Where Arkansas Surveys Begin

The Intersection of the Fifth Principal Meridian and the Base Line at a Point in Eastern Arkansas Established in 1815, Is the Origin of Arkansas Land Surveys.

By CLAUDE A. RANKIN.

Field Notes, of the beginning of the survey of the Fifth principal meridian are as follows:

"At a point at the extremity of the point of land formed by the junction of the Arkansas and Mississippi rivers at which commences the 5th principal meridian as follows:

3 miles 30.1 Arkansas river 12.3 L. over C. L. W. Navigable for boats. Current gentle.
59.19 Left Arkansas to the left hand.
72.30 Yancey 40 in.
80.60 Set temporary post.

Silt road.

October 27th, 1815.

Thus, he began and closed his first day's work.

Base Line Notes:
The distance given by Brown in his field notes, of the beginning of the survey of the base line is as follows:

West on the Base Line, commencing at a post on the south bank of the St. Francis river at the point from which a Hickory 1 and 2 feet diameter, bears 35° 14' E. 41° 41' 24" 44 links. A Hickory 1 and 2 feet diameter bears 70° 03' 36" 19 links. The distance here is 400. A line with a deviation of 30 feet from the base line bearing 35° 41' E. 19° 14' N. 400. Set mile post.

This mile is very low. Lands mostly cane brake. The growth cottonwood, sweet gum and other low land timber, but a hurricane has passed over the last one half mile and left scarcely a tree of any sort standing.

27th October, 1815.

Thus, he began and closed his first day's work.

The point of intersection of the base line and the Fifth principal meridian is on the east side of Missouri, at the southwest corner of Lee county and the northwest corner of Phillips county, 26 miles and 30 chains north of the Mississippi river, the point of beginning, and 57 miles, 60 chains and 36 links north of the mouth of the Arkansas river, the point of the beginning of the Fifth principal meridian.

Brown reached the point of intersection November 2, 1815, and Robbins reached it November 10. Brown continued on the base line for 12 miles and 66 links, which point he reached November 4.

This point shows the location of the point of intersection of the base line and the Fifth principal meridian. It is from this point that all land surveys in the state are made. The heavy black line perpendicular in the center of the map is the Fifth principal meridian.
Where Arkansas Surveys Begin

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that lying south and east as being in townships south and ranges east; that lying north and west as being in townships north and ranges west; and that lying south and west as being in townships south and ranges west.

From this point, Robbins continued north, setting the section and quarter section corners from sections 36, 35, 34, 33, 32, 31, and 1 of range 1 west, numbered from 1 upward, in range 1 west, to the Missouri river.

Arkansas at that time was a vast wilderness with a few widely scattered settlements, and the surveyors were forced to maintain what was called "surveying camp," moving from place to place as the work progressed and, in many instances, the field notes record the name of the cook, as well as the other members of the party.

Townships and Sections.

After the establishment of the base line and the meridian, the next step necessary was to survey and lay off the townships and sections.

The survey of Township 1 North, Range 1 East was begun on November 11, 1815, by Charles Cockrall, deputy surveyor, with Jacob Pymor and Booker Davis as chainmen, beginning at the point of intersection. This same crew began the survey of the east boundary of this township early in January, 1816.

The survey of Township 1 North, Range 1 East, was begun on November 11, 1815, by Robbins. The south boundary line of Township 1 North, Range 1 West, was begun by

Brown, who surveyed the base line from the Mississippi to the Arkansas river.

The survey of the east boundary of Township 1 South, Range 1 East, was begun by William L. May, who failed to list the members of his party; November 26, 1815, at the northeast corner of the township, six miles east of the point of intersection.

The survey of the south boundary of Township 1 South, Range 1 East, was begun by Mr. Brown December 12, 1815, with Nathan Myers and James Locy as chainmen, and Nathan Gilpin, marker.

The survey of the east boundary line of Township 1 South, Range 1 West, was begun by Thomas Cox, deputy surveyor, with Junius Robinson and Benjamin Fort as chainmen, at the northeast corner of the township, on December 2, 1815, and proceeded south.

The survey of the south boundary line of Township 1 South, Range 1 West, was begun by Stephen Rector, who fails to list the members of his party, on December 6, 1815.

Surveying Sections.

