

puts in from early morning until late at night to create better turf conditions. But there is this difference between the Green Section and yourselves, namely, that golf clubs have not the necessary funds to enable greenkeepers to conduct intelligent and scientific experiments and research on a scale as large as that on which the Green Section proceeds, and in addition they are unable to give the results the same wide publicity that the Green Section does. We appreciate the value of your work and hope you in turn appreciate ours and that you feel, in fairness and good will, that the sole desire of the Green Section and of the United States Department of Agriculture is to help you as best they can.

Only in a hearty and cordial cooperation between us all can the best results be obtained. We are all interested in producing the finest fairways and putting greens possible. If this is accomplished, the existence and cost of the Green Section will have been justified, as will also your Association of greenkeepers and others, and you will have a just pride in the golf links of which you have charge. An honest difference of opinion will of course prevail at times as to the best methods to pursue. But in any event let us unselfishly work together without jealousy or friction, in the spirit of the utmost harmony, to make golf, which we all love, the most enjoyable of games, with better conditions of turf at a minimum expense as our ultimate goal. In brief, let the fullest cooperation be our watchword for the future.

Ammoniating Superphosphate

Demonstration of the cheap process of adding ammonia to superphosphate, a new development which is proving of practical benefit to farmers and the fertilizer industry, was the feature of an exhibit by the Bureau of Chemistry and Soils at the annual meeting of the National Fertilizer Association held June 8 to 10, 1931, at White Sulphur Springs, W. Va. The small-scale apparatus, constructed in the Fertilizer and Fixed Nitrogen Research unit of the bureau, carried on the process of ammoniating superphosphate in the main lobby of the Greenbrier Hotel and drew groups of visiting chemists and executives of fertilizer companies in whose business this process has been one of the most important and revolutionary of recent developments.

In the miniature apparatus which was shown at the exhibit, anhydrous ammonia, contained in a small steel cylinder under a pressure of 150 pounds, is released in gaseous form at regular intervals and in small amounts, to be absorbed by the superphosphate which is visible in a revolving glass drum. A manometer filled with colored liquid was so arranged as to show the pressure of the ammonia released from the cylinder and the decrease of pressure upon its release for absorption by superphosphate. Commercially the ammoniation of superphosphate is carried out in one step rather than gradually, as shown in the apparatus, sufficient ammonia being added to the superphosphate to correspond to $1\frac{1}{2}$ to 2 per cent of the superphosphate. The availability to crops of the phosphoric acid in superphosphates, or superphosphate mixtures, when higher percentages of ammonia are used is under investigation by the Bureau of Chemistry and Soils, and is a development of much interest to the fertilizer industry.