market, and was overwhelmed with girl-type applicants. He has now two girl trainees. And - he reports - they are doing just fine. In fact, his other type help is working harder, looking somewhat cleaner, and smell better than they have in a long time. And all that because of those two girl-type maintenance workers. So, you bums, who look at gals only as sex objects; Take heed, and hire some girl-type helpers too.

AN IDEA - Roaming around Alta Sierra Golf Course I spent some time talking to Cliff Wagoner, I guess you-all know who he is. The talk turned to socializing. It has been my observation that with the exception of a few, the superintendents tend to stay in their own bailiwick. Oh, once in a while they may go visiting one another, but as a group, they very seldom come together for fun. I also observed that there are a lot of them who love the outdoors. This stands to reason, otherwise they would not have chosen the job they have. Then there are a lot of them who are hunters, fishermen, boating enthusiasts, camping bugs, and what-have-you. Cliff and I asked ourselves, what is the possibility of having a get-together, a camp out in a group with the family. Here is where Larry Keck came into the picture. He is the Superintendent of Lake Wildwood, near the Alta Sierra Golf Course. He said that he has the ideal set-up. There are campgrounds with hookups for trailers, there is a lake to go boating, waterskiing, fishing for bass and gills, a golf course for those who can't stay away from that sort of thing, trails for the hikers, and fresh air, pine trees and a blue sky for those who just want to loaf around.

The question now is: How many of us are interested in such an outing? Let me know. I'll volunteer to set the whole thing up with Larry. I think it is a wild idea, and hope that there is a lot of support. So, Let me know. Drop me a line. We still have time for this Fall, or maybe next Spring.

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MORE NOTES ON TURFGRASS DISEASES ----- by Dr. John H. Madison

Diseases are a recurring problem on greens. It seems appropriate to continue to write a few notes about diseases. This month I want to refer to work of Dr. Robert M. Endo.

Dr. Endo joined the university staff in 1958 to replace the retiring turf pathologist, P. A. Miller. Dr. Endo is a plant pathologist stationed at Riverside. His research is devoted primarily to turf diseases though he has done some work on cereal disease. Dr. Endo is a thorough worker and a thoughtful person, and his work is adding greatly to our understanding of turf diseases and is influencing the thinking of turf pathologists across the country.

In the note on Pythium I alluded to some of his present work and I'd like to discuss it further. One of the questions that Dr. Endo has asked is, "Why is turf different from all other monocultures?" When we grow other plants in a system of monoculture, diseases tend to get worse from year to year. Yet with turf it is often difficult to incite disease. The research worker who wants to get disease can't, even after he inoculates the grass. If we have a serious epiphytotic (outbreak) of a disease such as Helminthosporium this year, we don't expect it to be worse next year, and usually we expect it to be less of a problem. And often we see disease spoil the grass in one man's yard without its spreading to his next door neighbors. Why is this so in turf?

The soil and thatch are full of fungi and bacteria working on decomposing the clippings and the old dead and dying basal leaves. Each of the thousands of kinds of microorganisms is struggling to get a share of the food, and also a share of the space to establish a "home". Each protests its home area by producing antibiotic chemicals that suppress other organisms. In the competition for food and space some organisms that cause turf disease grow weakly -- never become vigorous enough to cause a disease outbreak except under exceptional circumstances.

In other words, in turf we have a balanced ecosystem. Energy is continually fed into the system in the form of clippings and dead basal leaves. Microorganisms compete vigorously for the food and we have a large and varied population in which no single group becomes dominant. We are enjoying the benefits of biological control.

At times the system gets out of balance -- it's too hot, too cold, too wet, etc., and we see disease resulting. As a result of his point of view, Dr. Endo is not asking the question, "What is the disease?" Rather, he is asking, "What is causing the disease to happen?" One of his first observations was that most diseases tended to start in areas of compacted soil. An unbalanced soil-air-water relationship was resulting in disease. Later Dr. Endo did extensive work with water of guttation, one of the kinds of dew, and found growth of some grass diseases stimulated by the nutrients occurring in the guttation water. Guttation water may result in stimulated dollar spot, Rhizoc brown patch, and Helminthosporium leaf spot. Most recently Dr. Endo and one of his students have found drying to result in disease. When the thatch dried out, it tended to release a lot of food on rewetting. Helminthosporium, which was growing rather weakly before drying, was stimulated to vigorous, disease inciting growth by the extra foods released on rewetting.

I find this approach to disease very interesting, but it throws more responsibility back on us. It means that when we see a diseased spot, our first question has got to be, "What did I do wrong?"

- - - John H. Madison, University of California, Davis, California