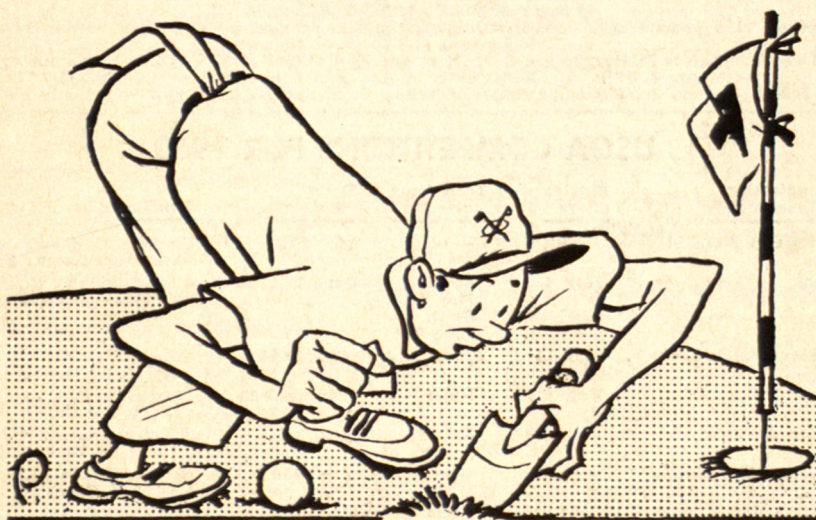




USGA JOURNAL

AND
TURF MANAGEMENT

TIDYING UP THE GREEN



Under the 1960 Rules, you may repair ball marks on the putting surface as well as clean the ball. What else is new in the Rules? With the season getting fully underway, you can tidy up your knowledge by testing yourself with a Rules quiz—see page 8. Tom Paprocki, cartoonist for The Associated Press, an ardent golfer, drew the cover cartoon and others inside.

APRIL, 1960



USGA JOURNAL

AND
TURF MANAGEMENT

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USGA COMPETITIONS FOR 1960

Championship or Team Match	Entries Close	Qualifying Rounds	Dates of Event	Location
Curtis Cup Match††	—	—	May 20-21	Lindrick G. C., Worship, Notts., Eng.
Open	May 4	Local: May 23 Sectl: June 7**	June 16-17-18	Cherry Hills C. C., Englewood, Colo.
Amateur Public Links	*May 19	†June 5-12	July 11-16	Ala Wai G. C., Honolulu, Hawaii
Women's Open	July 6	None	July 21-22-23	Worcester C. C., Worcester, Mass.
Junior Amateur	June 29	July 19	Aug. 3-6	Milburn G. & C. C., Overland Park, Kans.
Americas Cup Match***	—	—	Aug. 11-12	Ottawa H. & G. Club, Ottawa, Canada
Girls' Junior	July 29	None	Aug. 15-19	The Oaks C. C., Tulsa, Okla.
Women's Amateur	Aug. 3	None	Aug. 22-27	Tulsa C. C., Tulsa, Okla.
Amateur	Aug. 10	Aug. 30	Sept. 12-17	St. Louis C. C., Clayton, Mo.
Senior Amateur	Aug. 24	Sept. 7	Sept. 19-24	Oyster Harbors C., Osterville, Mass.
World Amateur Team	—	—	Sept. 28-Oct. 1	Merion G. C., Ardmore, Pa.

** Open Championship: Sectional Qualifying Championships date may be changed to June 6 if local authority in charge deems advisable.

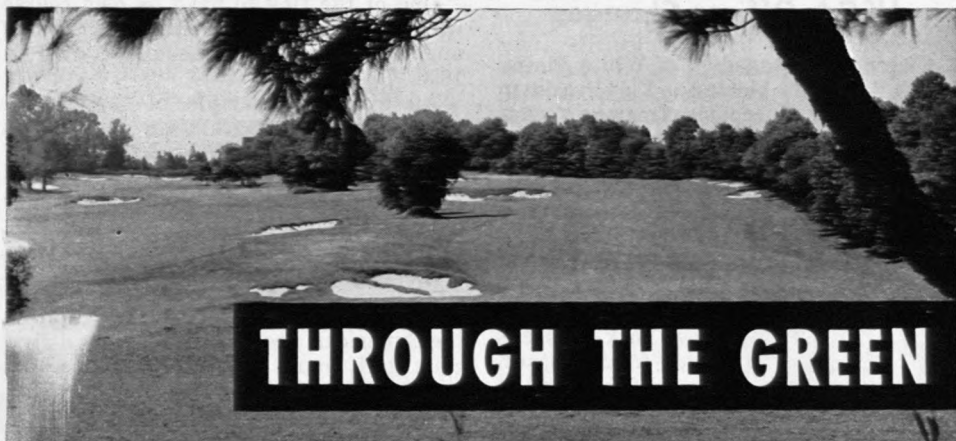
Amateur Public Links Championship:

* Entries close with each Sectional Qualifying Chairman.

† Exact date in each Section to be fixed by Sectional Chairman.

†† Curtis Cup Match—Women's amateur teams: British Isles vs. United States.

*** Americas Cup Match—Men's amateur teams: Canada vs. Mexico vs. United States.



THROUGH THE GREEN

An Ice Skating Golfer

A golfer ice skated into the Olympic Stadium at Squaw Valley, Calif., last February, carrying the Olympic torch to the Winter Games.

The ice skating golfer was Ken Henry, who serves as a professional at the West Bend Country Club, Wisconsin. He is a former Olympic speed skating champion.

Pravda on Golf

The exact origin of golf always has been confusing—who started it, where, when and how?

Now the Soviet Union has further complicated the picture.

The Communist Party daily newspaper, Pravda, has recently filed a claim that golf was played "with enthusiasm almost 1,000 years ago" by Caucasian shepherds.

Until Pravda came out with the claim, golf was not considered respectable by the comrades. It has been called in the Moscow press, in Soviet encyclopedia and other publications "A bourgeois waste of time."

"Pravda" means "Truth" in the Russian language.

Golfers to Wed

Two of Britain's best known young golfers have become engaged to be married. They are Miss Veronica Anstey, a member of the 1956 Curtis Cup team, and John Beharrell, the 1956 British Amateur Champion.

Loyalty Day — May 1

The Congress has designated and President Eisenhower has approved May 1 as Loyalty Day.

The purpose of the Day is to rededicate and to reaffirm our loyalty to our American heritage.

American organizations and associations are calling the attention of their membership to Loyalty Day, and the USGA is pleased to take a part in this worthy observance.

American Ball in Britain

A two-in-one experiment is planned in British golf this summer.

August traditionally is "Holiday Month" when everyone who can do so takes as long a trip as possible. Big golf tournaments rarely are scheduled in the London area in August.

But this year a new professional tournament will be played August 18-20 at Wentworth Club in the suburbs of London, and the American size ball will be used. The British size ball is 1.62 inches in minimum diameter and the American size is 1.68.

Wentworth's West Course, called "The Burma Road," is a fine inland course—long and a thorough test. It was the site of the 1953 Ryder Cup Match and the 1956 Canada Cup event. The smaller British ball was used exclusively in each.

USGA Officer Changes

Clarence W. Benedict, of White Plains, N. Y., has been elected a Vice-President of the USGA to replace Emerson Carey, Jr., of Denver, who resigned in February due to personal business affairs.



Clarence W. Benedict

Mr. Benedict's election to a Vice-Presidency made vacant the office of Secretary. Wm. Ward Foshay, of New York, was elevated from Treasurer to Secretary to fill that vacancy, and Bernard H. Ridder, Jr., of St. Paul

Minn., was chosen Treasurer. The elections were made by the Executive Committee.

Mr. Ridder is serving as an officer for the first time.

John G. Clock of Long Beach, Calif., is President and John M. Winters, Jr., of Tulsa, Okla., is a Vice-President.

Mr. Benedict is Chairman of the Implements and Ball and the Handicap Committees. He has been on the Executive Committee since 1956. Mr. Foshay is Chairman of the Bob Jones Award Committee. He joined the Executive Committee in 1958.

Mr. Ridder is Chairman of the Championship Committee and has been on the Executive Committee since 1958.



Bernard H. Ridder, Jr.



Wm. Ward Foshay

Industrial Golf

About 100 industries now have their own golf facilities for the use of their employees.

One of the first to have its own course was Oneida, Ltd., of Oneida, N. Y., which opened its original nine-hole course in 1896.

An excellent example of the growth of golf facilities within an industry is E. I. duPont de Nemours & Co., Inc. of Wilmington, Del., which opened a nine-hole, sand green facility in 1923 and now has 63 holes of industrial golf.

Italia

The Italians have taken a page from the American book—they've built a first class golf course just where you would not expect to find one.

The Italian course is on The Lido, a low lying, sandy island near Venice. The Italian Open Championship will be there this summer.

Thousands upon thousands of tons of top soil were gathered on the mainland, shipped across Venice Harbor to The Lido and spread thickly about. Soon grass was growing and now the course is one of Europe's finest.

12-Year-Old Caddies

The New York State Legislature has passed a bill lowering the minimum age for caddies from 14 to 12 years.

If the bill becomes law, all 12 and 13-year old caddies would be restricted to carrying one bag of clubs and to 36 holes each day. The bill also would require the caddies to have written permission from their parents.

Necrology

It is with deep regret that we record the death of:

Mrs. Temple Dobell, Wirral, England, who as Gladys Ravenscroft won the 1913 USGA Women's Amateur Championship and the 1912 British Championship.

Ray O'Brien, Miami, Fla., former PGA Tournament Director and recently director and rules chairman for television's All-Star Golf matches.

Udo Reinach, Scarsdale, N.Y., former Vice-President and Treasurer of the Westchester County (N.Y.) Golf Association and co-founder with William P. Turnesa of a fund for education of Westchester caddies.

Wanted Golfer

John William Meese, an avid golfer, is being sought by the FBI on the basis of a Federal warrant issued at Albuquerque, New Mexico, September 14, 1959, which charges that he violated conditions of his probation.

If you receive any information concerning the whereabouts of Meese, you are requested to immediately notify the nearest office of the FBI.

Meese had been sentenced on June 6, 1957, at Albuquerque following his guilty plea to passing interstate fraudulent checks. On March 25, 1958, he was released on probation from the Federal Correctional Institution, La Tuna, Texas.

He was last known to be in Albuquerque in August, 1959.

Meese was born February 21, 1923, in Covington, Kentucky. He is white;

6' 3" tall; 225-240 pounds; large and heavy build; brown eyes; graying-brown hair which is slightly wavy; ruddy complexion. He has a scar on his right wrist; an operation scar on the right side of his neck; a burn scar on the back of his left thumb; and a pitted scar on his right forearm. In the past he has worked as a salesman, truck driver and golf caddie.



New Officers

New officers have been elected by the Golf Course Superintendents Association of America and the Club Managers Association of America.

James E. Thomas, course superintendent at the Army-Navy Country Club, Arlington, Va., was elected President of the Superintendents Association. Officers to serve with Mr. Thomas are L. E. Lambert, of the Prairie Dunes Country Club, Hutchinson, Kansas, Vice-President, and Sherwood A. Moore of the Winged Foot Golf Club, Mamaroneck, N. Y., Secretary-Treasurer.

Kenneth Meisnest, manager of the Washington Athletic Club, Seattle, Wash.,

was elected President of the Club Managers. Officers to serve with Mr. Meisnest are John T. Brennan, manager of the Birmingham Country Club, Birmingham, Mich., Vice-President, and John W. Bennett, manager of the San Francisco Commercial Club, San Francisco, Calif., Secretary-Treasurer.

