ball of his gave him plenty of chances to achieve fame. With an Acushnet ball a year old and which had been played at least 100 holes over sun-baked Dakota turf, Fillbrandt made one of the longest aces of the year. At the 301 eighteenth hole of the Hyde Park GC at Aberdeen, Fillbrandt holed his drive.

Another hundred holes with his pet Acushnet and Fillbrandt probably will be shooting for a 602 yard hole-in-one.

Entering a new field, Clemson Bros., Inc., Middletown, N. Y., makers of Star and Victor hack saw blades, have just brought out a hand lawn mower of advanced design. Embodying Clemson's long experience in heat treatment of cutting steels and in development of special machinery, the mower is being manufactured in a new factory, used exclusively for this purpose.

The machine, which is finished in yellow baked enamel and chrome plate, is very light for its size (17" cut.) It weighs but 32 lbs. complete with rubber tires. It requires no lubrication, no grinding, and no tools for adjustment.

One feature is the self-aligning bed-knife, so designed that hand turning of one knurled knob adjusts clearance between bed-knife and fly-knife. Misalignment of bed-knife, which causes uneven wear and uneven cutting, is thus eliminated. Another important feature is the

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HARVESTING
THIS YEAR'S CROP OF**

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Right here in southern New England is the natural home of the Bent grasses, the principal member of which, namely, Rhode Island Bent, derives its name from this smallest state in the Union.

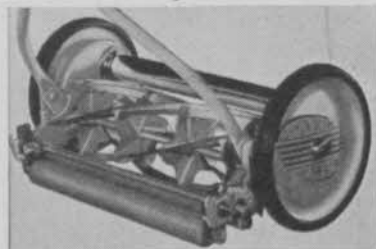
Bent should not be simply "Bent" to you. It is very important to know the source of your seed.

Bent seed grown here in New England produces a turf that is WINTER HARDY. It is acclimated to the variable climatic conditions of our northern states.

BUY your seed—Rhode Island Bent, Creeping Bent, Velvet Bent—

DIRECT from the GROWER.

**A. N. PECKHAM
KINGSTON, RHODE ISLAND**
(Also fairway mixtures.)



Many new features are contained in the new Clemson model hand lawn mower.

integrally cast fly-knife assembly. This is said to be the first mower where entire fly-knife assembly is in one complete unit and on which rivets, collars, and "floating" spiders have been eliminated. Knives are of high carbon steel forged to exact shape and then heat-treated. Spiders are then

integrally cast around blades and shaft. Misalignment due to tension on blades or loose assembly is thus eliminated.

This mower has a minimum of parts and, according to the makers, pushes easily, cuts evenly, and will last longer.

Leo Murray, formerly with Worthington Midwest Co., distributors of Worthington maintenance equipment, has been appointed distributor for Worthington equipment for southern Illinois and St. Louis county, effective August 1st. Murray will make his headquarters at 79 W. Walnut St., Bloomington, Ill.

With the sale of the U. S. Royal Blue Golf Ball for the first six months of 1938 running considerably ahead of the first six months of last year, E. C. Conlin, Sales Manager, Golf Ball dept., United States Rubber Products, Inc., is justifiably optimistic about 1938 as a profit year for pros.

"I've been selling golf balls and trying to help pros sell them for fifteen years now," Conlin declared, "and there's nothing that gives me more satisfaction than seeing pros all over the country come through in their difficult business, with plenty of dollars in the cash register.

"To any manufacturer of fine golf balls the pro is one of the most important factors in making sales. He's the advance guard, and on him depends the success of any golf ball. That's why we are so optimistic about the golf outlook for the remainder of the season. With US Royal Blue sales considerably over last year, we know we have a ball the pros like and can make a profit on.

"During the past twenty years 'U. S.' has built some great golf balls, but this year's US Royal Blue, US Royal Arrow, and US Royal Nassau are the best we have ever made. Pros from all over the country have been praising them since the line appeared. Here is a sample: 'I would like to take this opportunity to thank you personally for all you and United States Rubber have done for the good of golf. I really mean it when I say that. And your golf balls are hard to beat. I hope that your sales are proving what I say.'

