

1 **GOOD AERATION** on greens to stimulate grass growth and to give more uniform putting surface is essential. At the best this is still a difficult job, requiring considerable time and labor. There is need for aerating machines which can do the work quickly, economically and effectively. It is possible that several aerations during the season should be given each green. Until machinery becomes available for this work the problem will remain unsolved for the most part.

2 **FERTILIZER** is still applied on top of the soil instead of down where the roots can secure most rapid benefit from it. Lime for the most part penetrates downward slowly, as do phosphates. Since these are fixed near the surface upon application, it takes several years before the greens secure full benefit from such treatments. Ways and means of getting this fertilizer down into the soil need to be investigated.

3 **DISEASES** usually are rampant during a considerable part of the playing season. While effective fungicides are available today, a sure way of solving the problem is to develop disease resistant bent grass strains. Variations in this characteristic now exist in the available strains and plant selections. This field appears particularly promising from a plant breeding standpoint and some real progress may be made before long.

4 **SUB-SURFACE IRRIGATION** or watering would eliminate much overhead in terms of labor and effort and actually be ideal for grass growth. Water applied from below the grass roots would eliminate packing and pounding from surface irrigation while stimulating deep root penetration at the same time.

5 **WEEDS** on golf course greens still remain an unsolved problem, even though many broad-leaved weeds have been brought under easy control through the use of the new herbicide, 2,4-D. The only other method of control is through handweeding. This is an expensive, labor consuming item on many golf courses. Chemical control of weeds on close cut, bent grass surfaces is much to be desired.

6 **TRUE PUTTING SURFACES** are rare all too often. This is sometimes true because of the blend of bent grass used. The components produce an uneven texture because one strain lacks disease resistance or recovers less rapidly than does the other. Blends of bent grasses capable of producing a true putting surface throughout the growing season need to be found.

21

PROBLEMS TO TROUBLE THE GREENKEEPER

By **GILBERT H. AHLGREN**

(New Jersey State Agricultural Experiment Station)

7 **THE BEST TOPDRESSING MATERIALS** for ready and effective results remain uncertain. A mixture of sand, silt, and organic matter is basic probably, but the proportion of each and the kind of organic matter may be very significant. Materials high in lignin appear to have real possibilities in terms of lasting qualities and for efficient absorption of plant nutrients and moisture.

8 **THE DAY HAS ARRIVED WHEN** power equipment is essential on golf courses. Labor is expensive and difficult to secure, and ways and means of obtaining short cuts are great helps. It would seem then that power mowers for cutting the greens and machine methods for spreading fertilizer or topdressing must come. For such purposes light equipment, built of aluminum or some other similar light weight material, is needed.

9 **GROWING A NURSERY** of bent grass suitable for resodding the green requires extra time and labor. Holding some good sod in reserve for replacing worn areas is just sound insurance against bad times. The elimination of this task depends upon the development of a fool-proof grass for the greens.

10 **ELIMINATING POA ANNUA** from the greens is a problem for which no easy solution has yet been developed. This winter annual grass often comes in heavily in the fall, grows luxuriantly in the early spring, and disappears during the summer months. Cultural practices help to a certain extent in checking it, but these are inadequate.

11 **MOWING PRACTICES ON FAIRWAYS** are, at present, in general, undesirable. This is true because the

golfer demands close cutting, and such treatment in time results in a thinning of the turf and invasion by undesirable weeds. There is no real way to bring the course superintendent and the golfer together on this issue unless a grass can be developed which will stand close cutting over long periods of time. A disease resistant bent grass would appear almost ideal for this purpose, the job being to develop such a strain.

12 THE WASH-BOARD EFFECT is another difficulty in fairway maintenance resulting from fast mowing. This probably is the fault of the machinery since it is not geared for rapid movement over the long expansions of grass. Investigation and research toward developing better fairway mowers might eliminate washboarding when the tractor operator drives at a rapid pace.

13 FERTILIZING: In spite of the fact that many fertilizer tests have been conducted over a long period of years, there is still uncertainty as to the best kind to use for maximum benefit to fairway grasses. The recommendations vary widely and probably will continue to do so, but ratio and formula could be more certain than at present. Perhaps plant tissue tests may help in arriving at a satisfactory solution.

