

Construction Improvements Suggested by Supts.

By: W. E. LANGTON • CHESTER MENDENHALL • WILLIAM SMART
AL LINKOGEL • GEORGE KNOX • EMIL MASHIE • W. H. "BILL" JOHNSON

Many of the maintenance troubles on golf courses are caused by original defects in construction. When the courses were built their construction possibly was the best that the current practice could devise, or it could have been that the necessity of speed and cost cutting by the builder accounted for faulty construction that has been causing trouble and money every year since.

Tremendous advances in turf maintenance knowledge have been made since the 20's when the majority of first class U.S. courses were built or altered in major respects. This progress has provided a foundation for new construction that many clubs believe should not be postponed any longer. Heavier play, mechanical maintenance, longer season and the tendency in numerous cases to do away with the old style tough rough, new watering, fertilizing and chemical weed eliminating practices also have had effect in dictating course modernization.

GOLFDOM queried men well known for their work in course maintenance to tell from observation of needs at their own and other courses what reconstruction work they consider would improve the maintenance and playing conditions.

Their replies, together with many other comments GOLFDOM has received from course superintendents and green chairmen, show there's a great deal of work that needs to be done on first class courses before they can be regarded as being in up-to-date condition.

Especially interesting is the comment from W. E. Langton, veteran supt. of the San Gabriel (Calif.) CC. Langton thinks of the present situation as a reminder that in planning work for the immediate needs one must look far ahead with foresight that was not used when much of the existing course construction was done. The developments of the past two decades in course design, construction and maintenance have been so pronounced that any old-timer in golf scarcely would have imagined, 20 years ago, that these advances would be made.

Langton says:

"The subject of reconstruction or im-

provements to existing courses is both interesting and instructive to those who wish for the advance of the science of greenkeeping. If our foresight were as good as our hindsight, there would be no necessity for writing this. But we all make mistakes and many errors have been made both in construction and maintenance. You pertinently ask the question, 'What would you do if you had to build the courses over again?' I would first of all try to visualize or make some kind of a forecast of what improvements in machinery are likely to take place during the next decade. For instance if we could have foreseen only 40 years ago, powerful tractors hauling seven 30 in. cutting units around with ease and proficiency that is really astounding, we would have changed much of the old type of construction to meet this modern piece of machinery.

"Those who will live during the next 40 years will no doubt witness even greater improvements in our cutting machinery than we have seen in the past, so if I had to build our course over again, I would see that every foot of ground was made available for the use of this improved machinery. I would eliminate all steep grades wherever possible, especially around traps and do away with all hand labor to lessen costs and secure greater efficiency, and then I would fill up many unsightly holes in the ground we misname traps. I never could see any beauty in a hole in the ground with a few loads of sand thrown in to punish some poor dub who unfortunately got his ball in the hole. These holes are both ugly and costly, for after all, sand traps are the most costly item to maintain in proper condition, more so than any other item on a golf course.

"I know at the San Gabriel CC, for every two hours we spend in cutting and taking care of greens, five hours are spent in cleaning and raking sand traps. A few clumps of trees placed at strategic positions could take the place of these holes and would be even more punishment to those who stray from the straight and narrow path.

"It may be a delightful feeling to wit-

ness one's opponent blasting away his hopes and desires out of some infernal hole in the ground, but at least we can fill some of them up, add beauty to our courses and impart a little more peace and serenity to our family of golfers.

"Had we foreseen wars, depressions, inflated prices and high wages, there are many things we would have done to lessen costs. We should have installed a good irrigation system when labor and material was cheap. That installation alone would have reduced our irrigation costs by over 75%. But our vision of the future was poor. We could not see that labor would advance three times and material costs somewhere near the same rates. But in those good old days labor was cheap and plentiful and material could be had in any quantity and it seemed to us then that it was cheaper and just as efficient to engage labor and buy hose and sprinklers than it was to put in a proper underground irrigation system. But we can see our mistakes now and we certainly have to pay for our lack of foresight and business acumen. With high labor and material costs it would pay to install an irrigation system even now if material was available.

