TABLE No. 2

WEIGHTS OF ROOTS AND CLIPPINGS OF VARIOUS SPECIES OF GRASSES, IN POUNDS PER 1,000 Square Feet of Surface Area New Brunswick, N. J. Season of 1931

	Grass Cut at Putting Length, $\frac{4}{16}$ "				Grass Cut at Lawn Length, 3%"				
Species of Grasses	Total Wt. of Roots in 1st 9" of Soil 6-23-31	Root Wt. Below 1st Inch 6-23-31	Yield of Clippings From April to July 1	Ratio of Roots Bel. 1st Inch to Total Yield of Clippings	Total Wt. of Roots in 1st 9" of Soil 6-23-31	Root Wt. Below 1st Inch 6-23-31	Yield of Clippings From April to July 1	Ratio Total Roots to Total Clippings	Ratio Roots Bel. Ist Inch to Total Clippings
R. I. Bent Velvet Bent Seaside Bent Hard Fescue	93.7 121.5 91.5 144.6	23.1 29.5 24.5 50.0	26.5 26.9 28.7 66.7	.87 1.10 .85 .75	106.9 105.9 130.0 140.3	35.7 37.1 42.2 58.7	27.4 25.3 14.3 27.2	3.90 4.19 9.09 5.16	1.30 1.47 2.95 2.16
		Grass Uncu	T As for H	AY	GRASS CUT AT LAWN LENGTH, 7/8"				
Kentucky Blue Grass Red Top	178.6 161.5	48.9 36.0			174.3 124.7	49.1 32.4	46.9 29.5	3.72 4.23	1.05 1.10

mated in importance. When the roots of the first inch are disregarded, the weights of roots are nearly as great as those of tops on turf cut at putting length, and is 30 to 300% greater on grass cut at fairway height. The high ratio of roots to tops of the velvet bent cut at $\frac{1}{4}$ inch may be due to the high fertility of the soil on that plot, or it may indicate the natural character of the species.

ROOT DEVELOPMENT AND SOIL ANALYSES

ONE important feature of these studies is the almost universal tendency for growth to stop in the 8th or 9th inch. The condition is likely associated with the fact that this soil has been plowed to a maximum depth of about 8 inches during the time it was farmed. The lime and fertilizer used for the crops in that period were mixed with the plow zone but probably did not greatly affect the subsoil. To prove this point it is necessary to correlate soil analyses with root development. This has been done, and the details are reported for three of the grass species in Tables 3, 4 and 5. (See page 12).

RHODE ISLAND BENT

 F_{IRST} , consider the case of Rhode Island Bent grass. The acidity of the various soil zones is given in terms of the P. H. scale. On this scale, 7.0 is neutrality, 6.0 represents mild acidity, 5.5 strong acidity, and 5.0—very strong acidity. The most acid layers of soil are those near the surface. Undoubtedly this is partly caused by the absorption of lime from these layers in greater quantities that in the lower levels where roots are less abundant. A contributing factor is the greater leaching effect of water on the surface layers. However, the failure of roots to penetrate the lower horizons can not be attributed to the acidity of the soil, since the soils become less acid as roots decrease in abundance.

The readily available phosphorus is reported in parts per million (P. P. M.) since the percentage values are low. One per cent by weight is equal to 10,000 parts per million. The data presented show that the soluble phosphorus content of the soil is low in the upper 2 or 3 inches, high from the 3rd to 6th inches, and then falls sharply at the 8th and 9th inches. The low phosphorus values near the surface are the result of heavy absorption by the roots in these zones; and the values in the 5th and 6th inches probably represent the quantity present before absorption began. The low concentrations of readily available phosphorus in the 9th inch indicate that the soil is naturally low in this constituent, and the quantity present in the plow zone is principally the residue from past fertilizations.

The organic matter content of the soil has been measured by determining the carbon present. Carbon makes up about one-half of the soil organic matter. These values fall off sharply as the lower portion of the plow zone is reached, and one may assume that much of the organic matter present has been supplied either by plant roots which were confined to the upper 8 inches, or by manure and crop residues that were mixed with soil during cultivation in previous years.