14 ERADICATING CLOVER AND WEEDS by large scale efficient methods is being investigated. The 2,4-D weed killer is effective for doing this job, but equipment to apply it on an efficient and economical basis needs to be adapted to the golf course. Fairly large booms attached to power equipment probably is the best answer for large areas.

15 LOW LYING WET AREAS need to be drained or made into artificial ponds. Various methods of drainage exist. The one to use is not always too evident. Tile drainage appears practical where there is some place to lead the water away from the low spots. Ditching is also excellent providing the slope and removal points are satisfactory. If these conditions do not exist, it may be that low areas should be built into small lakes or that some type of subsoil drainage must be provided.

16 THE GRASS MIXTURES to use on fairways for different soil types continue to be somewhat of a puzzle. As many mixtures will be suggested as there are people who think about them. Few individuals agree on the proportion of one grass to the other to use, and sometimes don't even agree on the species to be included. Uniform tests conducted on a regional basis is one possible answer.

Over-All Problems

17 THE INSECT PROBLEM continues to be with most golf courses. The chinch bug has been particularly bad in the East during the last 3 or 4 hot, dry seasons. The Japanese and Asiatic beetles and their grubs are widespread in the eastern United States, and the June beetle and its relatives are in the mid-west. Economical and efficient insecticides are needed as well as methods for detecting injury promptly before large areas become infested with these insect pests. Lead arsenate will control grubs but it is expensive and poisonous. DDT or Sabadilla appear to be one answer to the chinch bug.

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New clubhouse of Oyster Harbors club, Cape Cod, Mass., is fine example of close cooperation of architect, manager and pro. John Barnard, Boston, is architect. John J. Fitzgerald, noted manager who is credited with making Oyster Harbors most popular vacation spot on the Cape, and Jean Anderson, the club's valued pro, teamed in helping make the new layout ideal from an operating standpoint. Building is on a hillside and adjacent to first tee. First floor is on fairway level and ground floor, which is above grade, is level with parking space in rear. Lockers are provided for 150 men and 100 women. Grill room is in knotty pine, Cape Cod fashion, with large fireplace and big bay window. Adjoining grill is terrace which commands view of course, especially 18th green. Opposite the grill is the pro shop. A caddy room, with recreation and toilet facilities for the kids, is on the lower level, apart from guest activities.

Bag Cart Traffic Is Course Wear Problem

By VERNE WICKHAM

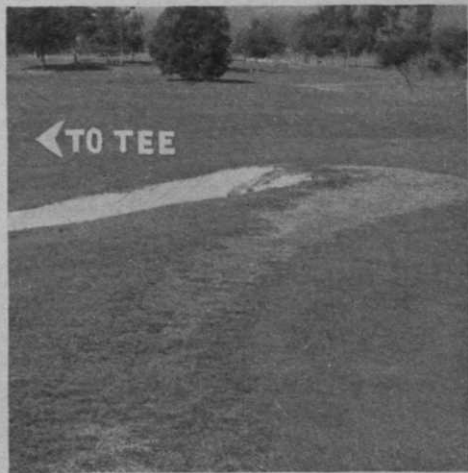
THE GREENKEEPER and golf course architect on the postwar golf course have a new problem to consider—the bag cart.

There can remain little question but that the two-wheel buggy is with us to stay. It is now almost as much a part of the golfer's equipage as his clubs, shoes, and bag. And along with this new wrinkle in golf has been added many wrinkles in the greenkeeper's weary brow.

The design of the future golf course will be planned around the bag cart traffic as well as the topography, direction of the prevailing wind or type of golf course desired. Traps may be located differently, standard type of green designs altered, fairway contours planned to handle bag cart traffic. Clubhouses and pro shops must be constructed with storage space for the buggies. Local rules may be changed.