"Another thing I would do if I had to redesign our greens: I would give each green more putting surface. It seems to me to be a great waste of time and effort to design a 3,000 sq. ft. of green and have available only 800 to 1,000 ft. of real putting surface. Those excessively contoured greens may be very beautiful to look at, and satisfy our artistic sense, but unless they give us a maximum amount of utilitarian value the time spent in construction and maintenance is both costly and wasteful. There are so many things one would do if one had to do the things over again. I would build larger tees, and greater parking areas, but the most important of all is to have vision to foresee the evolution that is likely to take place in the near future."

Chester Mendenhall, supt., Mission Hills CC (Kansas City dist.) and pres., Green-keeping Supts. Assn. of America, stresses manual labor as far as is compatible with first class turf condition in modernizing a course for good play on a wasteless budget. Mendenhall says of the changes he would make at Mission Hills:

"Mission Hills course was constructed 34 years ago, so the original design of the greens was rather crude. The layout of fairways is about the same as the original design but the greens have all been changed, one or two at a time. Most of the redesigning has been done by the various greenkeepers who have been in charge of the course.

"The greens all have good surface drainage and most of them are tiled and have a very good soil mixture that drains well.

"Here are a few of the things I would change if I were rebuilding the course: Three greens had cinder mixed in the top soil for drainage at the time of construction. There are so many cinders that you have to sharpen the hole cutter after changing these three cups. I would re-surface these three greens.

"We still have a few bunkers that are too sharp for mowing with a tractor. If I were improving the course, I would eliminate all banks that could not be mowed with a tractor.

"Some tees are located where they can not be enlarged to sufficient size. They should be relocated.

"The watering system I installed myself and I made some mistakes. It is a cast iron snap valve job with all the main lines of 6 in. pipe. All fairway valves are set on 3 in. or larger with 2 in. lines up to the edge of all greens and tees. There are two and three valves at all greens with one valve in the middle of each tee and they are watered with a short hose and sprinkler. Here is the worst mistake. We used small valves at the tees and greens.

"If I were putting in another system I would use the same size valves all the way through. Then always use the greens' hose and sprinklers to water spots on fairways that need extra water.

"I think all courses have areas on fairways that require more water than the rest of the fairway and they are generally situated so that if one tries to water them with the large fairway sprinkler, he will be over-watering some of the area covered by the sprinkler."

Wm. Smart, supt., Dutchess G&CC, Poughkeepsie, N.Y., is a son of the late J. M. Smart who had a notable career in advancing course maintenance standards. Bill says he testifies more as a "working foreman" than as a course supt. on construction problems that need quick attention. However he believes that some of the jobs at Dutchess probably are typical of what needs attention at many other courses.

Smart writes:

"With the increased play of the past few seasons I find that our tees (built 20 to 30 years ago) do not have enough playing area. This will be remedied by completely renovating and enlarging the present tees. Three of our present tees were built on a base of stones. That is, the kind of stones that are common in stone walls in this section. I find that



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these tees are very hard to keep grass on during the usual summer dry spells. To make matters worse, chipmunks and mice burrow down and make their nests in the hollows in the stone. We eliminated the mice with a 20% AWTU powder. Developed by the government during the war, it's mighty potent stuff on the short tail mice we have. I haven't tried it on the chipmunks as yet, but I have every reason to expect the same results on them.

"As a result of the heavy traffic we have also had to put 'pop ups' in the tees. A few of our tees had old model 'pop ups' in them but they can't begin to compare with the newer designs in nozzles and construction.

"In the past we have had trouble (and complaints) with the steps up to our higher tees. These were just cedar or locust posts laid down and staked with pipe. They were very hard to maintain because of settling, unsightly weeds and grass and the wear and tear from spikes. A few near accidents and we had to go to work on them. Railroad ties sawed in half did the job beautifully. Digging out the old steps, putting in 54 half ties and tamping them in took five men the better part of a day. The steps are now uniform to look at and as safe as steps can be made. The only maintenance will be a yard of fill and a tamping each spring.