Since organic matter contains most of the reserve supply of soil nitrogen, we may conclude that the soil below 8 inches is much less abundantly sup-

The National Greenkeeper

TABLE No. 3

DEVELOPMENT OF ROOTS AND TOPS OF RHODE ISLAND BENT, AND THE RELATION TO SOIL CONDITIONS

	Cut at Lawn Length, 7/8"				CUT AT PUTTING LENGTH, 1/4"			
Soil Horizon	Weight of Roots Under 1000 Sq. Ft. of Area lbs.	Acidity of Soil P.H.	Readily Available Phosphorus in Soil P.P.M.	Organic Carbon Content of Soil Per Cent	Weight of Roots Under 1000 Sq. Ft. of Area Ibs.	Acidity of Soil P.H.	Readily Available Phosphorus in Soil P.P.M.	Organic Carbon Content of Soil Per Cent
1st Inch	71.2	5.3	113	2.5	70.6	5.3	148	2.4
2nd Inch	13.1	5.1	112	2.3	12.4	5.2	150	2.1
3rd Inch.	6.6	5.2	173	2.1	3.8	5.3	184	2.4
4th Inch.	6.5	5.4	210	2.2	2.8	5.4	200	2.3
5th Inch.	3.8	5.4	213	2.2	2.0	5.5	226	2.3
6th Inch	2.4	5.5	206	2.0	.7	5.6	228	2.4
7th Inch	1.4	5.5	219	1.5	.6	5.6	184	2.3
8th Inch.	1.1	5.5	212	1.5	.6	5.6	151	2.1
9th Inch	.7	5.6	147	1.4	.3	5.6	109	1.8
Total root weight	106.8	- Anna Para			93.8			
Root weight below 1st inch	35.6	*******			23.2			
Total wt. of tops, Ap-June 30 Ration of roots below 1st inch	27.4				26.5		*******	********
to tops	1.30				.87		+++++++	*******

TABLE No. 4

DEVELOPMENT OF ROOTS AND TOPS OF SEASIDE BENT, AND THE RELATION TO SOIL CONDITIONS

	Cut at Lawn Length, 3/8"				CUT AT PUTTING LENGTH, 1/4"			
Soil Horizon	Weight of Roots Under 1000 Sq. Ft. of Surface Area Ibs.	Acidity of Soil P.H.	Readily Available Phosphorus in Soil P.P.M.	Organic Carbon Content of Soil Per Cent	Weight of Roots Under 1000 Sq. Ft. of Surface Area Ibs.	Acidity of Soil P.H.	Readily Available Phosphorus in Soil P.P.M.	Organic Carbon Content of Soil Per Cent
1st Inch 2nd Inch 3rd Inch 4th Inch 5th Inch 6th Inch 7th Inch 9th Inch 9th Inch Total root weight Root weight below 1st inch Tot, wght. tops ApJune 30	87.8 20.4 7.0 3.9 3.1 2.7 2.1 1.7 1.1 130.0 42.2 14.3	5.2 5.3 5.4 5.5 5.7 5.8 5.8 5.8 6.0 5.9	104 118 131 156 166 153 128 119 100	2.6 2.0 2.1 2.1 2.1 2.1 2.0 2.0 2.0	67.0 8.9 4.2 3.5 1.7 1.1 1.5 .3 91.5 24.5 28.7	5.8 5.5 5.5 5.5 5.6 5.6 5.6 5.6 5.7 5.7	114 118 135 132 139 148 153 142 110	2.4 2.1 2.0 2.0 2.2 2.1 2.0 1.9 1.8
Katio of roots below 1st inch to tops	2.95				.85	human	-	dimenti)