"That's a sample. It's fellows like that that have put US sales ahead for 1938."

A more care-free and pleasant life than Walter Hagen has led from the time he became big-time in golf, would be hard to imagine.

Piccadilly and the Strand, Unter den Linden and the Rue de la Paix are as familiar to him as Broadway and Fifth avenue. He has been twice around the world, has hunted tigers and lions in India and Africa.

Money has rolled in to him in a golden stream as the result of his prowess with a

"1.29?"

Sounds like a bargain sale!"



Six thousand square feet of real, effective brown patch protection for only \$1.29? It sounds like a bargain, and it is! That's how low the cost of *Special SEMESAN* figures. And it saves money in other ways, too. Costs less in labor because fewer applications are required in severe brown patch weather, and does not damage the spray rig to bring on bills for repairs. *Special SEMESAN* is a thoroughly proved fungicide containing two organic mercuries for more effective protection. Easily applied in water solution or dry with compost. Order from your supply house. Five lbs., \$7.00; 25 lbs., \$33.00; 100 lbs., \$129.00.

Regular Semesan, the original brown patch fungicide, and *Nu-Green*, the preventive which hastens recovery of infected turf, are also available at the following prices: *Regular SEMESAN*: 5 lbs., \$9.90; 25 lbs., \$45.50; 100 lbs., \$180.00; 300 lbs., \$535.00. *Nu-Green*: 5 lbs., \$6.30; 25 lbs., \$29.00; 100 lbs., \$115.00; 300 lbs., \$338.00. For free Turf Disease Pamphlet, write direct to—

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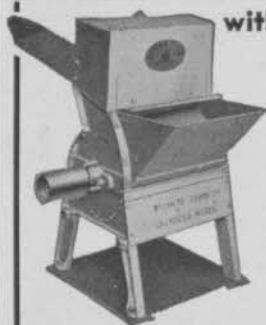
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does not separate the heavier materials from the lighter ones. Quick, simple adjustments—nothing to get out of order! Write for NEW, completely illustrated catalog and low factory prices.

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At the P.G.A. championship, this field broadcasting outfit made its initial appearance. A Worthington tractor and cart hauls the equipment to any part of the course without injury to the turf. There is provided plenty of room and carrying capacity for powerful shortwave equipment, instead of the portable outfit usually lugged around by one or two fellows. From the cart elevation, Ted Husing, the broadcaster, can see what's going on and still stay far enough from the players to speak his piece without his voice bothering the contestants. Columbia Broadcasting System plans to standardize this Worthington equipment in broadcasting golf championships.



bag of golf clubs, and in spite of the marvelous record of championships he compiled, he refused to take his golf very seriously, and regarded it more as a pastime than as a business.

But to gain this later ease and luxury, Hagen spent earlier years of close application to the game and to the art of club building.

Long accepted by the public as a wizard



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Our true Washington Strain Creeping Bent in solid turf form makes model greens. Also in stolon form. Withstands drouth like nothing else. Fully guaranteed. Used by hundreds of clubs. Comes in rolls ready to lay down like a carpet. Nursery grown blue grass sod also sold. Write for prices and samples now.

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Samples of these and 4 higher priced 2-color cards to clubs on request.

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WATER HAZARDS CAN BE AGGRAVATING!

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Probably every golfer, frequently, has watched his ball drop into a water hazard and lie just barely out of reach, either gone for good as far as he's concerned or else, in retrieving the ball, he's wet his hands, soiled his shoes, and lost valuable time—aggravating to say the least.

That's why CAD-E-YUM is proving such an immediate sensation. CAD-E-YUM fishes out those balls without any fuss or bother to you. It fits any golf club and its simple and easy to attach. Of sturdy metal construction, and can be carried in ball pocket. And look at the low price—35¢! Special proposition to pros, too. Write today for further details. You'll find CAD-E-YUM a real seller!

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1559-61 Devon Ave. Chicago, Ill.



