

lent results that have been obtained through information contained in *The Bulletin*. Some of the experiences have been published from time to time. It is a matter of pride to the Green Section that the results of our work have been helpful to and are so much appreciated by golfers in far countries.

#### THE FUTURE

The opinion has been voiced that the turf problems are now pretty well solved and that we should look to some other line of endeavor. However, if experiences with other plants in the past can be regarded as any sort of a criterion we are far from a solution of all turf problems. It is true that we can not expect such striking developments as during these first few years that the Green Section has been in existence, but new diseases and new insect pests are likely to appear to make life more difficult for the greenkeeper. Furthermore, much remains to be accomplished in the selection of grasses and in treatments that will give best results. It is our belief that work along these lines will be worthy of attention for an indefinite period. It would be very desirable however if we were in a position to offer better advice on architecture, construction and drainage. The drainage problem is of prime importance and one that is often overlooked. If we could enlist the assistance of an expert in drainage we would undoubtedly be rendering the clubs an invaluable service. All these phases of the work require additional funds, which means more members, and to obtain an increased membership we should be in a position to give better service to a larger number of clubs.

H. L. WESTOVER,  
*Acting Chairman.*

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### Feeding Versus Seeding Turf

By Mr. Norman L. Mattice, Manager, Pine Valley Golf Club

Last year I took charge of the Pine Valley Golf Course with the greens and fairways in a most discouraging condition. By September first these greens and fairways were covered with a strong, vigorous turf having an excellent putting surface. The answer to this rapid development is found in the subject on which I have been asked to speak, "Feeding Versus Seeding Turf."

In looking over the situation, it did not take me long to arrive at the conclusion that all that was needed to correct this condition was proper feeding of the turf already on the greens, which would enable it to stool out and thicken up, rather than by heavy seeding which had been customary. From my study of the United States Golf Association Green Section Bulletins and from practical experience, I believed this could be accomplished by topdressing with a mixture that would retard too rapid evaporation of moisture; provide a balanced plant food ration for the turf; kill and prevent the growth of weeds; and destroy the Japanese beetle grub.

As I had been told by the previous manager that it was almost impossible to get topsoil on account of prohibitive freight rates, I decided to make use of what Pine Valley itself had to offer in the

way of topdressing. There are 520 acres in the Pine Valley tract, of which about 225 acres comprise the golf course proper. The unused acreage is covered with oak trees and a scattering of native pines, underneath which there is a four to eight inch layer of leaf mold mixed with soil. We first imported some clay from Pennsylvania, then hauled in soil from our woods, screened it and mixed it with the clay in the proportion of about four loads of woods soil to one of clay. To this mixture were added arsenate of lead, sulfate of ammonia and mushroom soil in the proper proportions, and a very liberal quantity of the mixture was applied to the greens and fairways. Not one pound of grass seed was used during the entire season and no returfing was necessary. The supply of mushroom soil which was on hand when I took the club over was exhausted by September first. Then we started the use of Milorganite, which, when mixed with our woods soil, produces practically the same results as a mixture of woods soil and mushroom soil. The absence of any weed seed in Milorganite is a point in its favor, as mushroom soil usually contains many bad weed seed.

I am working with three definite objects in view and feel that they can all be accomplished by proper topdressing.

First, to prevent weed seed from getting into the greens. This will reduce the amount of hand weeding, add to the appearance of the greens and provide a more even putting surface. By eliminating the frequent seeding of grass that is practiced on many courses another source of weed seed is eliminated, for even the best grades contain a certain percentage.

Second, to prevent the too rapid evaporation of moisture. The soil at Pine Valley is very sandy and it requires much water to keep the turf growing at certain periods of the year. The clay that is mixed with the topdressing contains very few weeds, and if not used in too great quantities will mix with the sand without resulting in the formation of a crust impermeable to water. The mixture of sand and clay will retain moisture better than sand alone.

Third, to kill the Japanese beetle, earthworms and other grubs, and the small amount of weeds that come in from various sources. For this purpose arsenate of lead and sulfate of ammonia are being used most effectively.

In giving you my experience at Pine Valley, I do not want you to think that the good results obtained are due to any extraordinary ability on my part, and I would like to take this opportunity of placing the credit where it is due. I lay most of my success to following closely the simple facts that have been written and rewritten in The Bulletin of the United States Golf Association Green Section. I have studied them very thoroughly, as they have been my only guide since taking up golf work, and I sincerely feel that they are the greenkeeper's best friend if he will make use of them. Also, from the experience I have had with soils and grasses throughout most of the United States, I believe that conditions for producing the very best turf are as near ideal at Pine Valley as you will find them in any place in the world. Furthermore, the committee in charge of operations at Pine Valley is composed of men of much intelligence and foresight, and you can readily understand what a great help their support and cooperation has been to me.