TABLE No. 5

DEVELOPMENT OF ROOTS AND TOPS OF KENTUCKY BLUE GRASS AND THE RELATION TO SOIL CONDITIONS

	CUT AT LAWN LENGTH, 3/8"				Cut for Hay			
Soil Horizon	Weight of Roots Under 1000 Sq. Ft. of Surface Area 1bs.	Acidity of Soil P.H.	Readily Available Phosphurus in Soil P.P.M.	Organic Carbon Content of Soil Per Cent	Weight of Roots Under 1000 Sq. Ft. of Surface Area Ibs.	Acidity of Soil P.H.	Readily Available Phosphrus in Soil P.P.M.	Organic Carbon Content of Soil Per Cent
lst Inch 2nd Inch 3rd Inch 4th Inch 5th Inch 6th Inch 7th Inch 9th Inch 9th Inch Total root weight Root weight below 1st inch Tot. wght. tops, ApJune 30 Ratio of roots below 1st inch to tops	125.2 18.5 9.6 6.6 5.2 2.8 3.1 1.7 1.5 174.2 49.0 46.9 1.05	5.6 5.7 5.7 5.7 5.7 5.7 5.7 5.7 5.7 5.7	122 133 143 125 133 137 100 45 35	2.3 1.9 1.9 1.9 2.0 1.8 1.2 1.0	129.7 18.2 7.9 5.1 6.2 3.9 3.0 2.4 2.2 178.6 48.9	5.4 5.5 5.6 5.5 5.7 5.7 5.7 5.6 5.5 5.5	121 152 143 150 151 160 133 122 96	2.3 2.1 2.0 2.0 1.9 2.0 1.7 1.6 1.4

May, 1932

plied with both nitrogen and phosphorus and therefore is less suitable for root occupation than the upper soil. The failure of turf cut at fairway length to penetrate deeper than the upper 8 inches may be attributed in part to this condition.

On the turf cut at $\frac{1}{4}$ ", the root abundance falls away sharply below the fifth inch, whereas the nutrient supply in the soil is nearly at its best at this depth. In this case, the failure of the roots to penetrate more deeply must be sought in the treatment given the grass, such as the height and frequency of cutting, the kind, amount, and time of application of nitrogenous fertilizers, the supply of moisture, etc. Considerably more nitrogen was supplied to the putting turf than to the fairway grass, and this may have sufficiently modified the balance between the carbohydrate food reserves and nitrogen to limit the development of the root system. At any rate it is clear that mowing at 1/4 inch greatly reduces root penetration, even with Rhode Island Bent which is well adapted to close clipping.

SEASIDE BENT

W ITH Seaside Bent, much the same relation exists between root development and soil conditions as

The National Greenkeeper

was noted for Rhode Island Bent, thus proving that the results obtained were not due to chance. Failure of roots on turf of fairway length to penetrate lower horizons more abundantly may be attributed in part to the lower fertility of such zones. However, the structure of the lower soil layers, and the ease with which air and water move through them may also be important factors, although no proof on these points is yet available. On the $\frac{1}{4}$ " turf, however, the limitation in root development must be sought in some other factor than those measured, probably in the system of management being followed.

KENTUCKY BLUEGRASS

1 HE evidence that reduced fertility of the lower horizons restricts root development is again found on Kentucky Bluegrass plots, both when cut at fairway length and when uncut. Even with this grass the evidence is not strong enough to warrant the conclusion that all of the important factors controlling root development have been included. Soil aeration must still be considered, even though these are well drained soils with fairly good structure.

(Continued on page 30)

Kills



The Greenkeepers' Schedule

By C. E. TREGILLUS, Greenkeeper-Manager, Lasker Estate, Everett, Illinois

Read at the 6th Annual Educational Conference of the National Association of Greenkeepers of America, held at New York City, January 19-22.

IN INTRODUCING the subject, "The Greenkeeper's Schedule," it is not my purpose to suggest in this talk a definite program of work to be followed by the hour, day or week, or to organize concretely the season's work. While an outline of the methods and sequence of work as followed on the course I represent and from observations gleaned from many other courses, might prove interesting, still I feel that that phase of work has from time to time been well covered by many competent writers and talkers.

It is my desire to say a few words on what I would term the interior economy, that is a study of the

structure of the club organization from greensman to directorate, and the part that the greenkeeper plays in this scheme.

COURSE MAINTENANCE IS PRIME PURPOSE

It should be recognized that the maintenance of the golf course in good playing condition is the prime purpose of any golf club that takes its charter and purpose seriously. We are deluged with figures indicating the total investment in real estate, construction in buildings and layouts, and a little quiet pondering on the relationship of the greenkeeper to all this might well occupy some of his more serious moments; not with the idea of the glorification of his own importance, but to a fuller realization of his responsibilities and liabilities.