Remember, too—
One ball saved
more than pays the
price of your
CAD-E-YUM!

in the use of a golf club, amongst those best qualified to judge, Hagen also is held in high esteem as a master club designer. It is claimed that he has the eye of an



Hagen is shown 'back in harness' after a lay off of more than a year and a half.

artist when it comes to laying out and planning club designs; that his mind's eye can see the form of things long before they take concrete shape in the club model.

It has been Hagen's job annually (except for the last year and a half when he was on his world tour) to thoroughly go

over the new models projected for the next year's production by the L. A. Young Golf Co. of which he is a vice-president and director, and seeing that they conform to his ideas of good club design.

During the time he spent abroad Walter had the opportunity of seeing the offerings of all foreign manufacturers of golf clubs and picked up some ideas he believes could be introduced to advantage in America.

So this year, Walter is taking over the entire job from stem to stern. The new line of golf clubs carrying his name will embody Hagen's ideas and conceptions from start to finish.

Yes, Hagen is on the job and it's an item almost good enough to make Bob Ripley's Believe It or Not.

Where is the golfer who frequently hasn't watched his ball just ease into a slough, or water hole, and either soiled his shoes, dirtied his hands, and upset his temper retrieving the ball, or else let it go altogether. Cad-E-Yum, a little gadget that easily fits any golf club, makes it simple and quick to fetch those balls, that lie within tantalizing distance from you, out of the water.

Cad-E-Yum really is nothing more than a cord dip net, shaped so that balls will

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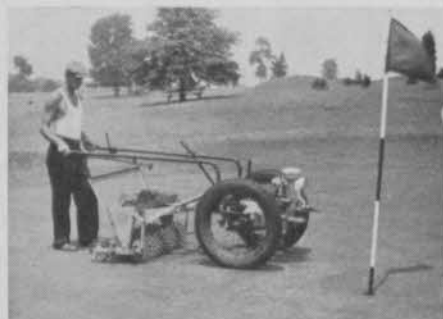
MICHELL'S SEED HOUSE
Philadelphia, Pa.

readily enter the net, and remain there, when dragging along the bottom. It sells for a very small amount and sales have been lively wherever displayed. The manufacturers, Golf Equipment Co., 1559 Devon Ave., Chicago, will supply further information upon request.

Spike discing continues to grow in popularity, according to testimony of prominent and successful greenkeepers. Especially beneficial results are secured by spike discing thin turf, says E. Thompson Starr, golf manager of the Buck Hill GC, Buck Hill Falls, Pa. Although spike discing has become fairly general practice on greens, of recent years the operation has extended to fairway treatment with excellent results in aeration and cultivation of a moisture-retaining mulch.

John Anderson, widely-known supt. of the Essex County CC, West Orange, N. J. tells of his spike discing operations:

"We hitch the three-unit gang spike disc to our tractor and find that the discing is especially effective when fairway fertilizing is being done. The spike discing enables the fertilizer to get near to the plant roots without delay and assures a quick effectiveness and economy in fertil-



Spike disc unit being used on putting green.

izing. I have noticed that where there is no fairway watering that spike discing, if done just before rainfall, gets the moisture into the soil where it's needed instead of allowing it to run off.

"On our greens we use one of the spike disc units, hitched behind a Worthington Overgreen. This has been a weekly routine job of my turf management for years. One man with this outfit can spike disc our large greens at the rate of 18 greens in 6 hours.

"Spike discing is a wonderful water-saver. We have to buy our water from the City, so when we run into a dry spell we often spike before applying our costly water. The water then penetrates the soil deeper and faster. Thus we get a maximum of good with a minimum of water.

"On one of our courses we have seaside bent greens. This bent forms a dense mat

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The Cool Food for Putting Greens that gives highest percentage of Nitrogen, Phosphoric Acid and Potash.

No other Fertilizer like Veg-e-Tonic for keeping turf in top playing condition.

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LANDSCAPE ENGINEERS

so that water doesn't easily penetrate it. The spike disc acts as a comb to loosen the mat, and allows the moisture to get down to where it can do its best work."

