

AERIAL PHOTOGRAPHS OF JENNINGS COUNTY

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On November 5th, 6th and 8th, 1929, Jennings County, Indiana was photographed from an airplane flying at an altitude of about 13,400 feet. These photographs were taken for the use of the Indiana Soil Survey, which is a cooperative project of Purdue University Agricultural Experiment Station and the U. S. Bureau of Chemistry and Soils.

As far as is known, this is the first case where an entire county has been covered by aerial photos expressly for Soil Survey or where such pictures were available for an entire Soil Survey area. Aerial photos have previously been tried in a small way in Soil Survey, and have been used very extensively in topographic surveys, etc.

An Eastman camera with a 10 inch focal length lens was used. Four hundred and thirty-three negatives were made on a scale of about 4 inches equals one mile. The pictures overlap 50% in flight strip and 25% between strips. Each picture covers about 4 square miles. One square inch of picture shows 40 acres of land. Each point on the ground is reproduced on several pictures.

This task was completed in three flights on three perfectly cloudless days. The pictures were all taken between 10 A. M. and 2 P. M. Panchromatic, hypersensitized film and a ray filter were used, so that the effects of autumn haze were eliminated, and true color values are shown in the pictures.

The photographic plane had to have a powerful motor to carry a pilot, photographer and heavy camera to such high altitudes. The flights were made from Bowman Field, Louisville, Kentucky. A Paulin altimeter was used.

This work was done on contract, the cost being \$1,980 or about \$5.00 per square mile, as the area of Jennings County is 383 square miles.

The map being made of Jennings County is controlled by (1) three triangulation stations and 7 reference points established by the U. S. Coast and Geodetic Survey, (2) by profiles of railroads, (3) by profiles of State Highways No. 7 and No. 50, (4) by plane table traverse around and across the county at several points.

The grid of section lines is being developed from this control and from the aerial photographs on a scale of 2" equals one mile. Details of the map are sketched on the scale of the photographs and will be adjusted to the 2 inch to the mile base.

It is obvious that this soil map should be more consistently accurate and dependable than any similar map made without use of photos. It will have a *permanent* value which means *real economy* even if the cost should be increased. However, use of the aerial photos may *cut* the unit cost of Soil Survey even while improving the quality of the work. This saving should be effected by increased speed which will come with experience and skill in using the new technique.

In addition to the value of aerial photographs as a direct aid in making Soil Surveys, they will also be on file as a permanent reference for facts about the land which cannot be represented on soil maps.

The photos may also serve Purdue in any Farm Management, Forestry, statistical or other studies which may be made in Jennings County.

They contain a wealth of information which would be valuable to the Conservation and Highway departments of this state.

They could save more than their cost by benefits to public work now going on. They form a historical record which will be more appreciated a hundred years from now than at present as they show in an accurate, unbiased manner every road, stream, field, house and tree in the county.

George Rogers Clark looked ahead and the results of his efforts made history. It would be in harmony with his attitude if a sum equal to the cost of his memorial were made an endowment for a program of aerial photography. Five per cent interest on that amount could pay for photographing the entire state of Indiana from the air every three years and thereby write in a pictorial record a continuous history of the development and changes of our farms, forests, highways and cities.