While this office is commonly known as "greenkeeper," in reality the scope of the work has widened considerably and we find many other duties attached to this position. To analyze this graphically, I have drawn the accompanying diagram; showing where he derives his authority and the extent of his jurisdiction. What we actually find, is that in addition to the maintenance of the course,



The author of this article came from Canada with the unique record of both practical and educational experience of the greenkeeper's problems. He is modest to a fault and that is why we like bim.

he is "clerk of works," having within his care much of the belongings of the club.

The development in recent years in the golf club organization shows a tendency towards managerial administration. It is not within the purpose of this talk to discuss the pros and cons of this, but I will remark in passing that where the club is run by a general manager, who is responsible to the directorate for all the maintenance, service, and development, the greenkeeper generally becomes the general superintendent in charge of the outside maintenance of buildings, grounds, etc. At times

when the administrative offices may be moved to the city or elsewhere, the greenkeeper automatically assumes charge at the club property. At such times, he assumes authority over the physical plant, though not over the service staff where the club house is kept open for winter parties. That, of course, usually comes within the steward's office.

It will be seen that the work falls into well-defined groups, that are closely enough related to come under one administrative head and achieve a maximum of efficiency in up-keep and expense.

Directorate

Green	Committee	or General M	anager	
	Green	keeper		
Golf Course	Grounds	Roads	Buildings	
Greens	Lawns	Driveways	Clubhouse	
Tees	Gardens	Secondary	Workshop	
Fairways	Shrubs	Roads	Implement	
Rough	Trees	Walks	Shed	
		Bridges	Shelters	

And when we consider the sums of money expended in these services, we are of necessity interested in economical administration.

GREENKEEPER'S DUTIES REQUIRE TALENT

T HE agencies by which the greenkeeper discharges his trust falls into two general classes, labor and materials. In managing the former, he must exercise his best talent as director of operations and in the acquiring of the second, he must possess all the shrewdness and keenness of a first-class purchasing agent. To faithfully combine these is not an easy task, but in these days of keen competition, reduced budgets, etc., the success of the club relies very much upon these shining virtues.

The hiring of labor and its management is the oldest duty in this field of calling, in fact the whole business of greenkeeping in the beginning was a matter of labor supplemented with the simplest of tools. So when I talk of labor, it is something about which everyone of us has an intimate and expensive knowledge born of actual experience, and on this work I will not say a great deal, except to touch upon a few observations made during the course of some years' contact with this sort of responsibility, gathered from experience that has extended all the way from military authority where an officer, be he commissioned or not, has the backing of the military machine and all its circumscribed rules and regulations, to that of arriving alone in an unfamiliar district and assembling an organization to put forward a construction project.

The first observation is that no two men will assume authority over others in the same way. While two men may achieve the same results, it is certain they will go about it by entirely different routes. Temperament and personality are things we cannot closely standardize and for that reason every foreman and officer has to work out for himself his own course of action, his own method of approach. The same thing applies to the workers, but one must look at it in a more collective manner as we have to deal with racial temperament as well as individual temperament.

We all study these things out, perhaps unconsciously and I may be putting into words a very commonplace idea, but it is one that bears a great deal of thought. The closer one's contact to the individual workers, of course, the more helpful it is to give attention to this relationship. While it is

Every Greenkeeper Now a Committee of One on Membership

It's largely your responsibility... this holding of memberships. And good fairways is the answer. It's up to you to show your club that fairways and greens must and can be kept up at nominal cost. Our booklet, "Better Turf", will aid you in presenting an effective and economical feeding program.

Send for it today.