The Colvin Co., 325 W. Huron st., Chicago, have recently introduced two products to the golf field, the Colvin Sub-surface Irrigator, and the new plant food, Gro-lux, that have been registering strong at clubs wherever tried. Both products have been used successfully right along by universities, tree surgeons and horticulturists.

The Sub-surface Irrigator keeps trees, shrubs and lawns in excellent shape right through the hottest weather, and is very

effective for those hard-to-irrigate greens shoulders and terraces or for quickly eliminating hard spots in greens. The Irrigator gets right down to the roots, and delivers 10 to 12 gallons of water per minute.

Gro-Lux applies plant food to the turf by sprinkling it on in liquid form. Jar is filled with the proper amount of Gro-Lux, liquefier head is screwed on and water is turned on. Nozzle is then opened to desired spray. As Gro-Lux is carried through the water stream into the ground, the nourishment is quickly available to the plant. Plant food thus is evenly distributed to soil and carried to the roots where nourishment is most needed. The Colvin Co. will gladly supply further information upon request.

WANT ADS—Rates: 10c per word; minimum, 25 words

Professional with mutually satisfactory connection at northern club desires winter work in golf either as pro or pro manager of winter course or in any other phase of the game. Age 33, married. Fine record of service. Diligent and resourceful worker and good business getter. Makes good friends quickly because of sincere, able work. Good record as player and instructor. For full details write Ad 800, % *Golfdom, Chicago.*

Pro-Greenkeeper wants winter job with southern club or year-around job. Age 27. Raised on golf course, father being one of nation's leading greenkeepers. Excellent player, instructor and business man with fine record in the few tournaments played during the year and in number of amateur pupils who have improved their games decidedly. Excellent credit rating and thoroughly competent to handle all details of small club operation, including management of membership solicitation. Write Ad 805, % *Golfdom, Chicago.*

Wanted—Experienced grass-cutting machinery mechanic. Must be familiar with equipment manufactured by Toro Mfg. Corp., also power sprayers and motors. Year-around job in Florida. Make application in writing % *Golfdom*, stating experience, age, salary expected, etc. Address: Ad 807, % *Golfdom Chicago.*

Professional with 10 years' experience in all phases of club management available for winter or year around position. At present employed. Excellent player and instructor. Best references. Wife experienced cateress. Go anywhere. Write Ad 804, % *Golfdom, Chicago.*

For Sale: One of New England's finest fee Golf Courses, only three miles from city of 200,000 population; laid out and constructed (in 1931) by a nationally known golf architect. Has excellent clientele, with attractive, new Clubhouse, complete. Has always made satisfactory profits. Reason for selling—owner has interests in Florida requiring entire attention. Price low enough to show attractive income. Address: Ad 801, % *Golfdom, Chicago.*

Pro-Greenkeeper, 48, lifelong experience, desires change. Have given over 25,000 lessons. Long experience in course construction and maintenance. Would consider small club if given charge of clubhouse. Best of references. Address: Ad 806, % *Golfdom, Chicago.*

Pro-Greenkeeper desires change for all-year position; experienced buyer, general management clubhouse and grounds. Cateress if desired; fine references, pleasing personalities. Address Ad 802, % *Golfdom, Chicago.*

Experienced Clubhouse Manager now with exclusive Summer Resort Club wishes to change for an all-year steady position. Expert Caterer. Highest references. Address: C. Ross, P. O. Box 122, Old Forge, N. Y.

Greenkeeper with 18 years experience would like to make change. Have had wide range of experience, including 2 years on leased course. Am dependable and a good mechanic. Can guarantee a first class course. Also interested in leasing a course. Can furnish best of references. Address: Ad 803, % *Golfdom, Chicago.*

JANSSEN GRAYBAR HOFBRAU

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Old Hofbrau: 28 W. 30th St.
New York City

Where golfers meet in the atmosphere of 'Old Heidelberg'—the perfect combination of a delightful eating place and '19th hole' in the heart of New York. Open Sundays.

Janssen wants to see you!

AUGUST, 1938

Golfdom

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