Studies relating to the determination of the amount and nature of soil acidity have shown that different soils, when treated with an acid or base, vary in their resistance to changes in H-ion concentration. Soils with a relatively high resistance to changes in their pH values have been termed "well-buffered." They have also been referred to as possessing "high buffer capacities or properties" or as containing considerable quantities of "buffering constituents." Soils with considerable amounts of clay or organic matter have always exhibited stronger "buffer properties" than those with smaller quantities of these materials. Although most experimental observations have shown that the buffering properties of soils are associated with the colloidal material, there are several divergent interpretations of the nature of this buffer action which need to be clarified.

It is the purpose of this paper to discuss (a) the nature of soil buffer action as affected by various soil constituents and (b) expressions for the evaluation of the buffer capacity of soils.

CONCEPTS OF SOIL BUFFER ACTION

Various explanations of the nature of buffer action in soils have been given by different investigators. Only several of the more outstanding of these explanations will be discussed in this paper. A more complete discussion of the literature on the buffer capacity of soils is given in an excellent paper by Maiwald (12)."