Spring FAIRWAY FEEDING with MILORGANITE

insures:

- ECONOMY
- THICKER TURF
- ALL-SEASON GROWTH

The low per acre cost of Milorganite is due to its lower cost and higher analysis. For further details and free booklet write

Department "N" THE SEWERAGE COMMISSION MILWAUKEE, WISCONSIN



idle to say many words on discipline for any man who has had to direct the labor of others learns the necessity of maintaining a distinct authority over the workers, still it is well to remember that we may increase individual efficiency which means general efficiency in allowing a worker some latitude in how he gets about his job. If he can achieve the result we want, in a way all his own, with no more cost of time and materials than if he went about it our way, we are quite satisfied.

IT IS THE RESULT THAT COUNTS

It is the result that counts based upon the cost of achievement. This fact is particularly noticeable in this country where national habits of workers are so divergent. A simple illustration is the manner in which many German mechanics use a hacksaw, drawing it towards them on the working stroke as against the usual American practice of pushing it away.

I sometimes look at the labor relationship as that of buyer and seller. When a salesman solicits business, I am, of course, interested in the product he has to sell and its cost as set against the quality and usefulness for the purpose in mind. But I am also influenced by the relationship attained by the personality of the salesman, for I think we all like to have cordial dealings in our business associations. And it is much the same in our dealings with the greenkeeping crew; I like to feel a regard towards the other fellow, whether he is selling me a carlot of sand or the labor of his hands to put it into the bunkers.

It has been suggested that wherever practical, hiring men by the month makes for steadier labor. Some clubs hire all their men that way and use rainy days for sifting earth and other jobs around the golf sheds. It generally works out that some work is found to finish out the day, so that men hired by the hour do not lose much time in the course of the season through inclement weather. However, it is the general practice to hire by the hour and will likely remain so.

It is a good idea, I believe to hire the "all year" by the month; they are closer to the organization and one feels more reliance towards them. The seasonal labor is a different proposition and must be handled accordingly. It is turned away in the fall with the hope that the same phases will show up in the spring. In some instances, the men have winter work to go to. In our section of the country many of our men go down to the coal mines in southern Illinois and work there until Spring. Those that stay at home we try to help out by dividing up any work that may come along during the winter months.

Last winter we made changes in the water system and alternated the men week about. It gave them a little help. This year owing to the very mild fall, we kept the gang together on alterations until December. We do work on our trees during the winter and that gives some employment. My experience is that it pays to keep a skeleton labor gang together where any appreciable number are employed during the golfing season.

GREENKEEPER SHOULD NOT DO "CHORES"

BEFORE leaving the matter of handling labor, we might say a word regarding the active participation by the greenkeeper himself. I have seen many who seem to be on the run from morning to night, and others who generally have time to sit down and chat the afternoon away; and strange as it may seem, the latter are invariably the efficient superintendents. It is a mistake I think to become immersed in a set of "chores" that become an all-day routine. One should be free to turn in any direction for any emergency without the worry of something being left undone.

Two things I would reserve, however, one is time-keeping and the other is cup-changing. I like to see the greenkeeper keeping the time as that brings him in closer touch with the individual workers. To change the cups or to accompany the man doing this work should be in his ritual of office. In this instance, I liken him to the doctor making his daily round to take his patients' pulse and temperature. He is sure then to be familiar with the condition of his greens, both above and below ground.

PURCHASE OF MATERIALS IS BIG FIELD

IN TURNING our discussion along the line of expenditure for materials, we are running into a big field and one that could provoke much discussion. The authority to purchase supplies and equipment is a privilege every greenkeeper would like to have but few possess. The usual procedure of lining up the Green committee and the lobbying for new implements with considerable apprehension as to whether they are forthcoming causes no little worry in the minds of many superintendents. It

May, 1932

The National Greenkeeper

rests with the greenkeeper largely and the confidence of the committee that they will realize that his requirements are conservative, and that he is just as interested in and sensitive to the budget limitations as any of the membership.

I think the day of excessive sales pressure on credulous greenkeepers is over. These are enlightened times, thanks to the development of the National Greenkeepers' Association, the U. S. G. A. Green Section and other agencies for the advancement of greenkeeping.

The purchase of chemicals for the control of disease and insect pests and fertilizers for the promotion of grass growth is no longer a matter of guess work for we have ample information available to guide even the least informed persons.

