should not be used on the golf course it-self, except at the tees. It is also important to not use too many varieties of trees, but to have those that are very hardy and are native to the region in which the club is located.

The outstanding course will be completely streamlined as far as the designs of the tees, fairway sandtraps, putting greens and fairways are concerned and will be easy to maintain with power equipment. This will result in an economical, functional and more beautiful layout.

# BEHAVIOR OF BENTS

(Continued from page 70)

located as to cause a serious air drainage problem. Yet the turf has stood up remarkably well. Even during the last season an attack of pythium was the most serious trouble which developed and the recovery was complete in less than a week. There has been less dollarspot on this C-1 green than on any other pure strain green in spite of its location.

The planting of C-1 and C-27 combined has not been an outstanding piece of turf. It has been satisfactory and can be compared favorably with C-1 alone. dition of the C-27 helps the putting surface but I feel confident that if it were to be placed on the green just mentioned above that it would eventually go completely to C-1. The C-27 probably would not stand the location and adverse conditions encountered where the C-1 is now located.

C-27 by itself has been only an average green. It does not grow as vigorously as C-1 or C-19 and has to be watched a little more closely. I cannot condemn it because the green on which it is planted is one of the two where I lost out to the architect on surface drainage.

C-50 has proved to be the weakest of any of the selections used. In some manner a small amount of C-52 stolons were mixed in the original planting. It is now a motley green of mostly C-52 and is not pretty to look at. This planting has proved that these two grasses are not compatible because they separate into definite areas of each grass and do not produce a combination in which you can not detect one grass from the other. I could not recommend either grass be placed in combination with other grasses.

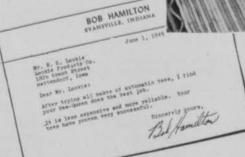
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At the time in early 1946 when it was decided to build the last nine holes, our records showed that we would be wise to plant all of the new greens to the combination of C-(1-19-27). By this time we knew about how much traffic to expect and were quite sure that we were selecting the proper grass combination. Experience had taught us that we needed even more positive drainage both on the surface and in the sub-surface area. Larger putting areas were needed and were constructed to give an average green size of 6500 square feet as against 5000 square feet on the first nine holes.

The selection of the three way combination has proven to be a wise choice. The best located greens represent the best putting areas I have had the pleasure of maintaining under extremely heavy play and the poorer located greens pose less of a problem in maintenance than one would ordinarily expect from modified sunlight and poorer air drainage.

However, since the advent of the cadmium-bases fungicides to control dollar spot and copper spot my regard for C-15 has risen appreciably and I would be inclined to replace the C-27 in the three way mixture of C-(1-19-27) with C-15. There is another selection which looks promising as a fourth member of a four-

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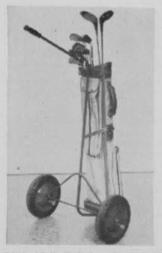
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way combination and it is C-115. Or, better than that, and because of its yellow-green color, a combination of C-115 and C-7, which has been named Cohansey, might prove to be a superior combination. I have had no direct experience with C-7 but have observed it many times and am sure that it would rate with the top three. Neither of these two grasses has proven itself compatible with other grasses or with each other.

### Withstand Invasions

Probably the greatest single strong point in favor of the top ranking combinations and selections mentioned is their ability to withstand the invasion of poa annua and crabgrass. On the first nine holes constructed and after nine years under actual play there has been less than 100 square feet of poa annua in the 45,000 square feet of putting green turf. This small amount has been almost entirely eliminated by the raising of two low areas in two greens where small pockets existed. There has never been any other thin or bare areas into which poa annua could get a start. This speaks well for any putting green grass grown in the Washington area where poa annua is considered a pest.

Much the same story is true regarding the invasion of crabgrass. It has always



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been controlled by picking and is now so sparse that it is controlled by the men who change the cups as they go over the greens repairing ball pocks.

Let us sum up our experiences with the grasses we have used by reminding that:

- The combination of C-(1-19-27) has been superior.
- 2. It needs more severe raking than is customarily looked upon as necessary.
- 3. Uses to advantage more fertilizer; nitrogen in particular.
- 4. Is not hurt so severely by fungi and recovers fungus damage more rapidly.
- Seems to do better with lighter and less frequent applications of water.
- Stands up well under extremely heavy play and recovers very rapidly from abrasion damage.
- Resists invasion by poa annua and crabgrass.
- Can be made to produce an excellent putting surface throughout the season.
- 9. The same experiences hold true for the rest of the grasses used but in decreasing values as they are listed previously in this discussion, with C-50 rated as the least desirable in all respects.

I would suggest strongly that, as selections are made and looked upon favorably



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# Water Management Emphasized At Rutgers Short Course

A total of 79 individuals registered for the Rutgers One-Week Course in Turf Management held Jan. 30 through Feb. 3.

Among the variety of lecture topics, two subjects were given extra emphasis. First, water management on turf occupied an entire morning session. Dr. James R. Watson took time before his move from the Pennsylvania State College to Texas A & M to talk on "The Influence of Compaction and Watering on Turf". He presented data showing an increase in disease and crabgrass with the excessive use of water. Dr. Fred V. Grau followed with comments on "The Proper Watering of Turf". He stressed the fact that water is too often used in excess on turf. Also, he suggested that mechanical treatments such as aerification be used to open compact soils to better penetration of water.

The second major topic was fairway renovation. Dr. M. A. Sprague of the Farm



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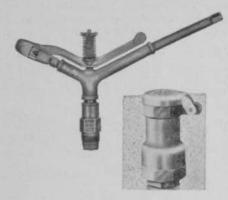
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Crops Department of Rutgers University opened the session with a talk on the fundamentals of renovation. Mr. Ed Casey and Mr. Leonard Strong followed with discussions of their respective fairway renovation programs. Both Mr. Casey and Mr. Strong pointed out the difficult problem of getting the turf grasses started ahead of poa annua. The value of completing the seeding in late August or very early September was stressed.

