POSSIBILITIES OF THE AIRPLANE IN SOIL SURVEY WORK

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The statement that soils may be mapped from the air may sound absurd, but the fact that such a thing has actually been done puts the matter in a different light. Of course the mapping of soils is best done on the ground, but there are a good many ways in which a soil map may be improved from the air and there are certain phases of the making of base maps that cannot be done accurately except from the air.

There are two ways in which an airplane may be used to advantage in soil survey work. One of these is by enabling the surveyor to make direct observations from the air and the other is in the making of aerial photographic maps which may be used in the preparation of base maps and for reference during the survey and the final drafting of the soil map.

The profitable use of airplanes for these two purposes may be limited by certain factors. In an area which is covered by an accurate topographic map or in a prairie country where the roads are regularly on the section lines where other land lines are easily followed an airplane would be of doubtful use. However, in an area containing considerable timber, swamp land, inaccessible streams, roads which do not run on section lines, shore lines, lakes, etc., an airplane will greatly facilitate the work and materially increase its accuracy.

Aerial work without a camera will consist largely of checking up on ground work and should be done after the plane table traverse has been made. At this time the surveyor is familiar with the area and he knows what part of his work he is in doubt about. By this time he knows the soils so that many of them can be recognized at a glance. He knows for instance, that all of a certain type is cultivated, occurs on ridges and has a grayish appearance. He knows that another soil is always timbered to hardwoods, another to pines. He knows that certain soils border streams as areas of high land and others as areas of swamp. He knows that he has accurately located the boundaries of these soils in places but that in between these locations the boundaries are merely sketched in. With this knowledge in mind the soil man can take his field sheets into the air and considerably increase their accuracy. He may find that the strip of bottom land varying from a half mile to a mile in distance from the road he has traversed and to which he has made several foot trips counting paces does not have a more or less wavy line as the boundary between itself and the upland, but a very irregular line which he may sketch in with considerable accuracy from the air. Corrections or additions to a plane table sheet or base map are easily made from the air. An airplane in flight is much steadier than a Pullman car in motion, and the altitude at which observation is done makes it possible for the observer to keep his eye on one spot on the ground for a considerable time. Making corrections on a map from the air is like copying from one map to another.