system. The questions are:

1. Is the initial cost economical?
2. Will operating costs be economical?
3. Will the proposed system satisfy moisture requirements necessary for establishment and maintenance of excellent turf under the most extreme conditions?

The answers are not difficult to get if you remember that the watering system is only a part of the complete turf program. Step-by-step consideration of all the elements will bring you to a commonsense decision.

Ask Some Questions

Following are the things that you should ask your representatives to explain to you about the proposals they give you:

1. How do their costs compare with those submitted in other proposals?
2. What are estimated operating costs for water and electricity?
3. What are operating costs for labor?
4. What are the advantages and disadvantages of the type of pump recommended for use with this system? (This is a complicated subject on which you may want to have the opinion of a pump specialist.)

Any watering system is made up of a number of components. From all possible combinations you must select the two or three that most closely serve your needs. The following brief studies will tell you some of the things to look for in discussing various proposals with your committee and the representatives who developed them for you.

Water Requirements

Water requirements vary with seasons and the geographical location of your course. During periods of drought in most areas you will want a system with capacity to apply one acre-in. of water during every five day period. An acre-in. is about 27,000 gallons of water: one inch of water distributed over an acre area.

This rate is for fairways. It is determined by soil percolation rate and retention properties. The objective is to maintain optimum growth conditions in the top 8 to 10 ins. of the soil. This, in conjunction with a well planned turf program, will offer maximum area for the development of root depth and mass. This greater area will result in more efficient use of fertilizers and inherent nutrients.

If water is applied too fast, or if the soil percolation rate is too rapid, fertilizer and nutrients will "leach" through the root-growth depth too quickly to be of full benefit to the turf. If application or percolation is too slow, only the top 2 or 3 ins. of soil will maintain the proper moistness. The resultant shallow-rooted turf then becomes much more vulnerable to heat and disease.

Consider Greens Separately

The watering of greens should get separate considerations since they are different in construction from fairways. In most cases a top layer of specially composed soil (varying amounts of sand, loam, peat moss and other materials) is placed over a drainage bed of gravel. Below the gravel bed may be a special drainage system of drain pipe.

The whole construction is designed to permit rapid percolation of excess water, allowing only minimal amounts to be retained in the soil layer. This necessitates daily or bi-daily doses of water to maintain the soil moisture content. In an effort to keep greens green, it probably is a univesrsal practice (although unintentional) to apply more water than is actually needed: If good drainage is not provided, this type of saturation may sour the soil,

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Architects Hold First Summer Conference in Quebec

The first summer meeting of the American Society of Golf Course Architects was held at Lachute G&CC, Lachute, Quebec, June 27-29. The group gathered to prepare material for general distribution acquainting the public with the character of the services offered by members. Proper planning of golf courses from selection of site to the final stage of development is essential not only to the creation of courses of character but to an efficient economical operation.

The architects discussed the proper integration of the valuable services of specialists such as agronomists and engineers who, without due regulation, defeat the creation of sound courses and often increase construction costs materially.

Members of the society, it was brought out, have spent a lifetime in the acquisition of their experience and skills without which courses of merit cannot be economically created. The retention of designers who are not completely qualified is certain to result in unnecessary expense, poor layouts and general dissatisfaction, the architects agreed.