West Coast golf managers began to worry about the buggies when they first hit. Methods of legislation were attempted to protect the pro and the course from the

TURN RIGHT—Here's a typical example of what can happen when tee and trap were designed (before the bag cart). Traffic is directed into narrow path between trap and green. Next tee is located on the hill directly back of the green which is bad since it naturally directs all cart traffic around the green to the right between trap and green.



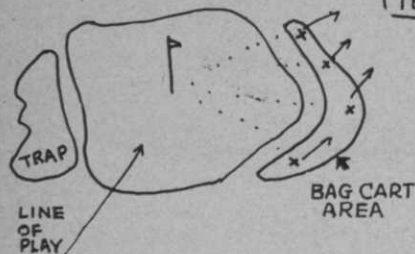
TURN LEFT—Here is the opposite situation. Next tee is off upper left hand corner of picture. Traffic just naturally runs down narrow approach to the left. Line of play to pin is diagonally across right hand corner.

“outlaw” cart which began to appear. This wasn't too successful because in municipal or public golf it is difficult to legislate the type of equipment a man is going to carry while on your golf course. Then much spade work was done to govern the size and type of the wheel. The manufacturers carried along with this idea and rubber tires with at least 1¼ in. tread became standard. But this limit on size of tread doesn't affect the weight of the golf bag, number of balls, shoes or personal accoutrements carried, so that carts loaded down with 50 to 70 pounds circle golf courses every day sustained on two tiny wheels. Slide, roll and pull these heavy weights over soft fairways from daylight to dark and it spells trouble. Particularly on courses not so designed to handle the traffic. The new golf course design must make allowances for this tonnage on wheels.

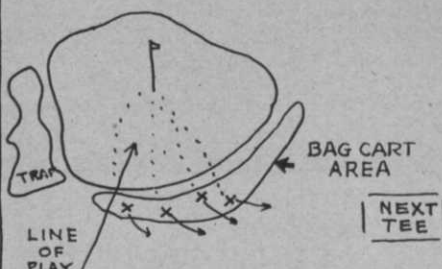
After several years operation under bag carts it becomes obvious that several types of greens can take it—others can not! You can almost cut that number down to two types and no golf course can be interesting with just two kinds of greens. It is up to the architect to come up with some new designs.

GOOD

(NEXT TEE)



BAD



Greens Escape Cart Traffic

The two major types of greens which have stood bag cart traffic best are those with a large trap square in front and the table-type green which is elevated enough from the surrounding fairway that the golfer just doesn't lug his cart up the incline.

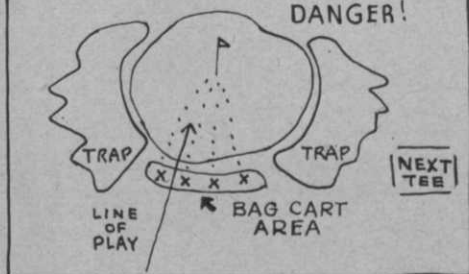
The green with the trap in front naturally splits all buggy traffic in two—cutting down the wear and tear around the green. If wide enough approaches are left around the green the players split the load. Traps in back of the green, if properly designed, serve the same purpose as far as the traffic to the next tee is concerned. Trees and shrubbery must be given full consideration, leaving many openings away from the green toward the next tee to split the traffic again or else concentrating all traffic in a narrow lane or path and making local rules to govern.

The table type green is a "natural" as far as bag cart players are concerned. They just don't drag the carts up the incline. Rather they leave the cart on the fairway and after putting out return to head to the next tee in many different paths. This type of green is seldom heavily trapped; that allows free choice of direction or path to the next tee.

No golf course would be interesting with just two type holes. So, let the golf course architect come up with some new designs and other clever methods of directing bag cart traffic without removing the sportiness from the game. That's the architect's business. But there are other features which should not be on the postwar golf course if traffic of bag carts is considered.

No more narrow approaches between the traps and the putting surface particularly on the side of the green toward the next tee. This directs all bag cart traffic to a narrow opening, usually about 6 feet wide. The grass is worn down in a few months leaving hard rutty ground. Neither can traps be placed flush with the

DANGER!



putting surfaces because, rules and regulations notwithstanding, the bag cart golfer will drag his cart across and around the green between the sand and the putting surface and wear out a path in the green. So, perhaps the traps best be moved farther away from the greens and a sloping approach of at least 20 feet left between the sand and the green. Traps might be long and narrow running with the green so that the golfer would feel encouraged to leave his cart back of the trap.

