month ago, when the show contracts came in, I wrote Fred and suggested a series of letters to all the clubs, endeavoring to get them to send their superintendent to the Convention at the expense of the club, which is as it should be.

If there is anything in the world we can do to help your men put this over in a big way, we want you to feel free to call on us, and any facilities we have are at your disposal free of charge.

(Signed) K. E. Goit

## How About It, Experts?

WE have a little matter of research which has been going on the past year, which I wish to give to readers of the National Greenkeeper, not so much because of the fact that it is going to change our methods but as a reason for certain phenomenon.

What I have been trying to uncover is whether or not the acidity accumulations resulting from the use of Ammonium Sulphate have had a physical effect upon our nitrifing bacteria, or whether or not this acidity has made it impossible for them to make Nitrates which are necessary for plant feeding.

After these bacteria have made nitric acid as a final product, before the nitric acid can be used by plant life it must have become a nitrate by chemical reaction with one of the basic salts always present in our earth, such as calcium carbonate, sodium carbonate, or by similar action with many other of the basic salts found in the soil. If such a combination has been effected the resulting nitrate becomes at once a feeding for plant life.

Should a green contain a large amount of sulphuric acid as result of heavy ammonium sulphate feedings, our tests have shown that all these basic salts which otherwise might become nitrates have been made sulphates by the excessive amount of sulphuric acid left in the soil, leaving nothing to be acted upon by the nitric acid as produced by the bacteria.

I was convinced that this was true when after making heavy applications of lime water to a green, which was almost past recovery, it immediately regained practically a normal growth and the soil was heavily charged with nitrates where previously it had been sulphates, in excess.

More simply, I should say that our bacteria are not seriously injured by acid reactions in the soil. They should not be as they are constantly producing an acid, (nitric and nitrous) in their daily work, but I believe that after they have finished their work in the creation of a nitric acid, the lack of feedings apparent in our turf is due to the fact that this nitric acid finds nothing left in the soil with which it can combine making a nitrate, thus preventing the loss of nitric acid through leaching.

James A. Smith
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