## a great new MONEY MAKER for range operators

# RANGE MAT

new

COMBINATION

## or wood and iron shots

- doubles customer play per mat
- stops turf destruction
- eliminates high maintenance costs
- improves customer's game
- assures repeat business and more profits

Here's a great new asset to a more successful range operation! Flexi-Fabrix combination range mats — the dual purpose mats that are increasing play and profits in hundreds of ranges all over the country. They have stopped turf destruction, drastically reduced costly maintenance expense and most important have doubled and tripled play on every mat! Customers can now play faster, better and will continue to come back for more. Large replaceable mat insert provides a soft "grass" lie for irons, and firm "tees" insure a proper foundation for wood shots. Low in cost, easy to install, they're tough, long lasting and practically indestructible. Made of 7/8" thick airplane tire carcasses. All clamping plates are cadmium plated to resist rust and are **rubber covered** to prevent club damage. Ideal for indoor and outdoor use and perfect for "par-3" golf courses.



Get full details on this remarkable mat and see how you can DOUBLE YOUR PROFITS

See your local supply dealer or write us direct for descriptive circular and prices. You'll be glad you did.

Flexi-Mat Corporation

2249 S. Calumet Chicago, III.

March, 1954

for the golf course without the necessity of tedious expensive hours of rough grading."

It has been estimated that the sudden availability of this topsoil, free of charge except hauling and distributing, has saved \$7000 in grading costs and at the same time permitted the development of a more challenging golf course, through accentuation of contours. It also saved the Flood Control district many man hours needed in this emergency to clear the streets and catch basins in anticipation of a repeat performance.

The time table for the completion of the Eaton Canyon golf course has now been set forward many months and it is expected the course will be ready within a year. A driving range has already been developed on the site.

The estimated cost of building the course is \$90,000. With the bonanza of floodwashed topsoil, work schedule of installing the watering system was advanced.

Los Angeles County expects to obtain a net revenue of \$15,000 a year above the course operating expense.

#### Watering — Most Important Cultural Practice

The most important cultural practice as applied to golf greens is the proper maintenance of soil moisture.

The improper use of water by man has killed more grass than the combined loss by disease, insects and other natural causes.

The art of applying the correct amount of water, not too much or too little, requires close study of the physical structure of each green, constant supervision, and the most intelligent workmen available. A good waterman is the most valuable workman employed on a golf course and should receive a higher rate of pay than other golf course workmen.

The soil of a golf green should be moist, but not wet or soggy. If too much water is applied, there will be no air space in the soil and the grass will die from the lack of air.

Another cultural practice closely related to water management is cultivation. A moist soil plus traffic from players, caddies, workmen and equipment soon leads to compaction of the soil surface. Unless some means of cultivation is used to combat this condition, the air-water balance is soon destroyed.

#### Texas Turf Assn. Summary of Test Plot Showings

Mixture Study of Warm and Cool Season Grasses:

A. Perennial Ryegrass and Tall Fescue produce the quickest and most desirable winter cover.

B. Clovers produce a relatively thin cover the first year and require a very long change-over period.

C. The use of a cool season grass greatly delays the recovery of the warm season grass and also reduces the stands of the warm season grasses.

D. Bermuda is the most desirable warm season grass tested. It stood up well under heavy winter watering and withstood the competition of the cool season grasses and legumes.

E. The stand of K. R. Bluestem is so greatly reduced by the cool season grass that it would be impractical to use this grass in a combination of warm and cool season grasses.

F. The January issue will carry results concerning the cool season grasses' ability to re-establish themselves in the fall.

#### **Grass Introduction Study:**

A. Three Bermuda grasses, T-47, T-8 and U-3 show promise as being useful under irrigated and dry-land conditions.

B. T-47 and T-8 produce a dense turf the first year where U-8 may take two years.

C. T-35A produces a very good turf under heavy irrigation but is susceptible to gray lead mold with limited irrigation.

D. Perennial Ryegrass, Tall Fescue and Buffalo have not produced a satisfactory year around turf for this section.

E. K. R. Bluestem produces a satisfactory turf under irrigation for rough areas where a smooth even turf is not necessary.

#### **Bent Grass Putting Green Test**

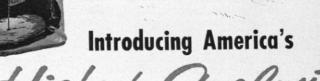
A. The quickest coverage was produced from seeded bents, Seaside and Polycross.

B. Several bents (C-1, C-52, C-115) seem to be more vigorous and hardy and recover more quickly from damage than the common Seaside normally used in this area.

