The flood in the valley of the Ohio River during January and February of this year has been the subject of innumerable newspaper stories and many magazine articles. In as much as this flood was the largest on record, except in the upper 144 miles of the valley, it is not strange that it was watched with interest by various agencies, one of which was the Soil Conservation Service. The flood waters were commonly described as being "boiling torrents of muddy water" and the farms within the valley as being "richly fertilized with silt." Such ideas captured the fancy of reporters and magazine correspondents who used them constantly and without regard as to whether they were fact or fancy. In January, Dr. H. H. Bennett decided that a survey of the conditions in the Ohio Valley might yield some interesting data and requested the Section of Conservation Surveys to make a sedimentation study.

An analysis of sedimentation data of this kind requires more information than a mere record of the estimated tons of material deposited and the acreage flooded. It is necessary to have at hand information relating to many other things as rainfall and temperature records, record of the river stages or water surface elevations, knowledge of the soils of the watershed, the general slopes on which they occur and general cultural practices on them, and an assortment of data relating to the river and its tributaries such as discharge and velocity measurements, dates of peak stages on tributaries, and other odds and ends of information. In fact a sedimentation survey should start when the river starts to rise and not after it has returned to its bank as a set of water samples would represent an important source of information. Even though the sampling of the flow of a river at flood time would be a very large and complicated undertaking even an inadequate set of samples would be much better than none.

In order to clearly understand the problems of this survey some of the features of the Ohio River and its watershed should be kept in mind. The watershed contains 203,900 square miles, or over one-fourth of that part of the United States east of the Mississippi River. Within this area occur widely different conditions, from extensively cultivated soils developed from glacial drift occurring on a gently rolling to flat topography to residual soils in a mountainous region suited to little but forest and pasture. A number of the tributaries, as the Muskingum, Kanawha, Big Sandy, Scioto, Miami, Kentucky, Green, Wabash, Cumberland, Tennessee, and others, are important rivers even though they are parts of the Ohio system. The Ohio River is formed by the junction of the Allegheny and Monongahela Rivers at Pittsburgh, Pennsylvania and the river channel between this point and its junction with the Mississippi River is 983 miles long. Throughout most of its extent the valley of the Ohio River is narrow and sinuous and is walled in by high steep hills as far down as Tell City, Indiana. The idea may exist that the flood waters covered a wide area adjacent to the channel. They did cover practically all of the valley floor but in the upper fourth of the valley the width of the river channel was often as wide or wider than the overbank area. For almost 75% of the length of the river, 727 miles, the overbank averaged about one-half mile or less in width except in two localities which totaled seventy-seven miles. Between Owensboro, Kentucky and the Illinois-Indiana state line, a distance of ninety-three miles, the overbank reached its greatest average width, 5.6 miles, with a maximum width of 8.8 miles. Of the 812,800 acres flooded in the Ohio Valley proper, 523,700 were in the lower 260 miles of the river. In other words, 66% of the lineal length of the river contained 64% of the total area flooded.

A wide variety of conditions exist. Above Cincinnati, Ohio the valley is well drained and either bank is quite accessible. Between this point and Tell City, Indiana there are many areas which can be reached by