The subdivision of a township was usually begun at a point a mile west of the southeast corner, at the corner of sections 35 and 36, and continued by running north between these sections and establishing the quarter section and section corners and marking the witness trees. For the quarter section corners, two trees, generally, were marked, each in an opposite direction from the corner post, and for the section corners four were marked, one in each of the four sections having the common corner. On all north and south lines, generally, only one survey was made; while on the east and west lines, a random line was run, usually east, on which temporary corners were set. After this, the line was re-run west on what was called "the true line" and permanent quarter section corners set.

The subdivision of Township 1 North, Range 1 East, was begun by Byrd Lockhart, deputy surveyor, on March 13, 1816.

The subdivision of Township 1 North, Range 1 West, was begun by Thomas Cox, deputy surveyor, on December 12, 1815.

The subdivision of Township 1 South, Range 1 East, was begun by William L. May, deputy surveyor, on December 6, 1815.

The subdivision of Township 1 South, Range 1 West, was begun by Stephen Rector, deputy surveyor, on December 6, 1815.

Continuation of Base Line.

As previously stated, the base line was run by Mr. Brown to the Arkansas river. Thomas Rector, deputy surveyor, began at this point November 4, 1815, and continued the survey west for a distance of 68 miles, to the line between ranges 18 and 19 west, which is in the west boundary line of Boone county. James Trimble, deputy surveyor, with Walker Trimble and Sampson Price as chain carriers, on the west side of Range 18, marked the corners, and continued the survey of the base line west for a distance of 36 miles, to the range line between townships 24 and 25 west, in Montgomery county. The "Official Oath" was administered to the chainmen and marker by Eliza W. Greer, Justice of the Peace, in Conway county, January 13, 1817.

John E. Graham, deputy surveyor, began at the point where Trimble quit, on Wednesday, February 7, 1818, and continued the survey 24 miles, to the range line between ranges 28 and 29, now in Scott county. He states in his field notes that all of his assistants, except Martin Imbue, became dissatisfied with the difficulties they were encountering and he decided to take a respite of about a fortnight to pay and discharge them and depend upon supplying their places with others. Accordingly C. S. Dillon, Jesse Rice, S. P. Gilmore and John Dominac left his service, M. Imbue continuing, and in their stead Russell McBeth, James Dodd, Gibson Robinson and Jesse R. Morgan were employed. The oath was administered to McBeth and Dodd by Thomas M. McBeth, justice of the peace, Boone county, January 16, 1818, and to Gibson Robinson by G. Whittington, Judge of the County Court, Hot Spring county, January 19, 1818. He states that Jesse R. Morgan was only an assistant campkeeper and too young to take the oath or be engaged in any other service.

The boundary line between Arkansas and Louisiana was run by William Pell, deputy surveyor, with Jeremiah Barnett and A. Munn, chain carriers, Kindred Edwards and William Frances, biazeis, and Bermingham M. Clark, flagman, the oath of office being administered to each by Pellanz. The survey was begun December 15, 1816, and they surveyed 11 miles on that day.
Making a Map of Little Rock

Engineer R. C. Wilcox Has Encountered Some Difficult Problems — and Some Humorous Situations,
Too — in Preparing a Base Map of the City as Part of Zoning Survey Project.

BY EDGAR B. CHESNUTT

Did you ever see a landslide slipping?
Well I have.

And there was nothing whatever about it that would suggest the slightest bit of the kind of romance woven into the familiar dream waiting song that begins with just such a line as our opening sentence.

There was a scratching noise as an inkling pen slipped along the straight edge of a celluloid triangle and came to an abrupt halt near the right-hand corner of an enormous drawing board.

And just like that a couple of thousand acres of land in Pulaski Heights west sliding off to the northwest.

Yes attire, a wholesale landslide, and yet not one little inch of dirt dug.

It was just one of the many "paper" landslides that have occurred—and in all probability will continue to occur—during the process of completing a large base map of the city of Little Rock, part of the city zoning survey being made under the supervision of R. C. Wilcox, an experienced engineer.

Many Causes.

Just exactly who is primarily responsible for the landslides is hard to say; in all probability a group of individuals and a complex series of situations and conditions are to blame.

But be that as it may, the fact remains that Engineer Wilcox and his aides daily are marking changes here and there on this and that map of the city drawn in previous years, all because surveys have disclosed actual conditions vastly different from those charted.