Purchases in quantity can sometimes be made to the advantage of the club and where storage facilities are available is good economy. Buying is business that calls for constant vigilance whatever line of goods are involved, and quantites to carry on hand and when to be in the market are matters that alter with the individual circumstances. I endeavor to keep in touch with prices at all times and continually explore the channels of trade to uncover new sources of supply.

The golf industry is well supplied with business houses catering to its requirements and they perform a very valuable service, but the wide-awake greenkeeper should neverthless endeavor to keep himself informed that their prices are properly in line, and see to it that he is getting a dollar's worth of actual value for every dollar of club's money he spends.

I am not in favor of carrying a large inventory of spare parts for the mechanical equipment. I have seen stores carried by some clubs that would do credit to a supply house, but I cannot see where this is an economical practice. I would much rather see some of the investment in an extra truck. tractor, or cutting units. In my own particular instance, we have a generous amount of equipment so that in the usual course of times, there is a spare tractor or truck standing by in the shed ready for immediate use. In this way we are able to keep our units in running condition and can take any one of them out of service and substitute another without loss of time or undue excitement. We are using the same mechanical equipment that was purchased for the construction of the course many years ago, and hope to continue with it many years to come.

GREENKEEPER SHOULD KEEP ALL BOOKS

T HERE is one more point I wish to mention, and that is the keeping of records. These are days of reduced budgets so we have to be more careful than ever before to see where every penny goes and to see if it cannot do work for the other penny that has been left behind. I firmly believe the greenkeeper should keep all the books that his time will allow him to without becoming a burden.

To some this is interesting and entertaining, to others drudgery. Our own records are very simple. We do not break down our golf course labor, except to separate the mechanic's time. We keep the cost of labor and materials and a diary showing weather conditions, appearance of disease, pests, etc., and any other work done out of the ordinary routine. Each month-end we prepare a statement showing the money spent during that month and the preceding months of the calendar year, and compare it with the same period the preceding year.

It is done this way: In the left-hand column is the list of the accounts we keep, such as labor, seed, fertilizer, chemicals, etc. In the next column is set down the January expenditure, in the next February, etc. As each month's statement is prepared, we add up the total spent to date in the calendar year and beside it to the right, the amount spent for the same period last year. There is a comparison of the gross expenditures in each account. Each column is added up and the amount for the month shown. Below that is entered the amount for the same month the previous year.

Any unusual expenditures are explained in marginal notes. This statement is a good deal of work to prepare, but it gives a wonderfully clear picture that anyone can understand.



Williamson Goes to Crescent

OSEPH WILLIAMSON, for-

merly greenkeeper at the Sci-

oto Country Club, Colum-

bus, has accepted the position of greenkeeper at the

Crescent Athletic-Hamilton club, Huntington, L. I., succeeding Alfred E. Lundstrom, who resigned to take other work. Mr. Williamson is well equipped to take charge of this large 36-hole layout, which includes ten-



JOS. WILLIAMSON

nis courts, a baseball field, cricket, football, long bowling and polo.

He began his apprenticeship in England with his father and continued with him for thirteen years, coming to the State in 1903. On arrival here he was engaged in the landscape department of construction at the World's Fair in Saint Louis.

His first connection as greenkeeper was with the Glen Echo Country Club, Saint Louis, leaving there later to construct the Sunset Hill Golf Course in the same district. After that he went to the Municipal Links in Forest Park, Saint Louis, and later was re-engaged at Sunset Hill as greenkeeper. From there he moved to Huntington, West Virginia, as greenkeeper of the Guyan Country Club, where he served as greenkeeper for six years. The Scioto Country Club, Columbus, called him three years ago to take charge of this championship course and he was very successful.

Mr. Williamson is a trustee of the National Association of Greenkeepers of America and is considered an authority on many problems of greenkeeping.

Hints On Tree Pruning

By MARTIN RASMUSSEN Park Dept., City of Saint Paul Saint Paul, Minnesota

 Π_{ERE} are some hints on tree pruning based upon my experience of many years. The selection of tools is most important.

First pick out all necessary tools then see to it these tools are sharp. Tools necessary are as follows:

- (1) One double extension 12 ft. bottom and top ladder.
- (2) One pole hook at least 10 ft. long.
- (3) One York State pruning saw, six point.
- (4) One Pruning snips.