Tees should not be placed directly back of the preceding green. This encourages golfers to cut right across the green with their carts, or at least narrow the traffic at one spot on the back side of the green. Place the tees on the side, far enough away for safety and in a spot where they naturally will be approached from a number of different directions.

Tee placement is going to be the real key to traffic control. They can be placed to form a "bag cart route" around the course.

Large traps stretching across the fairway will have to be divided to allow bag carts through. Large traps around the green ditto. Probably long narrow traps running with the fairway and small pot bunkers, 2 to 4 feet deep, will be the answer. Certainly much can be done in

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Preview Tomorrow's Club At Managers' Convention

By HERB GRAFFIS

APPROXIMATELY 500 managers of country and city clubs, their wives, and supply and equipment dealers attended the Club Managers Assn. of America convention at Hotel Gibson, Cincinnati, March 10-13. Golf clubs were honored by the election of Eric G. Koch, executive mgr., North Hills CC, Douglaston, N. Y., as president of the association, and by election of John J. Pomeroy, Red Run GC, Royal Oak, Mich., as v.p. Fred H. Bernet, Missouri AC, St. Louis, was re-elected sec.-treas.

This probably was the most brass-tack convention the association has had since it came into being at Chicago in 1927. The convention committee consisting of Fred Crawford, Charles R. Bangs and Joseph P. Tonetti, steered the general program closely to the "Tomorrow's Club" theme. Cincinnati hosts headed by L. Roy Leonard and Frank H. Rolfes, and with the cooperation of purveyors, took excellent care of the dining and wining sideline of the convention, which in the club managers' case amounts to a demonstration of new ideas that managers can use in staging smart affairs at their own clubs.

Of special interest to golf club managers was the conference presided over by Carl J. Suedhoff, gen. mgr., Fort Wayne (Ind.) CC. Confusion in tax matters continued to trouble golf club managers. Strongly accented was the necessity of a lot more attention to employee welfare in insurance, living conditions and other matters enabling the club to compete with other employers for desirable help at what golf clubs can afford to pay.

Uniform Accounting Again

Again the matter of uniform accounting enabling clubs to accurately compare figures was briskly discussed by country club managers. Some years ago the CMAA prepared uniform accounting forms but the system never was widely adopted. What prevented the extensive and logical

use of an uniform system was inability of club officials to realize that different standards of service were maintained, by members' insistence, at various clubs, and that there were wide variations in operating conditions at clubs.

Some favorable reports were received on bowling alley operation at country clubs. Tom Harvey, Wee Burn CC, Darien, Conn., mgr., said 4 alleys at his club netted about \$1500 annually and accounted for a jump of 150% in food business and 200% in beverage sales. The alleys cost \$12,000. E. Everett Martin, Chevy Chase CC mgr., said 4 alleys at his club net about \$800 a year. Chevy Chase caddies serve as pin boys, and the pin boy problem is no easier than the caddie problem.

Pool Location A Problem

Wayne Miller, Milwaukee (Wis.) CC; L. Malcolm Tyler, Ridgewood (N. J.) CC; William F. Roulo, Metairie CC; Richard Hirmke, Minikahda Club; Guy Erbschloe, Fort Knox Officers' Club; and Chedville L. Martin, Southern Hills CC, participated in a discussion of location and operation of swimming pools. Location too far away from the clubhouse is a headache that makes the manager want to drown himself in the pool, consensus declared. Kid problem is a delicate and persistent one around pools. At Southern Hills, kids are served from a little stand at the pool and no bottles or glasses can be carried around. A long walk at the Southern Hills club, leading from pool to locker-rooms, now has a channel containing chlorinated water for sanitation. Swimmers can walk in it or on the hot slate; as they please. Installation of separate locker-rooms for kids was regarded as a must.