#### **Fertilizer Factorial**

In the Fall of 1952 it was reported that the 8-12-8 ratio seemed to produce the better turf under both irrigated and non-irrigated conditions. This conclusion seems to be bearing true again this summer under irrigated conditions. Under non-irrigated conditions there is a marked effect from the higher rates of nitrogen.

-Texas Turf Assn. and Turf News



ighest Analysis

# PURE, ACTIVATED SLUDGE! KAP-OGANIC

KAP-OGANIC is the highest analysis pure activated sludge produced in the United States. Every pound contains 5 to 5½% Aorganic nitrogen and 5 to 6½% available phosphoric acid—yet its price is only \$44.50 per ton, carload lots, f.o.b. Chicago. No other sludge gives you so much plant food per ton at so little cost.

KAPCO

GOLF COURSES

**OTHER KAPCO FERTILIZERS** 

Soluble Fertilizers for Liquid Feeding on Greens for sure, quick and effective GREENS FEEDING during the hot summer months. A selection of analyses are available. 15-30-15; 20-20-20; 25-0-25 priced from 15c to 22c per lb. We'll gladly give you the complete story on how you can produce a thicker, more uniform turf with KAP-OGANIC. For further information, address: Kelly Agricultural Products Division, Summers Fertilizer Company, 603 Walnut Street, McKeesport, Pennsylvania. Distributorships and agencies available in all principal cities.



KAP-OGANIC-BEST ON EARTH-BEST ON TURF

March, 1954

## Course Should Be Cared For As Physician Regards Patient

#### By CHARLES PILZ

Supt., Amsterdam (N. Y.) Municipal Golf Course

MY COLLEAGUES in golf course mainmarks about American methods with the understanding that I have my own reservations about my qualifications to comment. I have been in golf course work only four years and am a comparatively new member of the GCSA.

However, I have been in horticultural, landscaping and forestry work since 1914. I served five years' apprenticeship in Germany before I was considered to qualify for the profession which has been my life's work. In Germany and other European countries I was responsible for the construction and maintenance of grounds for national exhibitions and was in charge of maintenance of large public and private parks.

There the very finest in results were expected and I hope my friends in golf course maintenance in my adopted land will believe me when I say that the demands of the officials and estate owners in the European countries are not much more — if any more — exacting than the fine turf demands of American golfers. But we in this profession are often called upon to do the impossible. It is our quite frequent achievement of this difficult aim that gives us solid foundation for our pride in our profession.

What has delighted me and helped me beyond measure is the way in which my colleagues have extended to me the benefit of their own experience and the manner in which the research in all departments of turf have been made available to me for use on our municipal course at Amsterdam, N. Y., in the beautiful Mohawk valley at the foot of the Adirondack mountains.

Our problems are many and so are the ideas and methods advanced for their solution. In applying my own experience and that which my colleagues have generously given for my assistance I go back to a fundamental I was taught during my apprenticeship.

I was told to compare our vegetation with our own bodies, with respect to food, minerals and treatments. I was instructed to regard grass as a physician regards a patient — to cure the sick and keep the healthy well.

When I came to Amsterdam, four years ago, the course on heavy clay was ailing. The greens are Seaside. They were very sick and, as greens on many public courses, getting very heavy use. They were like a person of frail constitution who was unhealthy but still had to do heavy work.

The physician knows it is difficult, and possibly dangerous, to treat with violent stimulants. I apply fertilization lightly, never more than 10 lbs. per 1000 sq. ft., starting when weather is favorable, and continuing regularly, every three weeks throughout the season.

I change the dosage and composition of the fertilizer to give a balance and variety to the food treatment. I doubt that grass does any better than a human being would on a monotonous diet of the same elements year after year.

Now the turf on our greens is fine, healthy, sturdy and free from grain or thatch. This year we have had absolutely no brownpatch, dollar- or copper-spots.

One very valuable principle of good maintenance of which I am constantly reminded by my own experience and that of fellow members of the Northeastern Golf Course Supts.' Assn. is that of the ounce of prevention being worth a pound of cure.

Too often, it seems to me, the prevention is neglected with no more good judgment than one would exhibit in failing to be vaccinated when liable to exposure to an epidemic. It appears to be often the policy to trust to luck and after disease strikes and does its damage spend considerable for cure and repairs and have a bad course during an important period.

I know from observation and discussions with my brother superintendents that neglect in applying preventive treatment usually is the result of having to extend an insufficient budget and in many cases possibly is caused by the failure of those who are in higher authority to insist that ample funds for preventive treatment are provided.

