

taken late in the fall contain practically no nitrates due to leaching.

The loss of nitrates in cultivated soil has probably accounted for some of our poor fall dressings. If the area devoted to top dressings were put in corn in the spring, and if during the season, this area had had but a light manure dressing, there would have been made approximately 165 pounds of nitrates, the amount of nitrates which would be made depending almost entirely on the quantity of manure applied. Of this 165 pounds of nitrates made, possibly 25 pounds would be used by the corn and 140 pounds would be leached out by the end of the season due to rainfall.

Hall's "In the Soil" Page 106 says "Nitrates formed during the summer or autumn of one year are practically removed from the soil before crops of the following year can utilize them." Store all of your top dressings during July.

#### More About Humus

By CHRISTOPHER BAIN, *Greenkeeper, Oakwood Country Club, Cleveland*

"ALL soil humus is organic matter, but all organic matter in the soil is not humus."

The above from Mr. Smith's very able and interesting article in the January issue gives in a sentence, a statement of fact that should appeal to all greenkeepers.

The farmer by means of rotation of crops keeps his soil in a state of good fertility, having both manurial and cleansing crops; or as Mr. Smith has it soil conditions are such that the nitro-bacteria is kept healthy and active.

We greenkeepers, however, are laboring under a disadvantage of having to continue year in and year out propagating one crop only—that of grass—and herein we find that "all organic matter in the soil is not soil humus."

A green may show a thin, poorly developed and stunted growth, and immediately the cry goes up that the ground is exhausted from continuous grass growing, while as a matter of fact the ground is rich in plant food, only the soil has become clogged from the poisonous waste which plants excrete from their roots. Until such impurities are removed no vigorous growth may be expected.



Bean Golf Sprayers can be used for Parks, Cemeteries and every other purpose. You should have a copy of this Park Sprayer catalog for your files. It will be gladly sent upon request. It shows the latest equipment and the trend today in spraying machinery.

## JOHN BEAN MFG. CO.

*Division Food Machinery Corporation*

**Lansing, Michigan**

**San Jose, California**

The question then arises as to the best method of incorporating humus, or what have you, to relieve or release the plant food known to be in the soil—Mr. Smith states that with "firm and hard packed soils in your greens no artificial feeding which you can apply can permanently revive them." Here I disagree with the writer—I readily grant that the texture of the soil of all greens should, like Caesar's wife, be above suspicion—unfortunately in years past the art of greenkeeping was not so advanced as at the present day with the result that many greenkeepers have greens which are more or less hard and packed yet continue to grow luxuriant grass but fall short in having that cushion so necessary to the pitched ball.

Personally I believe applications of charcoal, also lime plus judicious fertilizing will give results—wood ash is also recommended but as it contains some 35 per cent of lime why not apply lime with soil or sand as a filler, as more potent.

I would be glad to hear the opinion of your readers.