A labor management panel composed of Sherwood Moore, Frank Svehla, William Riley, Al Rathjens, and Ed Casey was conducted by Dr. E. E. Evaul. A very fine discussion developed that gave rise to many practical ideas with regard to better conditions for labor.

Mr. Carlton Treat gave a very instructive talk on "Factors to Consider When Purchasing Equipment." In addition, he conducted the question and answer period. Mr. Warren Bidwell presented some practical ideas that might be used when growing flowers for a golf course. The fine work done by the greenkeepers on their various subjects was a very valuable contribution to the course.

The New Jersey Greenkeeping Superintendents Association presented two power mowers to the New Jersey Agricultural Experiment Station at the Rutgers Turf Course Dinner. These fine gifts demonstrate the excellent support the New Jersey greenkeepers have given the turf program in their state. The group was entertained at the banquet by Dr. O. J. Noer's Mexican travel pictures.

# 1950 Turf Conferences

Mar. 29-30—Third Annual Turf Conference, State College of Washington, Pullman.

Aug. 8—Turf Field Day, Rutgers Univ., New Brunswick, N. J.

Oct. 16-17—Third Annual Turf Field Day, Plant Industry Station, Beltsville, Md.

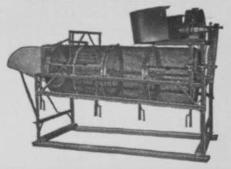
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# Chicago District Making Costs Survey

The Chicago District Golf Association has mailed 11 pages of facts, figures and questionnaires to 77 member club presidents in an effort to aid in cutting waste in golf club operations. John P. Garrow and Fred Slyder, Co-Chairmen of the Club Management Committee have announced a four-point program, saying, "Most members treat golf as a luxury and don't realize they own an equity in plant and equipment totaling \$50,000,000 in the Chicago area alone. It's an industry from which 100,000 people earn a living. While costs continue to go up, most personal incomes are going down. The days of waiting lists are over. Golf clubs must cut costs and reduce cost of membership to stay in business during the years to come."

After two years' preliminary study, the committee's four objectives are: (1) A directory of information to provide club officers and directors with accurate information concerning all clubs in the district, their boards of directors, department heads, types and classes of membership, dues, all extra and special charges, etc. This directory will eliminate the guess work and gossip so long a part of club meetings. (2) Sectional meetings, north, south and west, to discuss costs, services, menus, etc. (3) Management News to be published semi-monthly containing special reports, digests of management articles, ideas, etc. and all items that will help the officers, directors and management do a better job. (4) An annual operating survey of income and expense, with special studies being made of food, beverages, greens, lockers, debt retirement, taxes, assessments, etc.

Stanley A. Van Dyk, CDGA president, has assured member clubs that these figures will not be used indiscriminately. Only those clubs which contribute information and figures will share in reports compiled and only designated officials of cooperating clubs will receive these reports.



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# NEWS from the MANUFACTURERS

### GOLF BALL PRODUCTION

Figures submitted by the Golf Ball Manufacturers Association and compiled by the Athletic Institute indicate a total of 2,125,900 dozen golf balls were produced in 1949, as compared with 2,185,400 dozen in 1948, or a reduction of 59,500 dozen or 2.7%.

## GOLF CLUB PRODUCTION

Figures submitted by the National Association of Golf Club Manufacturers and compiled by the Athletic Institute indicate there were 2,976,700 golf clubs produced in 1949, as compared with 3,537,300 in 1948, or a reduction of 560,000 or 15.8%.

Of these totals, there were 1,977,600 iron clubs in 1949, as compared with 2,402,900 in 1948 and 999,100 wood clubs in 1949 as compared with 1,134,300 in 1948.

The manufacturers inventory at the end of each year was practically the same.

# MURRAY HEADS COPPERWELD FENCE DEPARTMENT



W. J. Murray

The appointment of William J. Murray as Mgr. of the Fence Dept. of Copperweld Steel Co., Glassport, Pa., has been announced by William W. Ege, V-P in Charge of Sales. In his new capacity, Mr. Murray will head up the sales and installations of Copperweld Chain Link Fence, Barbed Wire and other Copperweld Fence Products. A native of New York City, he

comes to his new position with a background of 30 years experience in the fence industry.

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### MacGREGOR CATALOG OUT

The 1950 MacGregor Pro Golf catalog is now available, advises R. D. Rickey, Pro Sales Mgr. for MacGregor. Featured in the 36-page catalog are the new "MT" woods and irons, Tommy Armour, Byron Nelson and Louise Suggs clubs, Tourney balls, Tufhorse golf bags and Craig Wood sportswear. Included for the first time is an explanation, by chart, of the various True Temper shaft patterns available.

# BAG-JACKET, OVER-ALL BAG COVER FOR PRO SHOP SALES AND SERVICE



Harrod Bag Co., 7250 N. Western Ave., Chicago, Ill., are introducing a new idea in golf luggage protection in their Bag-Jacket, a water repellent duck jacket in various sizes to fit over golf bags to protect them and their contents against damage in club bin storage handling, travel and shipping. A pro only item, Bag-Jackets are equipped with tamperproof zippers and loops for lock and shipping tags. With Nylon prominently featured in 1950 bag lines, these new protective jackets

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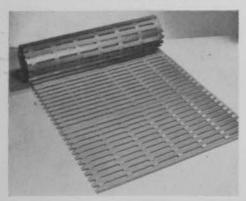
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