This past spring I started out with the plan of spraying my greens every two weeks with disease and insect preventive treatment. I did not use the recommended dosages of either material but cut the amount to a third of each and applied insecticide and fungicide at the same time. Treatment was applied every two weeks.

This was my first year of this practice and the results have been completely satisfactory all through the year. The procedure may not do so well next year. Who knows? But on my patients, the greens at Amsterdam, it has been successful.

#### Some Water System Answers

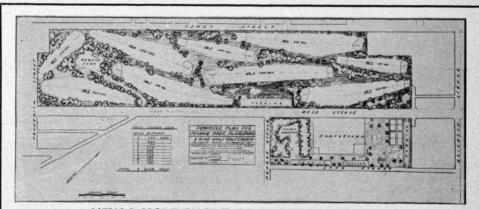
WATER QUANTITY and RATE OF FLOW — One acre inch of water contains 27,080 gals. If you have a pond that measures 208.7 ft. by 208.7 ft. this would be equal to one acre or 43,560 sq. ft. If this pond was 15 inches deep, you would have 15 acre inches of water or 27,080 gals. times 15, or 416,200 gals. in your reservoir. If this pond is stream fed and your rate of flow in this stream is one cubic ft. per second, you would be supplying one acre inch per hour, or 450 gals. per minute to your pond. 27,080 gals. of water is the average amount used in your home over a 5-month period.

HEAD PRESSURE, POWER and EN-ERGY — If your water requirement of irrigation system is 300 gals. per minute and suction lift is 12 ft. and the pressure gauge at pump house is 80 lbs. per sq. inch, (p.s.i.) and the 18th green at clubhouse is 69 ft. elevation above pump house, your pressure at the 18th green outlet would be 50 lbs. p.s.i., i.e. if 2.31 ft. equals 1 lb. p.s.i., then 23 ft. equals 10 lbs. p.s.i., and 69 ft. equals 30 lbs. p.s.i. This means that your pressure loss in 69 ft. is 30 lbs. p.s.i., or 50 lbs. p.s.i. at the 18th outlet.

For practical measures, if electricity costs .03 cents per Kilowatt hr. and you operate this pump of 30 H.P. it would cost you .03 cents times 30 H.P., or 90 cents per hr.

-PROF. H. N. STAPLETON,

Head of the Dept. of Agricultural Engineering, University of Massachusetts, at Northeastern NY Golf Course Supts.' Assn. meeting.



NEW 9-HOLE SHORT GOLF COURSE FOR L.A.

Golfers of Western Los Angeles, who have been without public golf facilities since the wartime conversion of the old Santa Monica course into a defense plant site and the subdivision of the former California Country Club, will again have a golf course if recently announced plans of the City Recreation and Park Department bear fruit. The proposed Penmar Golf Course, a 9-hole, 2504 yard layout, will be an integral part of Penmar Playground, a new district park, which will include an athletic field, picnic and children's playground facilities and attractive landscaping. Work is already in progress at the playground facility which is being built on 26 acres of city-owned land combined with an adjacent 13 acres recently acquired for the purpose. Actual work on the Penmar golf course is waiting on the result of current negotiations for the purchase of an additional 18 acres of privately owned, unimproved land next to the playground which has been earmarked for the golf links. General Manager George Hjelte emphasized that the Recreation and Park Department is entirely satisfied that the expected patronage of the new course, particularly by golfers of Venice and Palms-Mar Vista areas will support the new links without aid from tax funds. Yardage of individual holes will be: No. 1—334; 2—265; 3—177; 4—294; 5—200; 6—352; 7—182; 8—320; 9—380.

#### **1954 TOURNAMENT SCHEDULE**

#### MARCH

- 4- 7-HOUSTON OPEN
- 11-14-BATON ROUGE OPEN, Baton Rouge, (La.)
- CC 17-21-MIAMI BEACH FOUR-BALL INV., Nor-mandy Isle, GCrse, Miami Beach 21-27-AMERICAN SENIORS GA MEN'S CH., Ponce de Leon GC, SI. Augustine 22 -LA GORCE AMATEUR PROFESSIONAL, La Gorce CC, Miami Beach 23-24-SEMINOLE AMATEUR PROFESSIONAL, Seminole GC, Palm Beach 26-28-AZALEA OPEN INV., Cape Fear CC, Wil-mington, N. C.