"For many years we have used small Fairbanks Morse pumps for our water supply. Although good pumps, one feature caused many lost man hours and loss of full water pressure. For a cooling system the pumps have a 3 or 4 gallon water

hopper over and around the piston walls. Within an hour or two after starting this water would be boiling and eventually would boil away. The result of this was that the pump (or rather the motor) needed constant attention. Sometimes the men would forget it and the pump would overheat and stall. This was remedied by drilling a hole in the hopper at the water line and inserting a half inch copper tube for a run off. Then a slight trickle of water was allowed to run into the hopper by means of a hose from the outside tap. Now we can start the pump, lock the pump house and forget it. The length of running time is regulated by the amount of gasoline put in the tank."

Teamwork for Supt. and Architect

Al Linkogel, noted in central states for his performance as supt. at Westwood CC (St. Louis dist.), says that in too much of the alteration and completely new course construction fundamental errors will continue to be made because of lack of close association and consultation between the architect and greenkeeper.

It is Linkogel's observation that the greenkeeper should be hired before construction begins on a new course and before plans are approved for alteration the greenkeeper should go over them in considerable detail and with deliberation, together with the architect.

Al points out that on any number of courses par three greens are located in the lowest spots of the entire area where air and water drainage is bad. The greens normally get hard wear from play and

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Business conferences, especially in Minnesota and Indiana sections of the PGA, each spring bring out ideas that have added to the incomes of veteran pros and younger fellows in the business. These and other test runs of the training school idea have demonstrated that there is need for schools with officials collaborating with college athletic departments and faculty members in the planning and conduct of the pro educational courses.

Some boost was given to the organization of pro training by the GI Bill of Rights deal which called for defining what kind of training a professional golfer should have. When an ex-GI qualified for that government help he had to take a course that professionals and educational authorities agreed eventually should make him able to handle a master pro job. Assistant's training also has received a lot of attention from pros lately. Many candidates for assistant jobs want to play golf and develop their own games but don't want to work at the other less glamorous, but highly important, phases of the golf department job.

It all adds up to pro planning of business education having progressed during 1948 although it has some way to go before the pro schooling is on a basis comparable to that of greenkeepers.

Youngsters are jumping directly from amateur ranks into pro jobs at clubs, notwithstanding the PGA Class A membership requirement of years of apprentice training. Observant experienced professionals have expressed the belief that unless the PGA takes action on a definite program of education for the pro golf business inexperienced club officials are bound to consider the main requirements needed to hold a pro job are ability to score rather well, reasonable understanding of the methods of the game and a pleasing personality.

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with difficult maintenance conditions they're always a headache to the supt. and players, as well as costly in maintenance.

In layout of watering facilities Linkogel also urges that the man who is going to maintain the course be allowed plenty of time to go over the plans. Then there won't be need of 200 ft. of hose for green watering from the nearest outlet, which is the case when pipe and fitting cost rather than long-time operating expense, has been the governing factor. He also points out that increasing high speed of mowing is going to call for foresight and practical knowledge in planning bunkering for machine maintenance.

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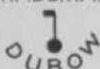


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It is Linkogel's opinion that clubs will continue to make maintenance costs unnecessarily high and reduce playing and maintenance satisfaction unless the man who is to be responsible for course maintenance oversees the building of greens and tees to make certain that correct soil mixture, drainage and seeding are used and so greens are not too heavily contoured for machine mowing, proper surface drainage and ample cup-placing area.

He believes that architects will benefit greatly by getting greenkeepers' advice on design and construction of tees to distribute wear and reduce maintenance cost. The tendency to design tees fitting into the landscape rather than the customary rectangular type Linkogel thinks is going to call for plenty of mutual study by greenkeeper and architect.

Avoid Penny-wise, Pound-foolish

George Knox, veteran pro-supt. at Calumet CC (Chicago dist.) brings out an interesting point in saying that if he had the assignment to build Calumet he would insist that a proper program be strictly maintained right from the start instead of the penny-wise and pound-foolish policy that has cost so many clubs dearly.

Knox declares that proper construction right from the beginning is now thrifter than it ever was before as it assures early play on a finished course, consequently earlier income and saving of interest charges on money tied up in an unplayable course at present high prices.