Anniversary Year

This summer brings anniversaries for two of the most notable amateur players in American golf—Bob Jones and Chick Evans.

Thirty years ago Bob Jones compiled his Grand Slam.

Chick Evans was born 70 years ago on July 18th.

Mr. Jones's Slam was put together with these victories in these places:

British Amateur Championship, St. Andrews, Scotland, May 26-31.

British Open Championship, Hoylake, Cheshire, England, June 18-20.

U. S. Open Championship, Interlachen Country Club, Minneapolis, July 10-12.

U. S. Amateur Championship, Merion Cricket Club, Ardmore, Pa., Sept. 22-27.

Mr. Jones was only 28 on Grand Slam year—30 years ago.

Mr. Evans won the U. S. Amateur Championships in 1916 and 1920 and the U. S. Open Championship also in 1916.

Cherry Hills Painting

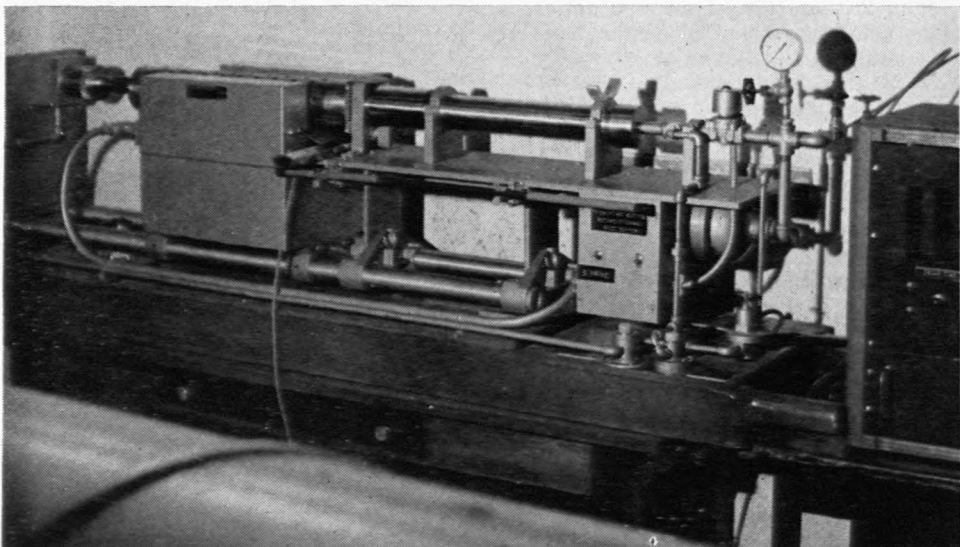
The final hole at Cherry Hills, site of the 60th Open Championship, was the subject of the most recent oil painting given to "Golf House."

The donor was the MacGregor Co., of Cincinnati, Ohio, and the artist was Ralph C. Reynolds. The painting was used by the MacGregor Company on its Christmas Cards and, as tradition dictated, it was presented to the USGA to continue the series of oils of holes where Open Championships were played.

Seven oils are in the series and each now hangs in "Golf House."

Mr. Reynolds is a well known landscape artist. He is a native of Richmond, Ind., and has studied and worked in Cincinnati, Chicago, Detroit and Dayton.

KEEPING BALL AND COURSE RELATED



The new USGA ball testing machine measures "coefficient of Restitution"—a scientific way of saying, Resilience.

In a half century the length of championship golf courses in many cases has increased by one-sixth—17 per cent.

In 1910 the Philadelphia Cricket Club's 5,956-yard course was adequate for holding the Open Championship. This year the 7,004-yard course of the Cherry Hills Country Club at Denver will be the site of the Open.

The expensive lengthening of courses has been made necessary primarily by the increased liveliness of the ball. Many courses which once were considered fine tests, are today inadequate.

Thus the lengthening of the game has had several undesirable effects: (1) the relation of the ball to the course has been distorted; (2) the cost of golf has increased as courses have been stretched, for this has required more land, more taxes, more maintenance; (3) the game has been slowed as the time required for a round has increased.

The USGA has long been concerned with limiting the distance qualities of the golf ball, as one element to control. Since 1942 the USGA Rules have specified not only size and weight restrictions but also maximum velocity at impact. A test machine in "Golf House" measures velocity.

Now the USGA has a new device for testing the resiliency of balls. It is the result of several years of research by Arthur D. Little Inc., scientific consultants in Cambridge, Mass.; Dr. William E. Gordon headed the team which designed the new machine.

The machine gives basic data on the resilience properties of the golf ball. The device acts very much like a golf stroke in certain important respects.

However, it functions in reverse: the "club," instead of moving, is initially stationary, and the ball is shot against it from an air gun. The ball's speed before it hits the "club" (or target) is clocked by an electric-eye device; then, when it bounces back through the same set of light beams, its speed is clocked again.

The ratio of the two speeds is used to calculate the so-called "coefficient of restitution," the scientific term for resilience.

A unique feature of the new device is the cancellation of errors; no calibrations are needed, and the result can always be relied upon.

The USGA has not yet determined a change in Rule based on tests possible with the new device.

NEW COURSE RATING SYSTEM

AN AID IN HANDICAPPING

By

Herman M. Freydberg
Chairman, Handicap
Procedure Committee

Joe picked up his ball after holing out on the 16th green, and remarked with disgust to his friend Frank:

"That's the fourth time you've beaten me even though I've played well. Something is wrong—why do we have the same handicap?"

Joe was dead right. Something indeed was very wrong. Let's try to find out what it was, and whether anything could be done about it.

Each man played to a 14 handicap, but Joe came from a district in which the course raters were liberal-minded. His home course was rated at 73, and the best 10 of his last 25 scores averaged 89, giving him a USGA handicap of 14. Frank came from a neighboring district in which the course raters were severe; although his home course was comparable to Joe's, the course rating was 70. Frank's best 10 of his last 25 scores averaged 86 and he also received a 14 handicap.

The trouble is clearly apparent—all golf courses must have course ratings based on the same set of values, or else handicaps will not be in line.

The USGA Handicap System has been functioning well since its adoption, but district golf associations have been aware for some time that course ratings established by their own course rating committees might be quite different from the course ratings set up in neighboring districts by other course rating committees, whose interpretation of values might be at variance. Consequently, the USGA last year appointed a special committee to study this problem and try to refine the USGA Course Rating System so as to promote further uniformity and equity in ratings throughout the country. The committee was headed by William O. Blaney of Boston, then Chairman of the Handicap Procedure Committee, whose vast experience and wide knowledge of the subject made him uniquely qualified to coordinate and to evaluate all the facts which had to be assembled. His committee



Herman M. Freydberg

consisted of men from various sections who had experience as well as sound theory in all phases of handicapping.

Simplicity Necessary

The first point was obvious. The system had to be simple and yet thorough, so it was necessary to establish a preliminary yardstick so that all course rating committees would start with the same basis.

For some time two schools of thought had existed. The Massachusetts Golf Association had sponsored the idea of the theoretical scratch golfer against whose performance all courses were to be rated. The Chicago District Golf Association had developed the fractional par method of rating courses based on actual perform-

ances recorded for individual holes. Both methods had certain merit, so now those two ideas have been blended together in the new USGA Course Rating System.

The principal change is that there is a new starting point based purely on the yardage of a hole. Length valuations were established for drives, second shots and shots to greens—all based on the concept of the present-day scratch golfer. From this was developed a Yardage Rating Chart which took into consideration adjusted values for the so-called "easy par" hole as well as the "hard par" holes.

As a starting point, each hole is consequently assigned a preliminary yardage rating in fractional figures, based on .05-of-a-stroke step-ups. Of course, measurements must be accurate so that these ratings are a true reflection of the distances involved. This is STEP 1.

Rating Factors

Next, since all golf holes present different playing problems, a standard of values had to be set up. What was the reasonable width of a fairway, clear of all obstacles and hazards, at the point where the ideal drive would land? How wide should a green be for a fair target shot of 200 yards—150 yards—100 yards? What about slopes—character of rough—number of traps—dog-legs—proximity of out of bounds—texture of turf—"short" playing holes—"long" playing holes—smoothness of putting surfaces, etc.?

So the committee, after examining records and consulting golf course architects, set up a standard of values for all these RATING FACTORS. Adjustments for these factors in .05-of-a-stroke over and under the standards are then applied to the original yardage rating for each hole. The result is called the HOLE RATING. This is STEP 2.

Now, after the 18 HOLE RATINGS are totalled, another element must be considered. Some courses are wide open and permit a golfer to "let out," whereas others are tight and compel him to play more cautiously and perhaps "steer" his shot. Some courses are splendidly conditioned and lies are excellent, whereas others are not well kept and frequently give poor lies. Still others have many out of bounds close to the playing area or an unusual number of water hazards or ex-

NEW MEMBERS OF THE USGA

REGULAR

Pinehurst Country Club	Colo.
Fitzgerald Country Club	Ga.
Bureau Valley Country Club	Ill.
Iberia Golf & Country Club	La.
Colonial Golf Club	Md.
Ocean City Golf & Yacht Club	Md.
Brentwood Country Club	N. Y.
Wayne Hills Country Club	N. Y.
Springfield Country Club	Ore.
Cactus Heights Country Club	S. D.
Jolly Acres Country Club	S. D.
Beaver Brook Golf & Country Club	Tenn.
El Lago Country Club	Texas
Shady Oaks Country Club	Texas

ASSOCIATE

Marin Golf Club	Calif.
Mount Plymouth Country Club	Fla.
Maui Municipal Golf Course	Hawaii
Fairway Club	Ky.
Smallwood Golf Course	N. Y.
Devil's Elbow Golf Club	Va.

ceptionally heavy rough, while some courses have few penalty areas and light rough.

To allow for these variations, a final overall adjustment is made to the total of the 18 hole ratings, and this produces the COURSE RATING. Since this figure is almost always fractional, the course rating is then rounded out to nearest whole number. This is STEP 3.

These three steps—yardage rating—hole rating—course rating—are the basis of the new USGA Course Rating System.

Rating Committee

Individual clubs should not do their own rating; this is the function of the rating committee of the district, sectional or state golf association. The members of this committee should be experienced low handicap golfers who, throughout the process of rating, must keep the image of the theoretical scratch golfer in mind. In the opinion of men who have had considerable experience with this complex subject, the new USGA Course Rating System should give each golf course a rating uniformly arrived at and equitably comparable to every other. Then, when the USGA Handicap System is applied (the use of the best 10 of the last 25 scores), the result should be a fair handicap for the golfer regardless of what district he comes from.

New System At Work

Let's get back to our two friends, Joe and Frank. How does the new USGA

Course Rating System affect them? Since the course raters who had set up 73 for Joe's home course had been too liberal, the new system changes the rating to 71. Therefore, Joe's average of 89 for the best 10 of his last 25 scores now gives him a 15 handicap. In Frank's case, the course raters had been too severe and the new course rating now moves from 70 to 71 (both courses being comparable, the ratings are alike). Frank's average of 86 for the best 10 of his last 25 scores now gives him a 13 handicap. From this point on, Joe receives two handicap strokes from Frank whenever and wherever they play, and the result will undoubtedly be more equitable.

The new USGA Course Rating System applies to women as well as men. The principles remain the same except for two points.