#### APRIL

- 2- 4-GREATER GREENSBORO (N. C.) OPEN INV., Starmount Forest CC 8-11-THE MASTERS, Augusta (Ga.) Nat'l GC 15-17-MEN'S INTERCOLLEGIATE, Stanford Univ.,
- Palo Alto, Calif.
- TRANS-MISSISSIPPI SENIORS, Thunder-19-24-
- 19:24-THANS-MISSISSIPTI SENIORS, Inunder-bird Ranch & CC, Palm Springs, Calif.
  22:25-TOURNAMENT OF CHAMPIONS, Desert Inn, Las Vegas, Nev.
  26:May 1-NORTH & SOUTH INV. MEN'S AMA-TEUR, Pinehurst, N. C.
  26:May 1-ENGLISH AMATEUR, Royal St.
- 26-May 1-ENGLISH AMATEUR, Noyal St. George's 29- May 1-SOUTHERN INTERCOLLEGIATE, Ath-
- ens, Ga.

#### MAY

- GREENBRIER PRO-AM INV., Old White Course, White Sulphur Springs, W. Va.
   9-MIDWEST AMATEUR MEDAL-PLAY CH., French Lick Springs (Ind.) CC
   12-16-PALM BEACH ROUND ROBIN CH., Mea-dow Brook, LI., N.Y.
   24-29-SOUTHERN GA AMATEUR, Memphis (Tarp.) CC 12-16
- 24-29\_ (Tenn.) CC 24-29—BRITISH AMATEUR, Muirfield 26-30—COLONIAL INV., Fort Worth, Texas

#### IUNE

- 3- 6
- WGA Open, Kenwood CC, Cincinnati, Ohio TRIANGLE ROUND ROBIN, Cascades CC, 3. 6
- 5.—TRIANGLE ROUND ROBIN, Cascades CC, Virginia Hot Springs
   5.—National Golf Day
   10-12.—HOPKINS TROPHY MATCHES, Mississau-gua GC, Port Credit, Ont.
   10-13.—VIRGINIA BEACH OPEN
   12-13 & 19-20.—METROPOLITAN PUBLIC LINKS,

- Ash Brook CC, Scotch Plains, N. J. WGA JUNIOR, Univ. of Illinois, Champaign DAKS PROFESSIONAL TOURNAMENT USGA MEN'S OPEN, Baltusrol GC, Spring-15-18 16-18-
- 17.19
- field, N. J. NCAA CHAMPIONSHIP, Brae Burn CC, 20-26
- 22-26-
- Houston, Texas ILLINOIS STATE AMATEUR, Urbana CC INSURANCE CITY OPEN, Hartford, Conn. -WESTERN SENIOR GA CH., Blue Mound 23-27 24-25
- G&CC, Milwaukee 25-July 1-WGA INTERNATIONAL AM. FOUR-BALL, Highland G&CC, Indianapolis, Ind.

#### IUI.Y

- 2- 3-ONTARIO OPEN, Cedar Brae G&CC, Toronto
- 8-10-
- ronto -BRITISH OPEN, Royal Birkdale -U. S. BLIND GOLFERS ASSN. CH., Wa-chusetts CC, Worcester, Mass. 12-17-USGA AMATEUR PUBLIC LINKS, Cedar Crest CC, Dallas, Texas. -TRANS-MISSISSIPPI MEN'S AMATEUR, Cherry Hills CC, Englewood, Colo. -CANADIAN OPEN, Point Grey G&CC, Verneure P.C. 10 &
- 12-18-
- 14-17-Vancouver, B. C. MID-ATLANTIC GA JUNIOR, Baltimore
- 19-21-
- WGA AMATEUR, Broadmoor GC, Seattle METROPOLITAN AMATEUR, Garden City 19-25 22-25
- CC 21-27-NATIONAL PGA CH., St. Paul, Minn.