George recalls how long it took to get Calumet's 17th fairway in its present excellent condition of good solid bent. He wanted to haul in black soil but the expense was considered prohibitive. George sowed rye and fertilized heavily with rotted manure annually for years. Results eventually have been highly satisfactory but the time lag and total cost of labor probably would be prohibitive now.

In addition to agreeing with other superintendents on trap construction for machine maintenance Knox says that traps should not be too deep and should have plenty of sand for appearance and play. He further reminds that all traps should be drained running into the main tile, and that trap design and location with sand loss by wind and drainage should be considered.

Knox continues:

"Fairways should have no pockets in them, for if water is allowed to lie in them for any length of time it is terrific when the sun comes out. Fairways should be well tiled with a good 10-inch main and lots of laterals running into the main.

My opinion is that you cannot overdrain a golf course. Tees not too high off the ground and the shape irregular; nothing on the square style. It would be a good thing to tile them, also.

"I believe in using large tees so you can keep moving the markers, in some cases two tees, as it all depends on the type of hole.

"The greens should be on the large side around the 6000 sq. ft. Of course, it depends on the length of the hole; not too high in the air, and a nice gentle contour on them but plenty of putting surface so you can place the cup. The shape depends on the background. I might say I got a lot of experience while taking an ocean trip, in building a golf course, also greens. I used to stand up on the deck and watch the waves make some of the finest of greens and bunkers in a few seconds and in the next few seconds they were gone as fast as they came. But you do get some great ideas about forming greens, bunkers and fairways. Of course, all greens should have surface drainage, plus sub-drainage. No green should be built unless it is tiled. I saw to that when I built Calumet 28 years ago.

"As far as the soil is concerned, the top 10 inches should be rich black loam base

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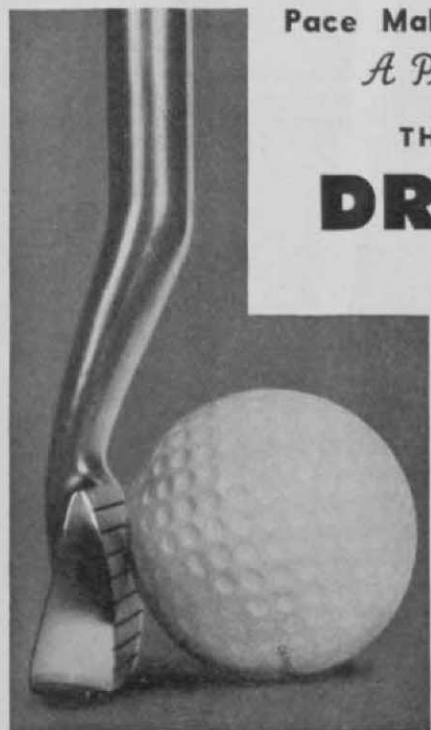
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mixed with sand. I am convinced that if some of the greens in the older courses in the country were disced up and well pulverized they would make the finest of greens.

"Of course there should be plenty of trees on the golf course, properly located, and of different varieties. We have a fine watering system at Calumet; right down the middle of the fairway, valved every 99 ft. apart, covering the whole width of the fairway and then some. Since it was put in in 1935 I have increased it to care for all greens and tees around the club house.

"Of course a watering system has to be used with a great deal of common sense; you can ruin the grass by overwatering. Then, watering should be done at the right time. But I know my membership would never go back to those hard, dry fairways. Out of the 51 acres of fairways, I must have 30 acres of the finest of bent on the fairways, all got by putting sod here and there, where needed.

"In a few years the golf courses will be free of weeds by using 2, 4-D. It is a great chemical if it doesn't destroy the grass after 4 or 5 years—but of course the experts say no."

Greenkeeping Science in Building

Emil A. Mashie, course supt., Onwentsia club (Chicago dist.) is not only a top ranking man in maintenance but is one of the best golfers among the greenkeepers. Mashie says that desirable playing conditions always must have first consideration and that all design, construction and maintenance must constantly have that factor in mind.

The two fundamentals that govern the greenkeeper's contribution, Mashie says, are:

Best possible condition for growth of turf in all areas, and

Architecture and construction that facilitates cost- and time-saving mechanical maintenance and allows thorough attention to each detail of the course.