First, there are separate Yardage Rating Charts which reflect reasonable differences between the length of men's and women's shots.

For example: The men's Yardage Rating Chart at key points shows exactly 220 yards as the difference for one full stroke of rating, whereas the same key points in the women's Yardage Rating Chart shows exactly 185 yards as the difference for one full stroke of rating. Here is a comparison of these key points:

YARDAGE RATING CHART

Rating	Men	Women
3.00	155 - 165 yards	133 - 141 yards
3.50	256 - 265	218 - 225
4.00	375 - 385	318 - 326
4.50	476 - 485	403 - 410
5.00	595 - 605	503 - 511

The second difference between Course Rating for women and for men is in the category of Rating Factors. Here the recommended areas for approach shots for women is set up as 4.00 yards of green width for every 25 yards of distance, whereas the basis for men is 3.50 yards of green width area for every 25 yards of distance. Complete information is available in the new USGA booklets which have just been printed. *

Naturally, the task of measuring and rerating golf courses throughout the United States cannot be done overnight. Therefore the USGA has set a two-year period for district golf associations to undertake this program. Present course

ratings will be valid until each district golf association has completed the rerating of all courses within its jurisdiction or until the end of 1961, whichever is earlier.

*USGA GOLF HANDICAP SYSTEM FOR MEN with USGA Course Rating System, 48 page booklet, 25¢ each. Contains recommendations for computing USGA handicaps and for rating courses. Also available USGA Slide Rule Handicapper, 25 cents.

THE CONDUCT OF WOMEN'S GOLF with USGA Handicap System and Course Rating System, 64 page booklet, 35¢ each. Booklet also includes tournament procedures and suggestions for women's golf in clubs and associations.

LEAVING AN ADDRESS

Boy, if the phone should ring—
If any one comes to call,
Whisper that this is spring—
To drop in again next fall;
Say I have a date on a certain tee
Where my friends, the sand traps,
wait in glee,
And tell him the doc has ordered me
To keep my eye on the ball.

Boy, if they wish to know
Where I shall haunt the scene,
Tell them to leave and go
Out by the ancient green;
Tell them to look where the traps are
deep
And the sand flies up in a powdered
sweep,
And out of the depths loud curses
creep
To the flash of the niblick's sheen.

And then, if the boss should sigh
Or for my presence seek,
Tell him the truth—don't lie—
Say that my will is weak;
For what is a job to a brassie shot,
That whistles away to an untrapped
spot,
To the thrill of a well-cut mashie shot
Or the sweep of a burnished cleek?

GRANTLAND RICE

A NINE-HOLE ROUND WITH THE NEW RULES

By

JOSEPH C. DEY, JR.
USGA Executive Director

If you have time for just a short round, let's play nine holes with the more important changes in the Rules of Golf which became effective at the start of this year.

Below is a little quiz. On page 20 are the answers, together with references to the Rules which apply.

For every one of the nine questions you answer correctly in every respect, score yourself a par 4. If you are wrong in any particular, count 5 for that particular question. A par round for this short course will, of course, be 36; but you should be reasonably satisfied with anything under 39.

Ready? It's your honor:

1. Among the dissimilar penalties in the Rules are the two following classes:

X. Loss of distance only.

Z. Either (1) Loss of stroke and distance or (2) One stroke for dropping directly behind position in question.

Which class of penalty applies to ball in each of the following (indicate X or Z):

A. In water hazard

B. Lost

C. Out of bounds

D. Unplayable

Bad Luck? (Rule 22-2c)



2. Ball on putting green may be cleaned (check which):

A. Stroke play only

B. Four-ball play only

C. At any time

D. Match play only

3. A provisional ball is permitted for ball which may be (check which):

A. Out of bounds

B. Lost

C. Unplayable

D. In water hazard

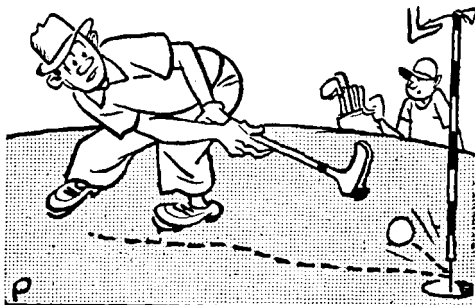
E. In ground under repair

4. Ball is in water hazard but lying on grass, within two club-lengths of masonry retaining wall of hazard. Stroke is interfered with by retaining wall. May player drop ball in hazard so as to avoid interference with wall, not nearer hole?

A. Yes

B. No

**A Very Obedient Caddie
(Rule 34-1)**



5. Damage to putting green caused by impact of ball may be repaired (check which):

- A. With peg tee only
- B. By stepping on ball mark
- C. By any method except stepping on ball mark
- D. With putterhead only
- E. With thumb only
- F. Only when player himself has caused damage
- G. Regardless of who caused damage

6. Ball is on putting green. Loose impediment (leaf) lies partly under ball. Player moves loose impediment and ball moves. Check proper ruling:

- A. No penalty; replace ball
- B. One stroke penalty; replace ball
- C. One stroke penalty; play ball where it comes to rest

7. Player tells his caddie not to attend or remove flagstick. Caddie obeys, and stands off green. After stroke, ball appears to be heading directly for hole.

A. May player now direct caddie to rush up and remove flagstick?

(Yes or No)

B. May caddie remove flagstick of his own volition?

(Yes or No)

8. Ball is dropped away from obstruction in rough. It rolls 10 yards down a hill into an almost unplayable position under a bush, not nearer hole. Check appropriate ruling:

A. Ball must be played as it lies.

B. Ball may be re-dropped; if slope of ground causes ball to roll under bush after several re-drops, ball may be placed.

9. When you have dropped a ball but have not played it, may you lift the ball without penalty if:

A. You have dropped it in a wrong place, though under the right Rule

(Yes or No)

B. You have dropped it under a Rule which does not apply

(Yes or No)

C. You have dropped it in a right place under the right Rule

(Yes or No)

Local Rule? (Rule 35-1d)



A Leaf - A Green - A Ball (Rule 35-1b)



NATIONAL GOLF DAY

JUNE 11 - TARGET \$100,000

Try to
Beat A
Champion

A target of at least \$100,000 has been set for proceeds from National Golf Day of 1960.

Saturday, June 11 will be the day Bill Casper, Jr., the USGA National Open Champion, and Bob Rosburg, the Professional Golfers' Association Champion, meet at the Firestone Country Club, Akron, Ohio, in an 18-hole "Round of the Champion."

Other golfers throughout the country—amateurs, professionals, men, women, juniors and seniors—are asked to pay entry fees of \$1.00 each and to play National Golf Day rounds at almost any private, semi-public or public links course they may choose between June 5 and 11.

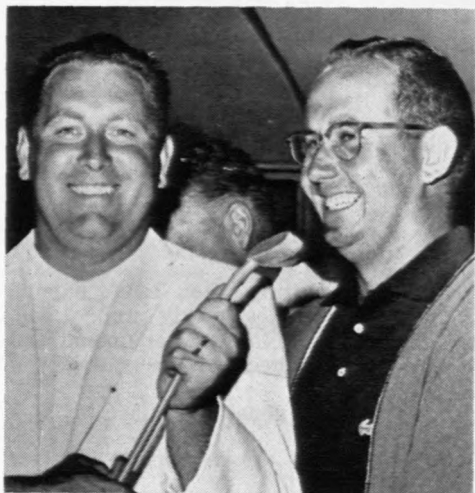
They will be competing against the winner of the "Round of the Champion." Those who outscore the winner of the Casper-Rosburg match—using their handicaps, of course—will receive National Golf Day medals from the PGA of America.

Men amateurs will play their normal USGA or other handicaps. Ladies will be permitted to use their regular handicaps plus seven strokes. The Callaway Handicap System can be used to fix handicaps for those without club handicaps.

Each golfer may play as many rounds as he wishes, the only requirement being that he pay \$1.00 for each round and that he turn in his card after each round.

Receipts from the PGA-sponsored event topped the \$90,000 mark last year for the first time since 1955. The PGA and others have planned a stronger campaign for 1960 in an effort to boost the return to more than \$100,000.

Net proceeds go to a variety of very constructive and non-profit golf programs, including the U.S.G.A. Green Section Research and Education Fund, Inc., PGA Educational Relief and Benevolent Funds, caddie scholarship funds, veterans rehabilitation programs for blind and amputee golfers, golf at Armed Forces installa-



Bill Casper, Jr., the National Open Champion, meets Bob Rosburg, the PGA Champion, June 11 in the annual National Golf Day "Round of the Champion" at the Firestone Country Club course, Akron, Ohio.

tions, junior golf and other worthwhile projects. Such projects received \$666,000 between 1952 and 1959.

During the last eight years more than \$725,000 has been realized annually from National Golf Day.

The Golf Day program of competing against the National Open Champion was originated by Life Magazine. In 1958 the format was changed to the present style. In 1958 the PGA Champion, Lionel Herbert, defeated the National Open Champion, Dick Mayer, 71 to 76, at Southern Hills Country Club, Tulsa, Okla.

Last June Dow Finsterwald, the PGA Champion, defeated Tommy Bolt, the National Open Champion, 67 to 68, at Happy Hollow Country Club, Omaha, Nebraska.

The site of the Casper-Rosburg match will be the site of the PGA Championship from July 21-24.

LINDRICK AND ST. DAVID'S, TO TEST CURTIS CUPPERS

By

STERLING G. SLAPPEY,
USGA Assistant Director

For years the folk around Lindrick, Nottinghamshire, England, have been so keen on golf that they maintained at a railway station a small but well-tended hole for practice use as they waited for their trains.

With such a love as this you can imagine the resentment stirred up when the German Luftwaffe ran a stick of bombs alarmingly near the Lindrick Golf Course during World War Two.

Into this hotbed of golfers seven young American women launch themselves on May 20-21 in search of a Curtis Cup victory. The members of the American team are:

Miss Judy Bell, 23, Wichita, Kansas.

Miss Joanne Goodwin, 23, Haverhill, Mass.

Miss Judy Eller, 19, Old Hickory, Tenn.

Miss JoAnne Gunderson, 20, Kirkland, Wash.

Mrs. Ann Casey Johnstone, 37, Mason City, Iowa.

Miss Barbara McIntire, 25, Lake Park, Fla.

Miss Anne Quast, 22, Marysville, Wash.

Non-playing Captain is Mrs. Henri Prunaret, Chairman of the USGA Women's Committee.

Alternates are:

Miss Barbara Williams, Richmond, Calif., Mrs. Paul Dye, Jr., Indianapolis, and Mrs. Mark A. Porter, Westmont, N. J.

The last four of America's biennial Curtis Cup teams managed to win only once against the British, while losing twice and halving on another occasion. The British presently hold the Curtis Cup on the strength of having been the holder at the time of the last halved match in 1958.

The venue for the 1960 match will be the Lindrick Course, which is near the town of Worksop and only a few miles from the geographic heart of England. The course, besides being a good inland course, is notable as the site of Britain's only recent victory in Ryder Cup matches.



Mrs. Henri Prunaret

British men professionals won there in 1957 against an American team.

At one time the first green at Lindrick was noted locally as the amphitheater for some of the best cock fights in Central England. But that was many years ago, and now the bit of moorland near the meeting place of Yorkshire, Derbyshire and Nottinghamshire is used just for golf.