The never-ending discussion on what floor material for locker-rooms again came up just as strong as it was before the war. Double matting where wearers of spiked shoes make turns was mentioned as one saving idea.



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The year-around theme was mentioned often. Solon R. Featherston, Wichita Falls (Tex.) CC said his club is considering installation of a hot water system allowing year-around operation of the pool. Cash or charge basis of member payment was debated to no firm over-all decision. Difficulty of changing from cash to charging involved employees' complaints of not getting tips. Mrs. F. Buck, North Shore GC, Neenah, Wis., said their members deposit from \$50 to \$500 against which they draw for club charges.

Watch Tax Rulings

Warning was given that if the Christmas contributions for employees are NOT on a voluntary basis the income derived for the employee is taxable. If systems are set up on an exact bonus basis that bonus is taxable too. Retirement, emergency sickness and benefit funds were discussed. Caddie recruiting, management and payment also came in for considerable comment.

There was enlightening argument about accounting of restaurant and bar business; whether it's wise to depend on restaurant and bar profits instead of dues primarily as the basis of the club's financial operating plan. The country club managers' round table finished in an inclusive discussion of whether or not cooperative purchasing of clubhouse supplies was practical.

Operation Changes Impending

How improved methods and equipment are coming to the aid of clubs that will have to operate under conditions decidedly different from those of pre-war days was a hopeful note in most of the general convention sessions.

Herman A. Breithaupt, instruction chef for the Detroit (Mich.) Board of Education told how that city is training young men to be competent chefs. The job is done on a combination schooling-work basis with hotels and restaurants. The same educational plan is under way in Chicago.

R. W. Kubasta, speaking of "Air Conditioning and Refrigeration for Tomorrow's Club" emphasized that air conditioning wasn't just cooling air but meant producing comfort conditions under proper control and free from drafts. He said the biggest complaint is that places are kept too cold. Especially the employees make this complaint. Humidity is just as important as temperature, Kubasta said in talking of refrigeration. Considerable change will come into country club refrigeration with the increased use of quick frozen foods, he stated in a lively question and answer session which followed his address.

Clarence Birdseye, pioneering genius in the frozen foods industry, made an in-

tensely interesting talk on the changes that dehydrating and hard freezing make in composition of foods and what processing has to be so these foods are restored to virtually fresh condition. He forecast that in the not distant future country clubs would prepare or buy a goodly quantity of their foods and keep them prior to service in low temperature storage. He said there'd be great saving of space, elimination of waste, improvement of quality, closer cost accounting and quicker preparation. There'd be less kitchen help required, he added. The steam table would practically disappear due to quick transit of food from storage to table.

Whisky Shortage for 3 Years

For the next 3 years 85% of American whisky will be spirit blended said Raymond E. Deateale, vp, Glenmore Distilleries Co., Inc. Deateale pointed out that from 1934 to 1941 legal sale of spirituous liquor had followed national income on a basis of approximately 1½ gal. per \$1000. With increased national income now and stocks depleted because of war restrictions, bottled in bond or the better blends will be exhausted by July 1949 at which time about 100 million original proof gallons made in August, 1944, and July to December, 1945 will be ready for consumption providing they haven't been used in immature stuff. Cut from that legal shrinkage and there's left about 80 million gallons. Deateale declared that demand for grain for export to famished of other countries would reduce whisky and beer manufacture but that it would be a selfish and stupid fellow who'd complain about that.

His address made the newspaper headlines in stating that about 10% of the nation's whisky stocks are in hands of "vicious" interests, meaning the black marketers. Club managers were inclined to think he was possibly on the conservative side.

James C. Bjorkholm told of the future use of aluminum in clubs, saying that strength of aluminum now is greater than before the war and cost is lower. Lightness, durability, looks, ease of fabrication, non-toxic properties, thermal and electrical conductivity and heat and light reflectivity are other factors he mentioned as assuring increasing use of aluminum at clubs.

Louis E. Kahn said that better grades of beef come onto the market about the time when country club business gets bigger so the outlook is not bad. However the black market is playing hell with the law-abiding packers. They have to set aside about 30% of their top grades and even a higher percent of their lower

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