#### AUGUST

- 4 -7—USGA JUNIOR AMATEUR, Los Angeles (Calif.) CC
   5-8—ALL AMERICAN, Tam O'Shanter CC,
- Niles, III.
- 9-12—NATIONAL LEFT-HANDERS' CH., Miami Valley GC, Dayton, O. —Natl Leit-Handers Seniors —Natl Leit-Handers Amateur 12-15—WORLD'S CHAMPIONSHIP, Tam O'Shan-the GC NUTRING
- ter CC, Niles, Ill.
- 12-13--AMERICAS CUP MATCHES, London (Ont.)
- Hunt & CC INTER-PROVINCIAL MATCHES, London, 14
- (Ont.) Hunt & CC -HEARST NAT'L JUNIOR CH., Mt. Pleasant 16-19-CC, Baltimore 16-21—USJCC NAT'L JUNIOR, Univ. of New Mex-
- ico, Albuquerque -PGA NAT'L CADDY TOURNAMENT, Co-
- 16-21lumbus, Ohio CANADIAN AMATEUR, London (Ont.) Hunt 16-21-
- & CC 17.20\_
- -GREAT LAKES AMATEUR, North Hills CC, Milwaukee, Wis. -CANADA CUP, Laval-sur-le-lac GC, 20-22-
- Montreal
- Montreal 21-22-MIDWEST INDUSTRIAL GOLF TOURN., Silver Lake GC, Orland Park, Ill., and Southmoor CC, Palos Park, Ill. 23-28-USGA MEN'S AMATEUR, CC of Detroit, Grosse Points Farms, Mich. 29-30-NORTHEASTERN OPEN, South Hills CC,
- Fond du Lac, Wis.

#### SEPTEMBER

2- 5-RUBBER CITY OPEN, Firestone CC, Akron. O.

#### WOMEN'S EVENTS

#### FEBRUARY

- 12-14—ST. PETERSBURG (FLA.) G&CC 17-20—SERBIN OPEN, Bayshore GC, Beach, Fla. Migmi
- 23-28 INTERNATIONAL MIXED TWO-BALL, Orlando, Fla.

#### MARCH

- 5- 7—Sarasota Bay CC, Sarasota, Fla. 11-14—TITLEHOLDERS PRO-AM, Augusta (Ga.) CC
- -NORTH & SOUTH INV., Pinehurst, N. C. -PEACH BLOSSOM OPEN, Spartanburg, 17.22
- 26-28-(S. C.) CC

#### MAY

10-14-SOUTHERN GA WOMEN'S, Birmingham (Ala.) GC

#### JUNE

- 14-19—WWGA OPEN, Glen Flora, Waukegan, Ill. 14-19—WOMEN'S MET. GA CH., Inwood CC

#### JULY

3—USGA Women's Open, Salem CC, Pea-body, Mass.
 26-31—WWGA AMATEUR, Broadmoor GC, In-

26-31dianapolis, Ind.

#### AUGUST

- 6—WWGA JUNIOR, LaGrange (III.) CC
   30-Sept 3—USGA GIRLS' JUNIOR CH., Gulph Mills GC, Bridgeport, Pa.

#### SEPTEMBER

- 2- 3-CURTIS CUP MATCHES, Merion GC, Ardmore, Pa. 13-18-USGA WOMEN'S AMATEUR, Allegheny
- CC, Sewickley, Pa. 28-Oct. 3—TRANS-MISSISSIPPI WOMEN'S, Glen Arven CC, Thomasville, Ga.



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(Page 108) You may use these post cards to ask us any questions you wish. We only wish we had enough room to tell you the whole story about these sensational carts which have been tested in actual golf course use and have been pronounced the finest carts ever made.

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## Course Supts. Advised on Turf Problems in "Cool" Zone

COOL SEASON grass section of the GCSA educational conference had as its chairman John A. Gormley, supt., Wolfert's Roost CC, Newtonville, N. Y. Particularly accented in all talks was the point that procedure on each course has to be adjusted according to the sound judgment of a competent supt.

Joe Valentine, veteran supt. of Merion GC, Philadelphia district course that has provided the test for five USGA championships, told of preparing a course for a major championship while keeping members happy. Joe said that as far as course condition is concerned it is the policy at Merion to keep the championship layout in such condition that only provisions for the gallery and press coverage involve any special care.

With Merion having two courses members never get unduly inconvenienced by major championship play. Divot and tee repair after major championships is quickly completed. Valentine's talk which appears in full on page 60 outlines procedure for handling big championships.

In his case the architectural revisions national championships often involve are not necessary.

Informal discussion following Joe's informative talk related arduous experiences of supts. in adding alteration work to maintenance. Supts. said that if a club is going to be host to a major championship that calls for any course construction changes the work had best be done at least a full year before the event.

#### **Reports on Soil Conditioners**

R. W. Schery, Monsanto Chemical Co. development engineer, told of satisfactory use of soil conditioners when properly introduced into soil. He cited interesting tests of Krilium in opening soils for water and air circulation. He advocated use of the material in seedbed preparation, topdressing or cultivation.

Schery reported that numerous tests by supts. now were in progress and in every case of recommended procedure there has been improvement in porosity without unfavorable effects on plant growth.