Stand about fifty feet away from the tree you are about to work on. Look over your tree and determine the height of the crown, then take off any of the necessary branches being sure to keep the symmetrical lines intact.



The next step is climb to the top of your tree and prune out all dead wood and next take out all entangling branches or riders as they are known, also take out all broken bows. It is wise to prune out many of the small branches and twigs so as to allow sunlight and air to enter and lessen wind resistance.

CUTTING OF BRANCHES VERY IMPORTANT

Cutting of branches is very important. Make all cuts flush. In cutting a branch from a parent limb cut as closely as possible to the parent limb. This helps the tree to heal the cut. All cuts of large limbs should be stubbed at two feet from the parent limb to prevent skinning.

Where branches have decayed into main trunk be sure and cut out all decayed matter and fill with concrete. Investigate all discolored branches for disease or tree borers. Be sure and cut off all stubs.

One of the primary reasons for pruning trees is when a tree does not receive enough moisture and plant food it kills off some of its branches. If these were allowed to remain, the tree would become unsightly and often kills the entire tree by damage to the main trunk by disease.

When you have finished pruning the tree, paint all the large cuts with a heavy paint. All trees should be examined at least once a year because of damage to them from storms.

May, 1932

Pacific Coast Gossip

By ARTHUR LANGTON

THE presence of almost 300 greenkeepers, park superintendents, manufacturers, and salesmen testified to the success of the second annual turf equipment exhibition held at the Los Angeles Bel-Air Country Club on Monday, April 11, under the auspices of the Greenkeepers' Association of Southern California.

Displayed and demonstrated were the products of the leading turf equipment houses on the Pacific Coast. Turf growers from the 650-mile stretch between San Diego and San Francisco were shown under actual working conditions, the most modern equipment used in their work from ball washers to gang mowers. Interested spectators included members of the Los Angeles park commission, one of whom was Dr. George Finley Bobard, president emeritus of the University of Southern California.

Beginning at 10 a. m. each one of the twenty exhibitors was allotted a space of time in which to demonstrate his wares. At noon a barbecued beef dinner was served to everyone present which demonstrated that all the nice things that have been said of the Bel-Air cuisine were justified. The show continued in the afternoon and as it drew to a close many gratified remarks were overheard anent the fact that there were no speeches, lengthy introductions, or agitations for funds. Everyone was permitted to come and go as he pleased, with the result that everyone entering into the spirit of cooperation had a good time.

Gossip overheard at the exhibit indicated that there is some activity on golf courses up and down the Coast in spite of perilous times. L. T. Parker of the Pasadena Country Club is going ahead with the construction of 17 new greens on his foothill course. At Long Beach, William P. Bell, golf architect, has been assigned the task of designing and constructing a pay-as-you-play layout. This will make the fourth big course for the beach city, the others being the Virginia Club, the Country Club, and the Municipal.

Owing to the kindness of nature the California deserts have blossomed as the rose this spring with the result that Easterners have been pestered to death by colored photographs of unbelievable acres of color from western friends. The fairways of the Elsinore Lodge golf course became a veritable Persian carpet on a gigantic scale. So beautiful did it appear that players refused to allow the fairways to be cut, preferring to give up their golf rather than spoil the aesthetic effect.



The problem then is to renovate with a satisfactory product that will maintain the soft, resilient, cushion-turf you want.

Sand, loam, ordinary fertilizers, water, etc., simply react to make the condition worse instead of better.

What's the right answer?

Here are two materials that will correct such conditions — even when you have to work "from the top, down."

First, DRICONURE — a natura base fertilizer of concentrated cow manure and peat moss. It performs the double function of creating a cushion-turf and feeding at the same time. The peat moss humus creates a "fine" condition of soil and maintains the correct amount of moisture (neither too much nor too little) to dissolve plant food into available liquid form. And it makes a turf that springs back into position after each step like an air cushion—yet is firm and strong for fast play. Second. SORBEX — This new material is destined to be of tremendous help in maintaining greens in good condition. A moss peat 25 times finer than any peat moss, it can be used from the top down most successfully and will penetrate the turf right down to the roots where even the finest sand could not reach. It will improve any type or kind of soil needing humus.