There are many individuals who would surmise that a city—especially one as old and that has had so many talented engineers in its midst as has Little Rock—would be laid out with due consideration of the streets running due north and south, the blocks all the same length, and the intersecting avenues running due east and west. But nothing ever was any further from the actual truth, as any map of the city will show.

Although possibly with some expectation of contradiction, Engineer Wilcox frankly declares that the base map now under construction probably will be the first absolutely accurate map to be made of Little Rock within the last threequarters of a century.

Such a statement may appear, at first thought, too brazen to be true, yet, all things taken into consideration, it may be seen easily how it could be possible, and not all blame attaches to the map makers themselves.

How It Happened.

Let's go back to the beginning and see how such errors could be made excusably. Without calling any names or using any dates, we'll tell you about a survey made when Little Rock was in its teens, generally speaking. The industrious engineer, confronted with countless handiwork, was conscientious and diligent in his work, but apparently far from complete. In his notes mention is made that his surveys take into consideration certain compass deviations. But he overlooked noting the all important fact of which way the deviation was made, north or south. It can be seen, then, that engineers in later years, referring to his notes for basic facts in charting maps, very easily could be led astray.

And so on through the years. A little error here, another there, still a bigger one yonder, and so on, until the accumulated inaccuracies have amassed themselves into a glaring misrepresentation of proportion.

There was a map, for instance, made some years ago, which Engineer Wilcox dug out to make some of his calculations from in drawing his new map. He followed the scale as given in the legend on the old map and before he knew it he found that on his new map that particular section on which he was basing the old map calculations was going way out of bounds. Not only did it cause a delay, but made it necessary that a new survey be made of that particular section and new and accurate field notes compiled.

A Street in Wrong.

It was not long before the draftsmen got into that part of Pulaski Heights around Lee street. He found from his measurements that the old so very old map of Little Rock to which he was referring seemed to differ somewhat from the field notes made by workers on the City Zoning Survey. The notes and map were checked, and what was found? The entire Lee Avenue section of the map already drawn was in reverse gear from Fair fax to Taylor.

This required another visit to the field, where a re-check was made. A summary revealed that the map already drawn had the off-set street intersections in most instances reversed. Too, the street was shown to be of uniform width on the old map, while the measurements in the field revealed blocks where the street varied as much as 40 feet.

Discovery of such an inaccuracy was far greater in the amount of trouble that it caused the map makers than might be imagined. It required not only a check on that particular street, but also necessitated the re-charting of all the territory lying north and west, shifting it over as much as 300 feet in places.

Numerous other faults in maps have been discovered. Street widths are shown inaccurately on the old maps, and—

This map of a section of Pulaski Heights, with various curved streets, intersections at angles, and other irregular intersections, shows how easy it could be for errors to be made in making a map of it. It is but one example of difficulty that has been encountered by Engineer R. C. Wilcox in his work on a base map of Little Rock as a part of the city zoning survey he is making.

Checking has resulted in the forced re-judging of numerous areas.

But inaccuracies in previous maps is only one disconcerting phase of the drawing of the new map, and the discovery of unusual things incident thereto.

Inconsistent Numbering.

For instance, there is the inconsistency in house numbering. For instance, on Madison Avenue, in the Heights, the houses are numbered consecutively up to 424. Then they start at 512 and up to 520, dropping back again to 504. Across the street, the numbers run from 401 to 491, without any 500 block numbered.

Out in the White City vicinity another unsystematic numbering arrangement was found. On Hays, Grant, Fillmore and Pierce streets the 2000 block is eliminated entirely. On Hays street the numbers run 2400, 2500 and then skip to 2700, while on Pierce street they run 2400, 2500 2700 and 2800.

And so on in various other communities. When he first got word of such mix-ups, Engineer Wilcox said he made an effort to learn what statute was in existence governing the numbering of houses. There is note that he can find, he reported. He calls attention to the fact that the numbering of streets in the old original City of Little Rock are more uniform than in any other areas.

Alleys Involved.

Alleys have given no end of trouble in drafting the new map. On old maps apparently no attention was given to the city laws defining exactly what alleys are. If there was a strip of empty land running through the middle of the block and it was open and being used, it was designated on the maps as alleys. But Engineer Wilcox contends that any map to be accurate must stick to facts, and he says that until an alley has been opened and dedicated to the city and accepted by the City Council, it is not an alley in the legal sense of the word.