Lindrick is a tight course with an extra amount of bunkers and an approximate par of 71. Its length is 6,471 yards. England can be wet in mid-May but Lindrick rests on a shelf of rock and its drainage is rapid. The going is likely to be good.

For the Americans who think of British courses only in terms of The Old Course at St. Andrews, of Hoylake or of Muirfield, the Lindrick course would be a surprise. In several ways it looks and plays like some American courses.

A second course in Britain where the American women will play this spring is much closer to the concept of a British seaside links. It is Royal St. David's at Harlech, North Wales, where the British Women's Amateur Championship will be May 30-June 2. The American Curtis Cup players intend to compete.

St. David's lies just by Cardigan Bay, which is part of the Irish Sea. A tremendous old castle sits on a hill and you never seem to get out of sight of it.

Snowdon Mountain is in the distance and altogether the site is a grand one for golf.

Strangely golf came to St. David's by way of Australia. Apparently the game was introduced to a Briton while he was in Australia. He returned to the home island and introduced it at Harlech. The course laid out was given the name of Wales' Patron Saint, St. Dai, or St. David in English.

Dunes dot St. David's and many a shot must be hit in a low trajectory through a saddle in the hills to a green you cannot see until you are right on it. A high ball can be blown completely off course along the windy Welsh Coast.

The American Curtis Cup team flies from New York to London by jet aircraft May 13. A charter bus takes the team and its entourage straight to Ye Olde Bell Hotel, Worksop.

Practice sessions will be held through May 19. The three foursomes over 36 holes will be played May 20 and the six singles over 36 holes will be May 21.

The team then disbands, and its members will return to London May 22 for a few days of relaxation and sightseeing before the British Championship at Harlech.

After the British Championship, some of the American players will return home and others will go on European holidays.

Following are biographical data about the team:

Miss Judith May Bell was born in Wichita, Kansas, on September 23, 1936, and still lives there. She is in her last year at Arizona University. Her most notable performance was reaching the quarter-finals of the 1959 Women's National Amateur Championship. She has won the Kansas State Championship three times. During 1959 she also was quarter-

finalist in the Women's Western Amateur and the North and South. She was runner-up at both the South Atlantic and Florida East Coast tournaments. Her favorite shot is with the wedge.

Miss Judith Carol Eller, the youngest member of the Team, is a newcomer to international competition. She was born August 24, 1940, at Old Hickory, Tenn., where she still resides.

Her biggest golf thrill came in winning the National Girls' Junior Championship for the second year in a row in 1958. Miss Eller's 1959 record included victory in the National Collegiate, the Tennessee State and the Southern Championships. During the 1959 Women's National Amateur she lost in the quarter-finals on the 22nd hole to Miss Joanne Goodwin. She is in her second year at the University of Miami of Florida. One of her hobbies is collecting hats. The wedge shot is her favorite.

Miss Joanne Goodwin is a new member of the Curtis Cup Team. She was born in Plymouth, Mass., February 27, 1936, very near the site where the Pilgrim fathers landed, and now lives in Haverhill, Mass. Her favorite shot is with the wedge. Her occupation is bookkeeping and her hobbies outside golf are domestic . . . sewing, knitting and baking.

In 1959 Miss Goodwin was runner-up in the Women's National Amateur, the North and South, and the Doherty Tournament in Florida. She tied for second low amateur in the Women's National Open and was second in the Eastern Championship (amateur). In 1958 she lost to Scotland's Mrs. George Valentine in the fourth round of the Women's National Amateur.

Miss JoAnne Patricia Gunderson's favorite shot is one that isn't universally loved—the bunker shot from sand.

Miss Gunderson is making her second Curtis Cup appearance. In the 1958 match she defeated Mrs. George Valentine. Partnered with Miss Anne Quast, she lost her foursome against Mrs. Frances Smith and Miss Jeanette Robertson by 3 down and 2 to play.

Biographicals continued page 14



Miss Judy Bell



Miss Joanne Goodwin



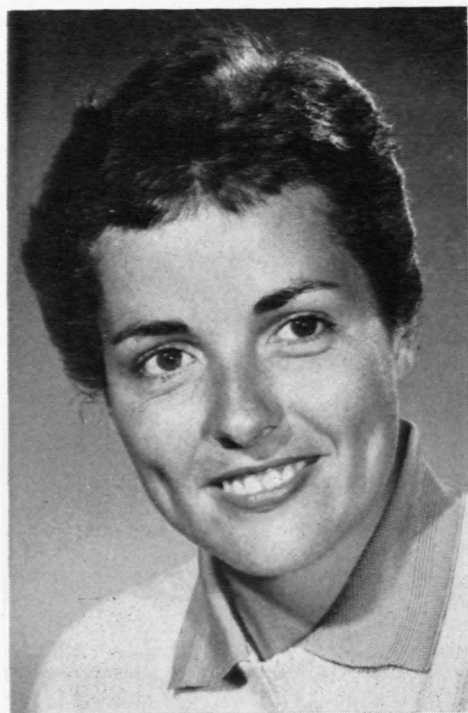
Miss Judy Eller



Miss JoAnne Gunderson



Mrs. Ann Casey Johnstone



Miss Barbara McIntire



Miss Anne Quast

Miss Gunderson's record in the Women's National Amateur Championship is one of the finest in recent years. In 1956 when she was 17 years old she was runner-up to Miss Marlene Stewart. Next year Miss Gunderson won the Championship. In 1958 she lost in the semi-finals to Miss Quast, who went on to the title. Last summer she lost in the fourth round.

In 1959 Miss Gunderson won the Western Amateur and she was low amateur in the Western Open, scoring 299, which put her in a tie with Professional Patty Berg for second place in overall scoring.

Miss Gunderson was born April 4, 1939. Her home is in Kirkland, Wash. She attends Arizona State University.

Mrs. Ann Casey Johnstone won the 1959 North and South and the Trans-Mississippi Tournaments. She lost in the third round of the Women's National Amateur. In 1958 she lost in the quarter-finals of the National and in 1957 she went to the finals. Also during 1957 Mrs. Johnstone was runner-up in the North and South, the Western Amateur and the Trans-Mississippi. She played on the 1958 Curtis Cup Team. In singles she lost to Miss Janette Robertson and in foursomes she and Miss Barbara McIntire defeated Miss Bridget Jackson and Mrs. George Valentine.

Mrs. Johnstone was born February 14, 1922, at Mason City, Iowa, where she still lives. She attended the University of Iowa. Her husband, Les Johnstone, is also a fine golfer. They have a daughter, Jean Ann Johnstone. Mrs. Johnstone's favorite shot is the drive and she has aced two holes. Her conspicuous interests include church work and assistance to retarded children.

Miss Barbara Joy McIntire is the present Women's National Amateur Champion. She also gained the high distinction in 1956 of tying with Mrs. Kathy Cornelius, professional, for the Women's National Open title. Miss McIntire lost in the play-off.

She was a member of the 1958 Curtis Cup Team, halving her singles against Mrs. Michael Bonallack and joining Mrs. Ann Casey Johnstone for a victory in foursomes against Miss Bridget Jackson and Mrs. George Valentine.

Besides winning the Women's National Amateur last year, Miss McIntire was tied for second low amateur in the Women's National Open, was low amateur in the Titleholders, and the Palm Beach Championship. She won the Western Amateur in 1958 and the North and South in 1957.

Miss McIntire was born January 12, 1935, in Toledo, Ohio, and now lives in Lake Park, Fla. She attended the University of Toledo and Rollins College. She is a real estate saleswoman. Her hobbies are art and reading. Her favorite shot is the drive, and she has scored one hole-in-one.

Miss Anne Karen Quast will be making her second appearance on the Curtis Cup Team. In the 1958 match she defeated Miss Elizabeth Price in singles; in foursomes she and Miss JoAnne Gunderson lost to Miss Janette Robertson and Mrs. Frances Smith.

In the last five years of the Women's National Amateur Championship, Miss Quast won the title in 1958, was a semi-finalist in 1956 and a quarter-finalist in 1955, 1957 and 1959. Miss Quast has an excellent record in stroke play also. She was low amateur in the last two National Open Championships. In the 1957 Titleholders tournament for amateurs and professionals, Miss Quast was runner-up by three strokes to Professional Patty Berg. She had 299.

Miss Quast was graduated from Stanford University last year. She was born August 31, 1937, at Everett, Washington, and her home is in Marysville, Washington. One of her hobbies is playing the piano.

Mrs. Henri Prunaret, Natick, Mass., the non playing Captain of the American team, was the United States Senior Champion in 1953. She is Chairman of the USGA's Women's Committee and President of the United States Senior Women's Golf Association. She is a past president of both the Women's Golf Association of Massachusetts and the Women's Eastern Golf Association. Mrs. Prunaret's hobbies include not only golf but also beagling and curling. She attended Briarcliff College.

The Rush Job

I am a RUSH job.
I belong to no age, for men have always hurried.
I prod all human endeavor.
Men believe me necessary—but falsely.
I rush today because I was not planned yesterday.
I demand excessive energy and concentration.
I over-ride obstacles, but at great expense.
I illustrate the old saying, "haste makes waste."
My path is strewn with the evils of overtime, mistakes and disappointments.
Accuracy and quality give way to speed.
Ruthlessly I rush on.
I am a RUSH job!

GOLF FOR YOUNGSTERS IN OKLAHOMA AND VERMONT

Many successful programs are being conducted by clubs and associations for the golfing development of boys and girls. The USGA JOURNAL is pleased to present two fine examples.

OKLAHOMA JUNIOR TOURNAMENT

By Mrs. Carl Hotz, Junior Chairman,
Women's Oklahoma Association

Our program has been primarily one of education. We send no girl on the golf course without a woman accompanying the pairing to instruct the girls regarding scoring, rules, etiquette and golf course care. Our pros compliment us on the condition of the course at the close of our tournament. We feel this kind of supervision is paying good dividends and that our tournament will be welcome anywhere.

We find if we can get a girl into her first tournament, we have sold her on golf, so we try to make it very attractive. We require our babies, or Pee-Wees, under 12 years of age, to play only three holes. These usually are No. 8 and No. 9, with a specially prepared hole about 60 yards long. In this manner, we can start the young ones early, at 7 A.M., and have them out of the way of the older girls, together with getting them out of the heat of July, which is something to consider in Oklahoma.

We have three flights of Pee-Wees, playing three days straight medal score, with the 11-year-olds making the first flight, the nine and 10-year-olds the second, the seven and eight year olds the third flight. These Pee-Wees are not required to shoot out of the sand traps, but are allowed to lift out to the entrance to the green, with a 1-stroke penalty, as we wish to encourage them, rather than discourage.

Our next group plays only nine holes, and they are divided into flights by age, as well as ability. They are required to submit three average scores with their entry blanks, in order to pair them properly. We do not require a 12-year-old shooting 60 to play against a 16-year-old

VERMONT INTERSCHOLASTIC

By Leslie W. Mercer, Treasurer
Vermont State Golf Association

Several score young golfers are swinging around the courses of Vermont this spring in a statewide program that is encouraging more school boys and girls to take up the sport.

The Executive Committee of the Vermont State Golf Association had felt for some time there were not enough young golfers coming along, but we knew, in order to increase interest, that we would have to have a definite program. Since I was president of the Vermont State Golf Association at the time, I met with Dr. A. John Holden, Commissioner of Education for the State of Vermont, in the spring of 1956 to discuss the possibilities of a Green Mountain State Interscholastic Golf Program.