Try SORBEX on any packed down or worn out green and you will quickly see that you can't get through a whole season without it. Packed in convenient size bags containing half a yard, it can be readily transported, easily handled and there is no breaking-up problem. The fine dust-like particles crumble reaily to the touch.

These two materials should be a regular part of every club's maintenance equipment. Let us send you samples, literature and prices.



Atkins & Dubrow, Inc., K-165 John Street, New York, N.Y.

Mention has been made of various pets which have been unofficially adopted by a number of local golf courses. The Hacienda Country Club of Whittier, California, now comes to the fore in this regard with a flock of mallards which have quartered themselves on a little reservoir lake on the club property. A bucket of corn at the clubhouse keeps the birds from straying and they fly around the course much to the delight of the members, who are not permitted to harm them. Only once has greenkeeper Boynton had trouble with them; this was when the ducks strayed on to one green and pecked holes in the turf in search of worms.

Minnesota Gossip

By H. E. STODOLA, Secretary



CHAS. ERICKSON Who has been re-elected President of the Minnesota Greenkeepers' Association. tion was held April 7, at the Sea Food Inn in Minneapolis. The Toro Manufacturing Company was the host, and a delightful chicken dinner was served. Mr. K. E. Goit of Toro was made an honorary member of the organization. His interest in our group is so sincere that he belongs with us.

T HE annual meeting of the

Minnesota Greenkeepers' Associa-

There were twenty-six guests and plenty of pep and enthusiasm. We had another visitor. He was

Mr. William Clark, former professional and architect in this district. He was away for six years and commented on the higher standards of golf courses in the Northwest.

Before the business meeting our president, "Charley" Erickson, presented Leo Feser with a desk set holding a fountain pen and ornamented with a good-looking horse. Leo is fond of horses, hence the decoration. Incidentally, he is the "spark plug" of our organization. The secretary, Harold Stodola, was presented with an onyx desk set. It had two pens—one for his new wife and another for himself. The old-timers believe in harmony in the family, so they got a pen for each member of the Stodola household.

At the business meeting the name of our association was changed from Golf Course Superintendents back to Greenkeepers. Most of the members feel that "greenkeeper" is a title by itself and that we can make it synonymous with the finest turf in the world. Superintendent seems to cover too much territory and does not fill the bill. That is the opinion of our majority, but Leo Feser believes in superintendents heart and soul. I want to say here that this Leo fellow has ideas—he backs them up, fights for them, is a good loser, and a modest winner. Like the horses he loves at Woodhill, he is a thoroughbred.



1/3 of America's Golf Courses Use One or More STAUDE GENERAL TRACTORS

This fact is positive proof of the outstanding merits of the Staude. It has power and speed to spare—

easily operated — practically no repairs. Manufactured continuously since 1916 and sold on a money-back guarantee.

E. G. Staude Mak-A-Tractor Co. 2630 University Ave. St. Paul. Minn.





Pneumatic Tired Wheels

Steel tractor wheelsdemountable and may be replaced by pneumatic-tired Ford wheels for paved roads.

This New, Simple, Easy ADJUSTMENT Controls Speed of Rotation and Enlarges the Sprinkled Area...

HERE is another outstanding feature added to the many advantages of the LARK... A worm-gear adjustment which makes it easy to control rotation of the main stream and maintain rotation no faster than one revolution per minute. Slow rotation avoids air resistance, permits farther throw of the main stream, and allows even sprinkling over the largest possible area.

It sets the nozzle of the main stream in any desired position and keeps it there. No bother or fuss. No tools needed. Simply turn the worm-gear as illustrated.

Other advantages-never-failing performance, EVEN distribution; no tearing up of turf; economy of water. No wonder The LARK is golfdom's leading sprinkler.

• If you want sprinklers that are SAFE for night sprinkling; that give the grass a thorough drenching; that are always ready when you want them — buy LARKS. Ask about our 10 days' trial offer.



MFG.CO.INC. Peoria. Illinois