During the past decade or two the Russian term "solonetz", and the contrasting term "solonchak", have come into rather general use among soil scientists the world over, as, of course, is well known to the members of this audience. However, these words are not always used in precisely the same sense. It seems appropriate, therefore, to introduce this discussion with a few remarks concerning the meaning of these words. It is obvious, it would seem, that there must be agreement as to the meaning of a given word before it is possible to convey a definite idea by its use.

The author has made some inquiry concerning the origin of the terms "solonetz" and "solonchak." The results have not been entirely satisfactory. It is clear, however, that the word solonetz is used by soil scientists, especially in Europe, in two senses; namely, morphologically and chemically.

The root sol, common to both solonetz and solonchak, denotes salt. The ending, corresponding to the etz of solonetz, is probably an ancient form used to denote the diminutive. It would seem reasonable to conclude then, that the word solonetz, as applied to soil, literally denotes soil containing relatively little salt. This interpretation is harmonious with the generally accepted meaning of the contrasting term solonchak, which is used to mean soil containing relatively much salt. It is highly probable that the words solonetz and solonchak originated among the peasants of southeastern Russia centuries ago. Just when, and how the term solonetz came to have the morphological significance, now given to it by soil morphologists, is unknown to the writer. According to Vilensky (11), the presence of columnar horizons in alkali soils was first pointed out by P. A. Zemitckensky in 1894.

Briefly, we may say that various Russian soil morphologists have used the term solonetz to denote alkali soil the profile of which presents a certain type of morphology, and they use the term solonchak to mean saline soil without characteristic structure. On the other hand, Gedroiz and his followers define solonetz as alkali soil containing only a small amount of soluble salts and significant amounts of absorbed or replaceable sodium; and they use the term solonchak to mean simply saline soil. Gedroiz repeatedly emphasized the point that solonetz is alkaline chemically, and although he commonly neglected to specify which soil horizon he was discussing, it is probable that he meant the columnar horizon.

The morphology of solonetz is too well known to require elaborate description at this time. It may be said that the most striking features of a solonetz profile are its columnar, or prismatic, structures in the B horizon. Sometimes these structures assume a somewhat cubic form. The B horizon generally has a cubic structure. The entire B horizon is extremely colloidal and only slightly pervious.

The A horizon is practically without structure. In fact, there is no striking difference between the A horizon of certain well developed solonetz-like soils and the A horizon of various other alkali soils. Perhaps the most pronounced feature of the A horizon is its fine granular layer, characteristic of the weathering of the B horizon. As will be shown, the insoluble product formed by the weathering of the B horizon. This layer is sometimes designated the A horizon. The thickness of this layer varies from a mere film to as much as several inches. It seems to represent either the transition through which the parent material has passed, or it may be the result of the insoluble product formed by the weathering of the B horizon. As will be shown, the A horizon is not a uniform inorganic composition of this gray A horizon, and does not differ materially from the C and D horizons above it.

The B horizon often contains more or less carbonate and soluble salts. The C horizon, by definition, varies widely. As Storck has shown, parent materials ranging from disintegrated felsite or sea sands, on the one hand, to heavy clay deposits, on the other, may give rise to solonetz structures.

Gedroiz's publications show quite clearly that interest was primarily centered on explaining the so-called solonetz properties of the soil, their parent materials ranging from disintegrating granite or sea sands, on the one hand, to heavy clay deposits, on the other, may give rise to solonetz structures. Gedroiz's publications show quite clearly that interest was primarily centered on explaining the so-called solonetz properties of the soil, their parent materials ranging from disintegrating granite or sea sands, on the one hand, to heavy clay deposits, on the other, may give rise to solonetz structures.

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