Dr. Holden was very enthusiastic and this led to a series of meetings with Raymond B. Magwire, Director of Health and Physical Education; Dr. O. Meredith Parry, President of the Vermont Headmasters Association, and Leonard E. Quintin, Secretary of the VSGA. Educators hailed the move as a welcomed addition to sports activities in the high schools but it was stressed that this program, being a school project, would have to be sponsored by the Vermont Headmasters Association with the cooperation of the Vermont State Golf Association, the Headmasters Association donating the prizes.

A plan was worked out with the Headmasters whereby a committee of six was appointed, under the co-chairmanship of George G. Smith of Rutland and Joseph M. Harty of Bellows Falls, to represent the Golf Association and assist the Headmasters Association, headed by Principal John J. Herbert of the Winooski High

Oklahoma, cont'd.

shooting 60, as the older girl has the advantage of four years maturity in thinking as well as coordination. This year we had six 9-hole flights, averaging 13 to 15 girls to a flight, with a total of 88 girls. We should have at least 15 more next year, as the 11-year-old group moves up from the Pee-Wees. These girls play three days straight medal, with four places being awarded in each flight. The better players in each age group make up the first flights, with the poorer players dropping into the lower flights. We try to use common sense in separating the girls to make it fair for all.

Our 18-hole players are the ones we are very proud of, and we have a champion each year shooting in the high 70s and the low 80s. Each year we lose some girls as they outgrow us, and we have 9-hole players graduating to the 18-hole flight, and the Pee-Wees stepping up to 9 holes. Our championship cup is held up to them each year as the big goal to attain, and they are very serious about continuing to the top. The past two years we have awarded two traveling cups, which were donated, as progress awards to the girls improving their scores the most since the year before. In the Pee-Wee flights, we have a plaque awarded for the same purpose, with a smaller one for the runner-up. This is stimulating the girls really to work on improving their games.

Our three 18-hole flights, of eight girls each, qualify for position, playing match play for the next three days. We award trophies to the winner, runner-up, consolation winner and runner-up in each flight. On the last day of the tourney the medal players are finished and are privileged to watch the match play finals in these three flights.

Since our tournament is not self-supporting, with only a \$3 entry fee, our Women's Golf Association for Oklahoma underwrites our deficit and sponsors this tournament. We ask our host club to furnish the banquet for the girls each year, with other clubs alternating on a picnic and swimming party. The clubs have been most gracious and helpful, and the girls have a wonderful time. The girls work up skits and songs for the entertainment of their parents at the banquet, and the mothers and daddies wouldn't miss it for the world.

This tournament requires a great many workers, and we have had wonderful cooperation from not only the mothers of the girls but all golfers in this area. In fact, our best supporters are women without children, as they really have more time than the busy mothers. We use around 50 to 60 women each day to score these children, and feel very gratified when they leave their air-conditioned homes to tramp around the golf course in our 95 to 105-degree weather. We have had excellent cooperation from the pros around the state, and feel we are still growing.

Most of the pros at our country clubs conduct a six-week lesson class following the close of school; quite a number of them give this instruction free to the children of club members. In addition, for our own club, The Oaks, in Tulsa, we make arrangements with the assistant pro to meet with a large group of girls two nights a week at a public driving range to give a series of ten lessons for \$5, which gets the girls started during April and May.

Our method of handling the Junior State Tournament has been worked out by a trial-and-error method over a period of ten years, with many mistakes and improvements each year. We have seen the tournament grow from an entry of 19 the first year to 158 in 1959. For 1960, we are planning on having the Pee-Wee flights play on a separate par-three course, as the number of players (45) precludes scheduling them on the same course with the rest of the tournament.

Vermont, cont'd.

School. In turn this committee named a representative at each club in the state and it was his duty to work with the local high school principal and obtain a competent instructor if the high school coach was not acquainted with the sport.

The country clubs throughout the state voted to allow all high school boys and girls to practice and compete on their courses without charge until school closed and then again in the fall. Golf professionals have cooperated and given assistance to these youngsters in developing their games. While there has been no planned schedule of inter-school team matches on a statewide basis as yet, the

athletic associations of some schools have included golf in their sports activities.

In the fall of 1956 the first Interscholastic Championship for both boys and girls, and a Team Championship for boys, were held with more than 100 players participating. Each year the entry has grown so that now it is necessary to have northern and southern championships, with a play-off for the state title. Girls and boys play on different courses because of the number of entries. Much credit for the success of interscholastic golf in Vermont goes to John McDonough, Executive Secretary of the Vermont State Golf Association, who has acted as tournament director.

We know that teamwork has made this program a success, with the Headmasters Association in control, as it is a school athletic project, and the Vermont State Golf Association in the background as guiding hands. That this program is now paying off is shown by the increase in memberships in the various clubs throughout the state, and some of these young people are serious threats in the men's and women's state amateur championships and other tournaments.

HANDICAP DECISION

SCORES UNACCEPTABLE: NOT UNDER RULES

USGA Handicap Decision 60-1

References: Men: Sections 4-1 and 13-1

Women: Sections 14-1 and 22-1

Q: A foursome participated in a tournament and inadvertently played "improving your lies" instead of "as they lie" and they were disqualified from the tournament.

Since the foursome was disqualified from the tournament, should their scores for that particular round be considered in determining their future handicap?

Question by: A. J. CRISTADORO
New Orleans, La.

A: No. Scores for handicapping must be made in accordance with the Rules of Golf unless conditions are so bad generally that the local committee frames a local rule permitting preferred lies. (See Sections 4-1 and 13-1 of USGA Golf Handicap System for Men.)

In the case you cite, since there was no such local rule in effect at the time, the scores should not be accepted for use in handicapping.

USGA FILM LIBRARY

"Famous Golf Courses: Scotland," is a 18-minute film in full color. Famous holes were photographed at Troon, Prestwick, Carnoustie, St. Andrews, North Berwick and Muirfield.

"Walker Cup Highlights," is a 16-minute film tracing the early history and play for the first international golf trophy. Bob Jones, Francis Ouimet and other Walker Cup stars are shown. The latter half of the film is in color.

"St. Andrews, Cradle Of Golf," is a 14-minute, full color, 16mm travelogue of historic St. Andrews, Scotland, its Old Course and the Royal and Ancient Golf Club clubhouse.

"First World Amateur Team Championship for Eisenhower Trophy," is a 14-minute, full color, 16mm film of the first World Amateur Team Championship at St. Andrews. Twenty-nine countries compete for the Eisenhower Trophy.

"On the Green," a 17-minute, full color, 16mm presentation filmed at the Mid-Ocean Club, Bermuda, illustrates correct procedures under the Rules of Golf governing situations arising on the putting green.

"Golf's Longest Hour," a 16mm full color production of 17½ minutes, depicts the closing stages of the 1956 Open Championship. Filmed at the beautiful Oak Hill Country Club, Rochester, N.Y., it shows the eventual winner, Cary Middlecoff, set a target at which Ben Hogan, Julius Boros and Ted Kroll strive in vain to beat.

"Play Them As They Lie," a 16mm color production of 16½ minutes in which Johnny Farrell, Open Champion of 1928, acts as intermediary between Wilbur Mulligan, a beginner of unimpeachable integrity, and Joshua P. Sive, a past master in the art of breaking the Rules. The film was made at the Baltusrol Golf Club, Springfield, N. J., where Farrell is professional.

"Great Moments in Golf," lets the viewer see the many interesting exhibits in "Golf House," USGA headquarters in New York, and re-live golf triumphs of the past with many of the game's immortals. The film is a 16mm black and white production and runs 28 minutes.

"The Rules of Golf—Etiquette" stresses the importance of etiquette by portrayal of various violations of the code in the course of a family four-ball match. Ben Hogan appears in several scenes, and Robert T. Jones, Jr., makes the introductory statement. A 16mm color production of 17½ minutes.

The distribution of prints is handled by National Educational Films, Inc., 165 West 46th Street, New York 36, N. Y., which produced the films in cooperation with the USGA. The rental is \$20 per film; \$35 for two; \$50 for three; \$60 for four and \$70 for five, in combination at the same time, including the cost of shipping prints to the renter.

72 QUALIFYING EVENTS TO DETERMINE OPEN FIELD

150
To Play at
Cherry Hills

The qualifying process to determine the 150 players who will compete in the 60th National Open Championship begins May 23.

Local Qualifying Rounds will be played at 59 sites on May 23 and 24 and Sectional Qualifying Championships at 13 sites on June 6 and 7. This will be the second year of double qualifying. All rounds will be over 36 holes in one day at each location.

About 20 percent of entrants in Local Qualifying will advance to the Sectional Qualifying stage; and about 30 percent of entrants in Sectional Qualifying will become part of the 150-player field at Cherry Hills Country Club, Denver, Colo., for play June 16-18.

Of the 150, only 50 and ties compete the last day over the final 36 holes of the Open Championship.

Entries for the Open must be received at the USGA office, 40 East 38th St., New York 16, N. Y., on official forms no later than May 4.

Exemptions

There are seven categories of exemptions from both rounds of qualifying and nine categories of exemptions from Local Qualifying.

Players who are exempt from all qualifying and their categories are:

1. Last five individuals to win Open Championships—Jack Fleck, Cary Middlecoff, Dick Mayer, Tommy Bolt and Bill Casper, Jr.
2. 1959 National Amateur Champion—Jack W. Nicklaus.
3. 1959 Champion of the PGA—Robert R. Rosburg.
4. 1959 British Open Champion—Gary Player.
5. 1959 British Amateur Champion—Deane R. Beman.
6. Head Professional at Cherry Hills—Ralph Arnold.
7. In 1959 Open, 10 lowest scorers and any tying for 10th place, excluding any of the last five individuals to win—Bill Casper, Jr., Robert R. Rosburg,

By A. P. Herbert for the 1959 American Walker Cup Team Luncheon in London given by the Sportsman's Club.

"My ball is in a bunch of fern,
A jolly place to be;
An angry man is close a-stern—
He waves his club at me.
Well, let him wave—the sky is blue;
Go on, old ball, we are but two—
We MAY be down in three,
Or nine—or ten—or twenty-five—
It matters not; to be alive
Is good enough for me.

"How like the happy sheep we pass
At random through the green,
For ever in the longest grass,
But never in between!
There is a madness in the air;
There is a damsel over there,
Her ball is in the brook.
Aht what a shot—a dream, a dream!
You think it finished in the stream?
Well, well, we'll go and look.

"Who IS this hot and hasty man
That shouteth 'Fore!' and 'Fore!'
We move as quickly as we can—
Can anyone do more?
Cheer up, sweet air, enjoy the view;
I'd take a seat if I were you,
And light your pipe again:
In quiet thought possess your soul,
For John is down a rabbit hole,
And I am down a drain."

This is the kind of golf I knew
When I was young and gay:
There is another point of view
When Walker fellows play.
The game is hard, the faces grim:
I trust that in the interim
They have a LITTLE fun.
Good luck, dear guests and may you do
The very longest holes in two—
The Englishman in one!

Claude Harmon, Mike Souchak, Doug Ford, Ernie Vossler, Arnold D. Palmer, Ben Hogan, Sam Snead, Dick Knight, Ted Kroll, Gene A. Littler, Fred E. Hawkins and Dow Finsterwald.

Local Exemptions

Players who are exempt from Local Qualifying and their categories are:

1. All former Open Champions.
2. All former National Amateur Champions.
3. All former PGA Champions.
4. All former British Open Champions.
5. Members of the 1959 Walker Cup team.
6. Members of the 1959 Ryder Cup Team.
7. In 1959 Open, 20 lowest scorers and any tying for 20th place.