The Schery address was especially interesting to supts. as soil conditioners had been introduced to the general market with a circus rush instead of with the cautious and comprehensive tests supts. require before they are disposed to use and endorse materials presented as miracle gimmicks. Schery undoubtedly set the stage for more golf course tests and far more extensive use of soil conditioners if, as and when warranted.

The Better Turf Management round table, with James E. Thomas, supt., Army-Navy CC, Arlington, Va., as moderator, had Raymond C. Davis of Medinah CC, Medinah, Ill., describing fairway work; Andrew Bertoni, Meadowbrook CC, Northville, Mich., on tees and Beryl Taylor, Iowa State College course, Ames, Ia., on greens.

#### "Love At First Sight" of Tee

Bertoni referred to the psychological, construction and maintenance aspects of tees. He reminded supts. that on the tee everybody is even and hopeful and that pleasant attitude should be capitalized on by the tee beautification. He accented the beauty and condition of the first tee in particular as the place where the player should fall in love with the course at first sight.

On construction he favored very slight slope for drainage from right to left and forward to rear. He said players hit tee shots better when the ball is very slightly above the stance. He mentioned that this construction might handicap the lefthanders but was best for the great majority and for maintenance.

His present program calls for building one new tee a year.

Bertoni's remarks appear in full on page 95 of this issue of GOLFDOM.

#### "Crabgrass Committee" Helps

Ray Davis' talk on renovating fairways that had pretty much been taken over by crabgrass told of a "crabgrass committee" being appointed at Medinah to educate and reconcile members to a severe job of renovating 16 fairways on the club's championship No. 3 course.

Following establishment of a program set after three meetings with consulting experts Al Radko of the USGA Green section, Bill Daniel of Purdue and Midwest Turf Foundation, and O. J. Noer of Mil-

#### GROWING

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The result of good service and favorable acceptance: proof of friendly pro relations.



### New 1954 Catalogue

#### presents exclusives

Niagara Deep Massage Equipment — Victor East Seat-Scope — Derby Caps — Lectroetch — Air-flo Shirts — Alps Sportswear — NuKnit Cashmeres — Spinnaker Shirts and Sweaters — Whitewater Jackets and Rainwear — and many other necessary items for golfers.

Our amazing new golf glove "Permatak" is being enthusiastically accepted — it is water repellent — sheds rain — washable — perspiration proof — remains soft, pliable and tacky under all conditions — of finest lightweight imported cabrettas in all colors.

#### HOWARD SCOGGINS GOLF CO. DUNEDIN, FLORIDA

Home of PGA National Golf Club



waukee Sewerage Commission, the "crabgrass committee" informed members of the job being done and progress of the work.

The result was that instead of members complaining to and about employees the members took an informed and cooperative attitude toward the work.

After heavy discing, 7 applications of sodium arsenite were applied at intervals. The first two applications were 1 'b. per acre, then two at 1¼ lb. per acre, then two at 2 lbs. per acre, after which the fairways were seeded. Then the final sodium arsenite treatment was applied at the rate of 2 lbs. per acre.

Work was started in July. By Labor Day new seeding was coming along and by Nov. 1 the fairways were in good condition for the winter.

Beryl Taylor's greens paper applied to conditions involving a weather range from 110 F. in summer to 30 below.

#### Uniformity Seldom Possible

In telling of his procedure, which will be presented fully in GOLFDOM, Taylor said he hesitated to make hard-and-fast recommendations in too many respects because of variations in controlling factors. On his own course he said there seldom are two greens that can be treated the same. He implied that design, construction and grasses had plenty of room for improvement in providing uniformity for a supts.' program.

Taylor strongly recommended watering greens early in the spring after an open winter as chances are the roots had been deeply dried. He said he no longer raked greens in the spring but Verticut them, not setting the machine too severely at first but "sneaking down" gradually.

Taylor remarked that there is no reason to have mat or grain on greens and remarked that he doubted if golfers know what grain is.

#### Thatch Still Research Job

Ralph E. Engel, Associate Prof., Turf Management, Rutgers university, presented a short course in basic training on thatch control. Engel described thatch as an accumulation of stems,, roots and leaves on turf surface that interferes with growth.

Getting water and air through thatch in proper amounts to work and getting food through thatch to soil bacteria is an impossible job, he said. Removal of thatch has become another essential expense and although the job now is well done the primary work is to discover how to prevent thatch.

Just why organic matter doesn't take