He details points in which greenkeeping science can be most effectively employed in course construction:

"For favorable conditions for growth of turf the most important factors would be: 1. Soil; 2. Drainage; 3. Moisture.

"No expense would be spared in preparation of the soil. Unfavorable physical soil condition is responsible for much grief when it comes to growing turf. Sandy loam to loam containing a favorable amount of organic matter is almost ideal.

"For the greens and tees the soil should be prepared with great care and at least a

foot deep. Soil, sand and peat added to get as perfect a physical soil condition as possible.

"On large areas such as fairways the ideal loam condition should be obtained by additions of sand, clay soil or peat, whatever the case may be to get as nearly ideal growing medium as possible.

"Green crops and manures can be added to make a better physical conditioned soil. I cannot stress too strongly the importance of proper soil conditions as it is the medium for growth and source of food and water for turf. Pre-seeding fertilizing with a well balanced food and the consideration of the P.H. would be an important soil consideration.

"DRAINAGE: Surface as well as sub-soil drainage is most important. Depressions should be avoided on greens and tile laid to take care of excess water. Tile drainage in fairways, if the natural condition is heavy subsoil, should be considered.

"MOISTURE: Irrigation is necessary as maintenance is one of the fundamental elements of growth. An irrigation system should be of a size designed so the whole course can be covered in a short time. In that way moisture could be controlled effectively—along with natural rainfall. After we have theoretically a good turf on our course the next major operation concerning the greenkeeper would be cutting and maintaining it.

"TRAPS: Traps large enough so that they can effectively be raked by power, with slopes not too severe and long to cause a lot of unnecessary work from washouts. Traps well drained. Banks that can be mowed effectively with tractors.

"TEES: Large teeing areas set naturally for ease of maintenance.

"GREENS: Contouring of greens to make easy proper cutting of both surface and banks—and large cupping areas.

"ROUGH: Prepared smooth so it can be cut effectively.

"In general it has always struck me that proper construction—that is, in considering maintenance—is the most economical money that a golf club can spend."

The new Rancho Park Golf Course and clubhouse under construction on West Pico Blvd., Los Angeles, is a fine example of putting into actual practice the latest innovations in planning and design with the player and maintenance viewpoints in mind. The work is being done under the watchful eye of W. H. "Bill" Johnson, Golf Course Mgr. of the LA Recreation and Park Dept., who points out, "that we are trying to construct a golf course for

the enjoyment of golfers with ten handicaps and better."

Bill says:

"The first thing taken into consideration in planning the 18-hole layout was the sun, morning and afternoon prevailing winds and the contour of the ground. Next in our consideration was laying out the holes so that a sliced shot would remain in bounds on the course while a bad hooked shot would go out of bounds. Of special importance was the placement of the greens so they would not be in dead air pockets and thus suffer from poor air drainage. Too often beautifully landscaped greens surrounded by trees have presented maintenance problems never taken into consideration in the original planning. The greens on the Rancho course will be open enough to receive adequate circulation of air.

"There will be complete drainage of the land for the entire course. All greens will be on a separate sprinkling system and slightly elevated for good drainage.

"A special point has been made to have each green, tee and fairway an individual characteristic with fairways running parallel with canyons, instead of across them, for easier walking.

"Tees have been laid out in such a way that players will not have to walk across greens to the next tee or pull carts across the green to get there. Players will find large and spacious areas have been devoted to the tees providing variations in teeing off and permitting machine maintenance and mowing.

"All contours and shaping have been so constructed that maintenance and mowing can be done with tractor and gang mowers with traps placed far enough away from the greens to permit the same. All grades have been held to five per cent or less.

"The safety factor has been taken into consideration insofar as possible by having parallel holes going in the same direction. All four and five par long holes are laid out with the prevailing wind and short holes against the wind.

"This outlines briefly the main considerations taken in planning the new Rancho layout. All fairways, greens and tees have been seeded and plans for the new clubhouse have been approved by the City Recreation and Park Commission. The entire golf development, including the clubhouse, is being financed out of the city's golf revenues, not out of regular tax funds."

The new Rancho course is to be the scene of the 1949 National Public Links Championship and will be completed in time for next year's event.