8. In 1959 PGA Championship, 20 lowest scorers and any tying for 20th place.
9. 20 leading money-winners and any tying for 20th place in PGA official list for current PGA tour to date of closing entries.

Prize Money

Approximately \$50,000 will be distributed in prize money among professionals who return 72-hole scores. First prize will be \$12,000; 2nd, \$6,000; 3rd, \$4,000; 4th, \$3,000; 5th, \$2,500; 6th, \$2,250; 7th, \$2,000; 8th, \$1,750; 9th, \$1,500, and 10th, \$1,250.

Other prize money will be scaled down to \$200 each for players finishing from 46th to 50th.

LOCAL QUALIFYING ROUNDS

MONDAY, MAY 23, 1960

ALA.	Birmingham
ARIZ.	Phoenix
ARK.	Little Rock
CALIF.	La Jolla
	Los Angeles
COLO.	Denver
CONN.	New Haven
D. C.	Washington
FLA.	Miami Beach
	Ponte Vedra Beach
	Tampa
GA.	Atlanta
HAWAII	Honolulu
ILL.	Chicago
	Springfield
IOWA	Cedar Rapids
KANS.	Wichita
KY.	Louisville
LA.	New Orleans
MD.	Baltimore
MASS.	Boston
MICH.	Detroit
	Grand Rapids
MINN.	Duluth
	St. Paul
MISS.	Jackson
MO.	Kansas City
	St. Louis
NEB.	Lincoln
N. J.	Oradell
N. M.	Albuquerque
N. Y.	Albany
	Glen Cove
	Rochester
	Westchester Co.
N. C.	Greensboro
N. D.	Fargo
OHIO	Cincinnati
	Canton
	Columbus

OKLA.

ORE.

PA.

TENN.

TEXAS

UTAH

VA.

WASH.

W. VA.

WIS.

Oklahoma City

Tulsa

Portland

Harrisburg

Philadelphia

Pittsburgh

Memphis

Nashville

Fort Worth

Houston

Odessa

Salt Lake City

Richmond

Spokane

Tacoma

Huntington

Milwaukee

TUESDAY, MAY 24, 1960

CALIF.

IND.

San Francisco

Indianapolis

SECTIONAL QUALIFYING

MONDAY, JUNE 6, 1960

COLO.

N. Y.

OHIO

WASH.

Denver

Mamaroneck

Cincinnati

Seattle

TUESDAY, JUNE 7, 1960

CALIF.

D. C.

GA.

ILL.

MICH.

MO.

N. Y.

OKLA.

TEXAS

San Francisco

Washington

Atlanta

Chicago

Detroit

St. Louis

Rochester

Oklahoma City

Dallas

ANSWERS TO RULES QUIZ

ON PAGE 8

1. A. — Z. Rule 33-2.
B. — X. Rule 29-1.
C. — X. Rule 29-1.
D. — Z. Rule 29-2b.
2. C. Rule 35-1d
3. A. and B. Rules 29-3 and 30-1.
4. B. Definition 20c. (Rule 31-2 does not apply.)
5. C. and G. Rule 35-1c.
6. A. Rule 35-1b.
7. A. — No. B. — No. Rule 34-1.
8. B. Rule 22-2c.
9. A. — Yes. Rule 22-4a.
B. — Yes. Rule 22-4b.
C. — No. Rule 22-4.



THE REFEREE

Decisions by the Rules of Golf Committees

Example of Symbols: "USGA" indicates decision by the United States Golf Association. "R & A" indicates decision by the Royal and Ancient Golf Club of St. Andrews, Scotland. "60-1" means the first decision issued in 1960. "D" means definition. "R. 37-7" refers to Section 7 of Rule 37 in the 1960 Rules of Golf.

BALL HOLED—IN RAISED CUP LINER

Revised: USGA 59-39

R. 26-1, 26-3b, 34-1, 35-1h. D. 10, 22

Note: This supersedes Decision 59-39 dated October 29, 1959

Q: After a rather heavy rain A and B were playing a somewhat soggy course. B, about to make an approach shot, asked A not to remove the flag. However, after B hit the ball, it appeared from A's position that it was heading directly for the hole, so A decided to remove the flag. When he tried to lift it out, it stuck in the cup. When he gave it a second rather harder yank not only the flag but the cup as well came out of the ground. At precisely the second when the cup was an inch or so above the green B's ball bounced into it. This appears to be a unique and once-in-a-lifetime happening. Could it be considered, under the circumstances, a sunk shot?

Question by: E. CRENSHAW
Carmel, Calif.

A: Stroke play: Yes. A fellow-competitor is an outside agency (Definitions 10 and 22). Should he attend the flagstick without authority and should the competitor's ball strike the flagstick or cup liner (which is an extension of the flagstick), it is a rub of the green and the

ball shall be played as it lies—see Rule 26-1 and Rule 26-3b. Since the ball went into the cup liner, it must be considered as holed. (Note: In the 1960 Rules, this is covered specifically in Rule 34-2b.)

Match play: A lost the hole for violation of Rules 34-1 and 35-1h. B was entitled to have the flagstick unattended and to play for it. Rule 34-1 provides that the flagstick may be attended "only on the authority of the player." A, the opponent, breached that Rule and also Rule 35-1h, which prohibits taking "any action to influence . . . the movement of the ball." (Note: In the 1960 Rules this is covered specifically in Rule 34-2a.)

AID IN GRIPPING: BALL IN HAND

USGA 59-42

R. 2-2f

Q: A player putts with a golf ball held in his left hand against the putter. The object is to apply the pressure on the ball and transmit this pressure to the club and therefore he gets help in this way. Is that considered to break the second part of Rule 2-2f?

Question by: RODOLFO PATRON
Mexico, D. F.

A: Yes.

the ball could not be replaced to be at rest, A should replace it as near as possible to the spot from which it was lifted but not nearer the hole.

Q4: Would the ruling be different if the circumstances as described took place in match play?

A4: No.

Questions by: HERMAN FREYDBERG
New York, N. Y.

BALL LIFTED: WHEN TO REPLACE ON PUTTING GREEN

USGA 59-50
R. 35-3b; LR

Q: In a stroke competition in 1959 (not four-ball) a local rule allowed lifting and cleaning of the ball on the putting green. In the absence of a local rule, nothing in Rule 35-1 or 35-3 allows a fellow-competitor to mark his ball on the putting green in lieu of playing it except upon request of the competitor.

Could not the competitor, whose ball was in a hazard within 20 yards of the hole, legally request the fellow-competitor to replace his ball and leave it or play it at his pleasure?

Question by: GARLAND R. JAMES
Portsmouth, Va.

A: No, unless the local rule expressly permitted.

A comparable local rule recommended by the USGA when conditions warrant cleaning the ball provides that "in match play, the ball must be replaced immediately if the opponent so requests," but there is no such provision in stroke play. (This provision is contained in the 1960 Rules of Golf, under Rule 35-1d.)

It is a basic principle of stroke play that one ball shall not assist another. In the case described, we cannot see why the competitor would have any justifiable interest in having the fellow-competitor replace his ball.

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Better Turf for Better Golf

TURF MANAGEMENT

from the USGA Green Section

Water Use On The Golf Course

The USGA Green Section conducted its fourth annual Educational Program at the Biltmore Hotel, New York, January 29, 1960. The Chairman was William C. Chapin, Chairman of the USGA Green Section Committee. The Vice-Chairman was Edwin Hoyt, Northeastern District Chairman of the USGA Green Section Committee.

Moderators were Alexander M. Radko, Eastern Director, USGA Green Section, and William H. Bengueyfield, Western Director, USGA Green Section. Also participating were James L. Holmes, Mid-Western Agronomist, USGA Green Section, and Charles K. Hallowell, Mid-Atlantic Director, USGA Green Section.

The morning session was devoted to the topic, "The Mechanics of Applying Water."

The afternoon session was devoted to the topic, "Water Requirements of the Golf Course." The talks will be summarized in the June issue of the USGA Journal and Turf Management.

The following papers summarize talks delivered during the morning session.

Introduction

By **ALEXANDER M. RADKO**
Eastern Director, USGA Green Section

Recently we came across a reference to some startling information in the "Water Newsletter." It reports that "the National Cash Register Company has been successful in producing powdered water for industrial use and now moves the reference to powdered water from the level of a TV and radio joke to the real thing. The powder is manufactured by coating tiny particles of water with gelatin. Although dry to the touch, the powder can easily be crushed or dissolved to a liquid state. The producer is adapting the technique to coat bank deposit slips and other forms—so that carbon copies may be made without the use of carbon paper."

It is not beyond the realm of possibility, therefore, that some day we may be watering our golf courses with powdered water in the same manner that we now apply limestone, fertilizer, insecticides, or other dry materials. This would be truly efficient use of water—treating only those areas that need it in the exact quantities desired. This, however, is projecting far beyond the realm of this discussion. We are concerned here with the use of water in the liquid state, as we know it, and its use on the golf course.

What are the requirements for your course and how do you go about determining this factor? The first logical step is to check the rainfall records for your

locale. These can be obtained from your local Weather Bureau. New York City, for example, in its 75 years history, reports that the average rainfall for the 22-week period from April 1 through September 30 was 18.53 inches. Based on the "rule of thumb" assumption that grasses normally require one inch of water per week, theoretically, to span this critical 22-week period, we need only to supplement with 3.47 inches of artificial water to satisfy our requirement. Actually, because of the usual erratic distribution of rainfall, we should allow for at least double this amount, according to most irrigation specialists, in order to be on the safe side.

What does this mean in gallons? The average golf course has approximately 45 acres in fairways. It takes approximately 1¼ million gallons to provide one acre inch of water to 45 acres. To satisfy our requirement of applying 3.47 inches it would take approximately 4¼ million gal-

lons of water. To be on the safe side, therefore, it would be necessary to have approximately 8½ million gallons of water for irrigation purposes for an average golf course in or around the New York Metropolitan Area. This is the average situation; actually, there are courses in this area that use less water yearly, and there are courses that use more. From Weather Bureau records available each of us could work out the requirement for any specific area in the nation.

Water is one of our most precious natural resources. With the increase in population and growing industrial uses, there is growing concern that as a nation we are running out of water, and many states are closely re-examining their water policies with an eye toward new and adequate legislation on this problem. There is no room for water waste as a nation, nor is there room for waste on the golf course.

Water Distribution Systems

By E. R. STEINIGER

Member, USGA Green Section Committee, and Golf Course Superintendent, Pine Valley Golf Club, Pine Valley, N. J.

Fundamentals and standards have been developed for water distribution systems. However, the application of these standards will vary with the use made of the systems. For turf development and maintenance this variation is obvious. Differences in soil, terrain, type of grasses grown, degree of maintenance, all affect the system used. The watering practice for any course must be adapted to meet local conditions, otherwise the watering system can become a liability instead of an asset.

Several items will be covered by my remarks on our experience with water systems at Pine Valley.

Many of you know that our course is built on very sandy soil. Without an adequate supply of water it would be impossible to produce good golfing turf. Fortunately, we are blessed with an abundant supply of good water at all times. This water comes from several spring-fed lakes on the course.

In 1912 when our first holes were built, a temporary water system was installed. The water was supplied from three lakes at different locations on the course. The

power for the chain-driven pumps came from huge water wheels. The water wheels in turn got their power from the overflow of the dams. Two of the old water wheels are still on the course—just for rustic effect.

