PROBLEMS AND METHODS OF MAPPING ALKALI SOILS.

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Soil mapping in certain sections of the West deals not only with the physical distinctions discernible in the field but considers also the chemical composition of soils. Where alkali is prevalent it constitutes a problem equally as important as the separation of soils into series and types.

Upon his arrival in an area where alkali is known to exist, the field man is confronted with these questions: 1st: What is the character of the alkali in this area? and, 2nd: In what degree of detail should alkali in this area be mapped. There are no two areas exactly alike.

It might be superfluous to state at a meeting of this kind that although alkali in the chemical sense is a substance that neutralizes acids, as used agriculturally the term "alkali" is used to designate any of the common mineral salts regardless of chemical reaction, when occurring in quantities sufficient to be injurious to crops.

In the field study of alkali there are a number of things which indicate to the field man the probable character of the salts. Thus, sodium carbonate, or "black alkali", which under field conditions is the most highly injurious alkali salt, can usually be recognized by the dark brown or black stain on the surface produced by the corrosive action on organic matter in the presence of moisture. Sodium chloride, calcium carbonate, calcium sulphate, and calcium chloride are generally recognizable in the field by certain attributes. The last named calcium chloride because of its deliquescent character keeps the soil wet through the absorption of moisture even where drainage appears to be adequate.

Sodium sulphate, sodium bi-carbonate, magnesium sulphate and a number of others are not so readily identified in the field and the only safe way to determine their character is to enlist the aid of a competent chemist.

So, always before field work has progressed very far a few samples are collected from well distributed districts and sent either to the chemical laboratory of the Bureau of Soils or to the cooperating State