

place is not necessarily true of another. But that only makes the investigation more interesting, and eventually more valuable, and emphasizes the immediate need for research.

"In order to lighten our darkness the Joint Advisory Committee, representing the golf clubs of Great Britain and Ireland, have approved of a scheme for scientific research, and all the National Golf Unions have undertaken to support it. The scheme requires that golfers shall have faith and in the belief that what science has done for industry and every aspect of human life it can do for golf courses; they are asked to subscribe to a research organization. This organization will have two main functions—viz, to collect and summarize and distribute information on the subject of greenkeeping, and in the second place to investigate the problems of greenkeeping, for example, the best grasses, fertilizers, and methods of cultivation and maintenance of greens under dissimilar conditions of soil and climate; the control or elimination of weeds; the control of insect pests which are ruinous to some greens; and any other problems on which greens committees and greenkeepers require information. Judging from the success of the American Golfers' Research Association the small subscriptions required of each club will be many times repaid by the additional pleasure which the game will give when played under better conditions. But golfers must be patient. They must not expect quick returns. Research is slow, but it is very sure, and it pays not in fives and tens but ultimately in hundreds and thousands per cent."

Nobody Can Make It Rain

Some years ago a man went through certain drought-stricken regions in this country contracting to produce an inch or more of rainfall for a consideration of \$1,000 per inch within a period of three months. If the rain came, the fees were collected; if it did not, the man lost nothing. Inasmuch as the average amount of rainfall for each region is accurately recorded, and since precipitation is quite likely to occur naturally after a long drought and within the limits of the record, a shrewd operator is fairly safe in agreeing to "produce" rain.

But according to the Weather Bureau of the United States Department of Agriculture, "rain making" is impossible for any human being. It is quite true that in the laboratory a small amount of moisture can be precipitated by using special equipment, but meteorologists know of no practical scheme for producing rain on a large scale. Widespread drought is due to lack of sufficient moisture in the atmosphere and the absence of other conditions essential to the formation of rain. If there is little moisture to bring down, obviously no device for causing rainfall has any value.

To produce 1 inch of rainfall over an area of an acre, approximately 113 tons of moisture would have to be drawn up into the air and then precipitated. There are 640 acres in a square mile, for which 72,320 tons of moisture would be required. A square mile, however, would be scarcely a dot in the center of any section where drought prevails. Enormous quantities of energy are used in nature to elevate moisture above the earth before it can be precipitated. It takes 5,000,000 to 10,000,000 horsepower-hours to evaporate the water

in a square mile of the average dense cloud, and even if some artificial means were found to cause the aggregation and fall of the infinitesimal drops of which rain is composed, calculation shows that only a trifling amount of precipitation would result, because there is not much water in such a cloud.

QUESTIONS AND ANSWERS

All questions sent to the Green Section will be answered in a letter to the writer as promptly as possible. The more interesting of these questions, with concise answers, will appear in this column. If your experience leads you to disagree with any answer given in this column, it is your privilege and duty to write to the Green Section.

While most of the answers are of general application, please bear in mind that each recommendation is intended specifically for the locality designated at the end of the question.

Responsibilities of a green-committee member.—I have recently been appointed as a member of the green committee of our club and should appreciate such information as you may be able to furnish with regard to the duties of such a position. (Pennsylvania.)

ANSWER.—It is customary for the chairman of the committee to shoulder all the duties and to consult his committee only when he contemplates some drastic change in procedure and needs moral or perhaps financial support. It is probable that this one-man-committee custom is, after all, the best, since the greenkeeper thus receives orders from only one man and therefore not conflicting advice from different sources. The members of the committee, if they care to be active, should advise their chairman, but in no case bother the greenkeeper. It will avoid confusion and be much fairer if the greenkeeper receives the wishes of the committee through its designated spokesman, the chairman. Also the green committee should protect the man whom they trust to care for the course (the greenkeeper), from all possible interference of unauthorized advisors. It is lamentably the custom with some clubs to permit any club member to hamper the greenkeeper with suggestions concerning his duties, a procedure which is certain to antagonize him. Suggestions, criticisms, and complaints on matters of course maintenance should be received from club members by members of the green committee only. The committee should advertise the fact that the purpose of the green committee is to effect a close liaison between the club members and the greenkeeper. Worthwhile suggestions should be welcomed and action should be taken on constructive criticisms; but the opinions of the membership as interpreted and investigated by the green committee should be passed on to the greenkeeper only by its official spokesman, the chairman of the committee. If the greenkeeper is keeping a fine course at an expense which compares favorably with that of other courses of a similar type, the chairman will probably be active only when the yearly budget is being made up, and the greenkeeper will have need of the committee only when something unusual occurs or is about to happen. If the greenkeeper does not seem to understand