In 1920 when the course was completed, a permanent watering system for fairways and greens was installed. (As a matter of fact, this layout was the most up-to-date system at that time.) In this system all the mains ran parallel to the fairways with hose outlets, spaced every 80 feet, located in sunken wooden boxes flush with the ground. There were over 300 outlets of this type, and 25,000 feet of hose was needed to water the course. This system held up well for nearly 40 years. Although it offered much flexibility in that you could put the water where it was needed and in the quantities needed, it did have many limitations. The pressure loss was great. A system of this type requires 150 to 200 feet of hose from outlet to edge of fairway, and it is interesting to note that a sprinkler producing 10 gallons per minute, traveling through ¾ inch water hose will lose 14 pounds of pressure for each 100 feet traveled.

Maintenance and replacement cost for hose and sprinklers, and rising cost and availability of labor to operate the hose system, caused us to consider a change. Daytime watering interfered with golfers' play, while nighttime watering was not possible due to the unavailability of labor.

Since 1957 we have been in the process of modernizing our system by installing underground, quick coupling valves through the center of the fairways. We completed five or six fairways each winter, and hope to finish the installation by this spring.

In the 1920 system very good planning was used in that large mains (9 inches) were installed. These mains have proven to be adequate for all changes which we have made. All the laterals for our quick coupling system are connected to the old mains.

It is of interest to note that after 40 years of use the galvanized mains show little or no corrosion from the water. Because of this we have used galvanized pipe throughout our present program.

We pump our water from a four acre lake. A 9 inch suction pipe carries the water from the filter to the pumphouse. The pumphouse is located below the dam and the water level of the lake. This filter is boxlike, made of logs and stone. The outside wall or fence is 12 by 12 feet and the inside wall is 6 by 6 feet. The area between these walls is filled with crushed stone. This type filter has proven to be very effective in screening out all kinds of debris such as weeds from the lake, leaves, fish and fishing gear, and turtles.

We have two electrically driven centrifugal pumps—A 500 gallon-per-minute and a 1,000 gallon-per-minute pump. The small pump furnishes enough water for five or six fairways and greens. When more water is needed or the pressure drops to a certain point the large pump starts automatically.

The water is pumped directly into a 9 inch main which is reduced to smaller mains. Four inch mains are the smallest size used on the course. Galvanized pipe (2½ or 3 inch) is used for laterals in the fairways for the quick coupling valve system. Wherever possible the laterals are looped back into the mains in order to give more pressure and volume to the sprinkler. Facilities for drainage and

shut-offs have been included in all fairway installations.

The sprinkler valves have been so located that all turfed areas can be reached. The nozzle size varies according to area to be covered, and pressure and volume of water at the location. If for some reason some areas in the fairways—high hard-spots—need additional water, this can be supplied with a length of hose and sprinkler attached to a quick coupling valve and swivel system.

Our new system provides a better distribution of outlets with a higher pressure at the outlet.

The snap-on valves are placed slightly below the surface of the turf. A 5 inch steel sleeve approximately 16 inches long is placed around the valves and risers to keep the grass (Bermudagrass) from growing over.

We feel that our change to the more modern system has shown the following advantages:

1. One man can water half of the course in one night. Prior to this, up to five men were sometimes used.
2. The yearly maintenance cost has been reduced as there is no more hose to buy.
3. Unsightly hose and valve boxes along the fairways have been eliminated. Equipment can be operated with much greater ease, and there is no interference with golf play from these obstacles.

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Water Distribution Systems

By EDWARD J. CASEY

Member, USGA Green Section Committee, and Golf Course Superintendent, Baltusrol Golf Club, Springfield, N. J.

Since the first days of golf in America, at St. Andrew's Golf Club, Hastings-on-Hudson, N. Y., golf course development has reached a fantastic rate of development. Paralleling this growth has been the progress in golf course maintenance—standards, quality, and utility. Irrigation is but one of the important components of golf course maintenance; it has progressed from practically nothing to the critically engineered design, pressure-

volume, full coverage systems we have today. Whether an irrigation system is to be of pressure-volume, full coverage, or to be one of lesser extent, the fundamentals determining its workload and its accomplishments remain the same in each case.

However familiar these supporting fundamentals may be, there is some value accompanying a review of the important ones, in the order of their importance.

From Origin to Objective

Water Supply	Propulsion	Transmission	Objective
Lakes	Vertical	4 inch pipe - Costs per foot	18 holes - greens, tees, and fairways - 46 acres
Rivers	Turbine pump adaptable to water sources	Cast iron per M ft. \$1.56	1 acre inch per week = 1.25 million gallons
		Transite " " \$1.14	1 trip over requires 21 hours @ 500 g.p.m. = 630,000 gallons
		Plastic " " \$1.75	2 trips over requires 42 hours @ 500 g.p.m. = 1,260,000 gallons rate is adjustable
		Steel " " \$1.53	Use rate of 500 g.p.m. should be provided for.
Wells	Well	Cost influences design; Design influences costs. Design is critical in Performance Work Load Friction Head	
	Test for static level; Drawdown	Through Work Sheet determine:	
	Pumping level at 140 feet deep	1. Routing of lines	
	Pump stages at 150 feet deep	2. Precipitation rate	
	Pump into Pressure Tank at 100 lbs. pressure	3. Pressure	
	Discharge Head = 150 feet	4. Pipe sizes	
	Pressure Head = 231 feet	5. Friction Head	
	Total Pump Head = 381 feet	6. Final Design	
		Estimated Work Load 90 head feet	

Pump Head 381 feet + Est. Work Load 90 feet = Total System Head 471 Head feet.

471 Head feet @ 500 g.p.m. = Work Load.

System Head and Power Requirements

500 G.P.M. x 471 Hd. ft. = Work load
 $500 \times 8.337 = 4168.5$ lbs. per minute
 $4168.5 \times 471 = 1,963,363.5$ foot lbs. per minute
 $1 \text{ H.P.} = 550 \text{ ft. lbs. per second or } 33,000 \text{ foot lbs. per minute}$
 $\frac{1,963,363.5}{33,000} = 59.4$ horsepower required

If the pump operates at 70 per cent efficiency, then $59.4 \times 1.43 = 85$ per cent horsepower.

This theoretic example of system head

and power requirements indicates the system head or workload is too high for economical and practical operations. The example shows higher values are found at low head and large discharge; lower values at high head and small discharge. Design is critical. Efficient distribution of water assures irrigation in Depth (wetting the soil) at precipitation rates adjusted to the intake characteristics of the soil. Mechanical manipulation of the system should remain very close to design specifications regarding system operation.

Commentary

1. Objective

An efficient system.

2. Water Supply

Good balance in these two factors is necessary: Water supply at 300 G.P.M. to 500 G.P.M. is adaptable to system operation; total elapsed time precipitating one inch per acre is the variable factor.

3. Transmission

Pipeline design, pipe size, non-corrosive, smooth inside wall and minimum number of fittings are important fac-

tors in avoiding build up of friction head.

Correct size piping for efficiency and economy.

4. Propulsion

Pumps—Motors.

Estimated System Head and Live Discharge, plus other pertinent information regarding proposed system operation and heavy load periods are the facts upon which pump manufacturers decide the type and capacity equipment necessary for the work to be done and to guarantee performance.

Water Distribution Systems

By WILLIAM RILEY

Golf Course Superintendent, Essex Fells Country Club, Essex Fells, N. J.

Our club is located in a poor water area and our watering system is designed to take advantage of all possible natural and waste water available on our property to supplement our 50 gallon-per-minute well. We like to think of our system as a "holding system" for the summer months of July and August primarily, and it is therefore designed for conservative use; it is used to irrigate the ten fairways at our course which normally are dry in summer because of their natural elevation and hilly terrain.

We designed our system so that we capture all the run-off from rainfall from our parking area, from the clubhouse leaders, and from the deck of our newly constructed swimming pool. In addition, we trap all water from the following areas of our swimming pool:

- a. From the pool deck, which is washed down daily for sanitary reasons—estimated 1,000 gallons per day.
- b. From rinse shower, which runs continuously—estimated 2,500 gallons per day.
- c. From the wading pool, emptied daily—estimated 6,000 gallons per day.
- d. From pool gutter overflow, which is created by circulating system for water sterilization—estimated 13,000 gallons per day.

All this trapped waste water feeds by

gravity flow through Orangeburg pipe to our reinforced concrete storage tank of 72,000 gallons capacity (60 feet x 20 feet x 8 feet) situated beneath one of our fairways. In turn, the water from the tank flows by gravity to our distribution pump through six-inch transite pipe. Our distribution pump capacity is 300 gallons per minute at 100 pounds pressure.

Our mains consist of 3 inch and 4 inch (PVC) plastic pipe and our laterals are 2 inch and 3 inch sizes in the same pipe, which we installed by ourselves. We utilize quick coupling, rotary type sprinkler heads which operate at 70 to 90 pounds pressure distributing 40 gallons per minute.

This is our system, designed for the conservative use of water in a poor water area, and it fully meets our irrigation requirements for ten fairways during periods of water stress.

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Comparison Of Water Sources

By EDMUND B. AULT

Member, USGA Green Section Committee, and Chairman, Green Committee, Indian Spring Country Club, Silver Spring, Md.

I do not believe there is anyone who does not recognize that the subject for this opening panel, "Water Sources," is the very heart-throb for any successful, well-kept golf course.

We may take a minute to note the possible different interests pertaining to our subject Water Sources. There could be those who may be associated with a group that is planning the development and construction of a new country club. On the other hand, there may be those who are presently associated with an existing country club whose source of water supply is either diminishing or has reached a dangerously low level. There could be a third group, and they would perhaps be in the minority, whose existing source of supply is either limited or restricted, which naturally prohibits the expansion, modernization and improvement of their club. In this group may be those who are served from a municipal water supply.

In order to determine the source of supply to be accepted or developed for any country club in any section of the country, we must first determine from several accepted methods the volume of water which can be expected to be used at the club or course in question.

For example, it is recognized that at an average 18-hole golf course in the Mid-Atlantic area, having a conventional water system—and by conventional, I am referring to a system which has outlets at tees and greens only—a competent superintendent using such a system during the recognized watering season in this area, namely from the middle of May into September, may on certain days water his greens once or twice. He may if necessary syringe them off at several other times. The outlets on such a system generally deliver approximately 15 gallons per minute. If the superintendent has three men watering at a time and they in turn have four sprinkler heads open, we arrive at a simple mathematical calculation such as: three men with four heads open each (12 heads) times 15 gal-

lons per minute = 180 gallons per minute. This multiplied by the time required for watering will naturally give the gallons per day; and by days will give gallons per week, etc.

On courses with more elaborate watering systems, such as a course with outlets at the tees, greens, landing areas and approaches, we would naturally extend this demand per minute to perhaps double, 360 gallons per minute.

For golf courses which may have a complete fairway watering system, although the number of outlets opened at one time may not increase, the size of the outlets may demand in excess of 500 gallons per minute.

I realize that some of the explanation may overlap into following panels, but this point is important as we move along in our subject to developing a source of supply.

The most recognized sources of water supply are rivers, lakes, wells, and municipal sources.

The first, rivers, or large creeks or streams on which there has been a reasonable amount of preliminary research, such as the proven flow and the established fact that the water level does not diminish below a certain level during the dry season, are the best sources of water supply to have available. In recognizing the flow of the stream, we may refer back to the gallons per minute that may be demanded of the particular system in question. If the flow of the stream exceeds the demand by 50 per cent, this percentage is accepted in most cases as being adequate. Naturally, the country club fortunate enough to have this source of supply has little or no problem.

It has been found impractical when using this source of supply to place the intake from the pump directly into the flowing stream. In lieu of such a practice, an offset pond should be excavated from 30 to 50 feet back from the bank of the creek and dug to a depth of approximately six to eight feet below the mean

low water level of the river. A channel four to six feet wide and at the same depth should be opened from the river into the pond. During heavy rains, when the stream may be carrying a considerable amount of debris and silt, a swift flow naturally would bypass the pond and eliminate a considerable amount of damage. Where the stream is recognized as a boundary, the offset pond affords a means of protection from vandalism.

The second most popular recognized source of supply is a lake or a series of ponds. Mr. Latham's accompanying article contains a discussion of some of the factors involved in reservoir construction and use.

The third recognized source, wells, in certain sections of the country is the only source that can be developed. This source perhaps is more expensive than the two previously mentioned sources. The cost of wells in different sections of the country can vary widely.

It has been recognized, where a well or wells are the exclusive source of water supply for the country club, that it is more practical and economical to have the two systems separated; that is, the system for the domestic supply and the system for the golf course. It is a costly operation to have the necessary power on a single well supplying the clubhouse and the golf course. Where the water supply for the golf course may be needed on an average of six months, and the supply to the clubhouse for 12 months, there is a considerable amount of idle power during the six months when the irrigation system for the course is not in service. The more practical and economical method is to have a single pump deliver water into a storage pond and a second pump set up to pump from the storage pond into the water system for the golf course. This storage pond may also prove a safety margin in the event of a pump breakdown. The pond location can also take advantage of runoff water and other natural sources. In the majority of cases the large motor required for a single operation will perhaps invoke a demand charge by the local utility company. This can be a 12-month expense regardless of the time the pump is used. In certain areas expert and competent advice is needed before developing a well or system of wells for source of supply. What

may seem adequate at the time can diminish in a few years with constant pumping and the encroachment of housing developments and industry in the area. Industry and housing developments in seeking large volumes of water by well systems go to greater depths than the original wells for the country club. Thus in time they tap or drain the shallow sources being used for the golf course.

The fourth, and perhaps the most expensive recognized source of water supply for the country club, is the municipal system. The most noted drawback from this source of supply is that at times a country club may be restricted or limited severely as to the volume it could use. Such a restriction naturally would come at the most critical dry season of the year. Restrictions also may be placed on the time at which the water may be used.

There are certain mechanical drawbacks which can be encountered in a municipal system such as pressures too high or too low. In one known case the pressure was too high and did considerable damage to a newly installed fairway watering system which used plastic pipe.

Booster pumps in most cases have proved almost a necessity between the municipal system and the club system. Pressure changes and surges from the municipal system, if not controlled, at times make a very inefficient operation of certain large sprinkler heads.

In summing up our subject, Water Sources, invariably the committee for the country club and the expert discussing the subject will reach a common point on one major issue, and that is: Shall a source of water supply be developed to meet the demand that may be required by the plans and specifications, or will the plans and specifications be adjusted to suit what is known to be an economical, permanent source of supply? Unless a sound, unlimited, economical source of supply is available, certain elaborate, costly watering systems should perhaps be limited and kept within reason for such a known source. To one who, though not an agronomist, is ever aware of the diminishing sources of water supply, it seems that more emphasis could be placed on the types of grasses, especially for fairways and roughs, that do not require the quantity of water as do other grasses.

Comparison Of Water Sources

By JAMES M. LATHAM, JR.

Former Southeastern Agronomist, USGA Green Section

Any discussion of irrigation systems would be incomplete without a short discourse on water sources. Everyone is familiar with these, but some discussion should be given the merits and drawbacks of each source.

The major source of the national water supply is from streamflow of surface water in our rivers and creeks. Lakes and ponds may be considered streamflow in storage. Surface water is of major interest in areas of higher rainfall where irrigation is required only to supplement natural rainfall. Since there are many small permanent streams in the eastern portion of the United States, many golf courses have constructed dams to utilize this water as well as natural runoff of excess rainfall.

Eastern irrigation systems are basically supplemental. Many of them fail, however, because they were not designed for use during periods of maximum water stress. Prolonged drought periods, being usually accompanied by higher temperatures and evaporation rates, not only increase water usage but also decrease the supply. This introduces several points to be considered when contemplating the use of surface water as a source of irrigation.

First is the pattern of streamflow during both wet and dry years. Are there periods when streamflow is substantially reduced or has ceased? Are there periods when the stream rises rapidly to flood stage and could possibly damage the installation? The state engineer or the U. S. Geological Survey may have this information. Longtime residents of the area are a good source of general information.

The rate of streamflow is as important as its permanence. If collection reservoirs are required, it is necessary to know the time required to replenish the water supply after an irrigation period.

In many cases a legal problem arises. The right to use surface water may be challenged by another property owner along the stream. Local water use laws must be considered.

Water quality is a third major point to be considered when contemplating the use of surface water. On major rivers pollution by industrial wastes is always a possibility. The presence of injurious chemicals can be determined by analysis by a state or commercial laboratory.

Silt and trash content should also be considered. Some silts are abrasive and will cause excessive wear on irrigation equipment unless removed from the water. Trash and debris in stream water have an obvious effect on the system by clogging sprinklers and the intake pipe.

Problems associated with these three points have been solved in some instances by the construction of a reservoir alongside the stream. Water flows into the reservoir during periods of normal or above normal stream flow but does not interfere when the flow is reduced. In this way a source of water is provided when there is an ample supply of water and insurance is provided against dry periods.

Such a reservoir also acts as a desilting basin. By reducing the velocity of water, the silt settles to the bottom and is eliminated. Properly constructed screens on the intake channel will help eliminate debris with a minimum of cleaning required.

In some areas of the western states, streams continually pick up minerals as they flow. Concentration of these salts will vary with rate of flow. In such cases storage reservoirs should be filled during periods of high flow. Mixing stream water with well or spring water may also reduce the concentration.

Springs and seepage areas are sometimes developed into reliable sources of irrigation water. Blastings, proper drainage trenching and excavation may provide a constant source of water, but a geologist should be consulted before going to great expense.

Underground waters are a second major source for golf course irrigation. The advantages of this source include:

1. Close proximity to the place where the water is to be used.

2. A source of water where streamflow is already appropriated.

3. Less fluctuation in yield.

4. More uniform temperature and soluble minerals content, and generally free of turbidity and pollution.

Here, too, a legal problem may be encountered, since some areas require well permits. About 60 per cent of all ground water used is for irrigation purposes. Usually, however, first costs of well systems are higher than for surface sources. Well water may flow directly into the irrigation system, using one pump for both actions. A deep well of low capacity may require a storage reservoir. Such a system is widely used since pumping capacity from the well is not a direct limiting factor. Storage or equalizing reservoirs also enable the use of two pumps. A large pump will supply the entire requirements of the system. A small pump in addition to this will permit green and tee irrigation without using the large pump. Such an arrangement can reduce considerably the cost of pumping.

In the humid areas very shallow ground water may be successfully developed. Batteries of well points or cased wells can be used to tap drainage water where it is held up by an impervious layer underneath. This method is seldom used, however, due to the adverse effect of drought conditions on the water supply.

It may also be possible to buy water directly from an irrigation company or municipality.

In determining the source of water, daily irrigation requirements must be calculated so that an adequate amount of water is available. When the availability of water imposes limitations on continuous supply, reservoirs must be utilized. Reservoir construction requires careful consideration of the following points:

1. The amount of water required per irrigation period and the time required to refill the reservoir.

2. The storage capacity per foot of effective dam height.

3. The probable seepage and evaporation losses.

4. The probability of flooding as a determinant of spillway size.

5. The silt load of water entering the

reservoir. A high silt content would fill a small reservoir in a short time.

6. Water quality, since salt concentration will increase as the water level drops due to evaporation.

7. The area to be used must be able to hold water. Surprisingly, a number of lakes have been built which will not hold water. Gravel or similar substrata will allow rapid seepage.

8. The amount of permissible "draw-down" must be considered. A shallow pond which is lowered by as much as two feet may leave large areas of mud and these areas may be subject to weedy, unsightly growth.

Combination input for reservoirs has often been quite helpful. Surface water, groundwater and municipal supplies are all discharged into a reservoir from which the irrigation system is fed.

In choosing the most desirable source of water, reliability, cost and water quality must be balanced against each other. Cost is the most apparent factor, but unless the expenditure provides a reliable source of good water, it is obviously wasted. The primary requirement in an efficient irrigation system, then, is a thorough, point-by-point study of all phases of the system and weighing each factor entering into its operation.

Allen Joins Green Section Staff

W. Wayne Allen has been appointed to the USGA Green Section staff as Southwestern Agronomist. Mr. Allen is a graduate of Texas A. & M. and recently completed work leading to the Master of Science degree in Agronomy. Mr. Allen's research during his graduate study dealt primarily with weed control.

Mr. Allen's appointment fills a vacancy created by the resignation of James M. Latham, Jr., as Southeastern Agronomist and his replacement by James B. Moncrief, formerly Southwestern Agronomist. Mr. Latham resigned to accept other employment but he will continue in the turfgrass field.

Mr. Moncrief, who will make his headquarters in Athens, Ga., is well acquainted with the problems of turf in the southern states and he should be very much at home in that region.

IT'S YOUR HONOR

All In The USGA Family

To THE USGA:

We wish to advise that the Board of Directors of River Oaks Country Club has revised the guest rules pertaining to Non-Resident Guests-Members of Golf Clubs as follows:

"Members of Golf Clubs that belong to the United States or the Texas Golf Associations, shall have the courtesies of the course extended upon satisfactory identification and by payment of the regular greens fees."

and

"A Non-Resident member of a Golf Club that belongs to the United States or the Texas Golf Associations shall have the courtesies of the Club House extended to him upon satisfactory identification for forty-eight hours as a guest, his name and residence with the name and address of his Country Club being entered on the visitors' book. All bills contracted by such guest shall be sent direct to his Country Club for payment."

We will appreciate your publicizing through your periodicals our desire to work out reciprocal arrangements with other clubs affiliated with your association.

JOHN B. COFFEE
Houston, Texas

Boom in Japan

To THE USGA:

Golf is getting popular more and more in Japan and new courses are being built on all available lands. It will not be long before we double the present number of courses, which is about 100.

Presently our golf courses cannot accommodate all golfers and many new golfers go to driving ranges, which are also increasing very rapidly. Some of them are elaborate. One newly opened accommodates 150 players at one time and the range is 250 yards.

I notice in American golf magazines that a number of par-three courses have been built there. I thought we might start building some over here, too. This would certainly be better than driving ranges, and we may find land insufficient for regular courses but big enough for such courses.

SHUN NOMURA
Vice President
Japan Golf Association

Turf Boosters

To THE USGA:

We (The Albuquerque Country Club) are one of your best boosters for the Green Section's Visiting Service. At the recommendation of Dr. Marvin Ferguson, we are rebuilding the remaining 12 greens on our golf course. Our members are thoroughly sold on this program.

B. K. MIDTBON
Albuquerque, N. M.

Help

A letter recently received:

"Dear Sirs:

My friends cheat. Please send me a copy of the Rules of Golf.

Signed_____"

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