Taking the old maps, and the reports of the field workers, and going back through the old City Council records and other files and attempting to determine accurately just which alleys are alleys has been no easy task, and one that still lacks a lot of being finished, Mr. Wilcox says.

Many Additions.

From the original city of Little Rock, the present Greater Little Rock has evolved itself through immemorial divisions and sub-division and additions of some sort or another, without thought of uniformity in streets, alleys or boundaries, and all of these additions have only served to further befuddle things from the standpoint of map making, he says.

It is due to this steady growth of the city that are so many offsets in streets, curves and blind endings in avenues, he thinks.

He cites one instance in particular. Engineers were charting the principal thoroughfares for a new addition. One group started at the north end of the addition and the other at the south. They worked toward each other. When they got even at the centers of the street were nearly as far apart as the width of the street.

And there is still something further that the map making has disclosed, something that to Engineer Wilcox is actually humorous. There are streets on previous maps that just don't exist, and others that (Continued on Page 3)
Uniform Maps To Be Drawn For Counties

A demand for uniform size for use by all state departments making use of maps will be available in the future. An agreement for such uniform maps was reached today at a conference of representatives of five state departments.

Under the arrangement, two sets of tracings of maps of each county in the state will be made on a uniform scale. One tracing will be for use in connection with any of the county, while the other will follow this rule on the same scale but will include railroads, highways and similar data.

The state highways department agreed at the meeting today to provide the two tracings which it makes of the eastern half of the state. The railroads department agreed to provide tracings for the county map of the state. The state forestry commission will make tracings for counties in the southern section of the state.

Today's meeting followed previous meetings in which a number of state departments agreed to make tracings in their offices to conform with the uniform scale. The session was held in the offices of Dr. George C. Brunner, state geologist.

Representatives at the meeting were Department of Education, crane, and Geological Survey.

Adoption of Uniform Base Map To Be Considered Today.

Representatives of several state departments frequently using county base maps will meet at the office of Dr. George C. Brunner, state geologist, today to consider adoption of an uniform base map for all counties. Representatives of the departments have found that maps are easier to use and to maintain. A uniform scale is the aim of the plan, so that tracings can be used interchangeably by all state departments. The Department of Education, state forestry commission, Highways, and State Land Purchase Commission will make tracings of all maps and plans for a uniform base map to be used as the basis for county maps.
In the office of W. C. Holland, federal geological survey, 315 West Seventh street, are 42 maps with what at first glance seems to be pasted-up new paper, all in shades of gray. Second glance, and a few words of explanation, reveal that on these 42 pieces of heavy beaver board is information that should be of insubstantial value to the state of Arkansas in years to come.

They are aerial photographic mosaics of Greene, Lincoln and Desha counties, and are the product of seven months of incessant work at the hands of a crew approximately 100 highly-trained civil engineers.

Photo-mapping is the familiar name for the work, started last December as a federal CWA project under the direction of the Department of the Interior, United States Geological Survey, and later reclassified as a state CWA project.

Two Main Objectives.

Objectives of the survey were two: To provide work for unemployed engineers of the state, and to produce maps and data that will be of permanent value in the federal, state and county governments.

Both objectives have been achieved, but the second doubly so. Although the survey will not be completed until July 1 (it's all over but the painting), many of its results already may be utilized.

For the maps show, so distinctly that even a layman could distinguish them from an aerial photograph, the use of the survey. As for planning, for example, they give “a picture of the whole thing right before your eyes,” which “can’t be beat” in planning.

Some Specific Uses.

For planning river developments the maps show where streams are navigable, which are not, where the overflows and whites have occurred, how much land is in farming and the soil on different courses taken by the river.

Park and playground development are other uses. The maps show the location of all buildings, the open uncultivated areas, the lakes and bayous.

Forestry, conservation, they show the marginal and sub-marginal lands, the virgin forests and the cutover lands, how much area is wooded, and soil erosion.

Indicating trends in population, the maps show location of all buildings, show over-grown clearings which have been abandoned, show inter-crossing of highways and railroads.

As an aid in agricultural development, the maps show soil erosion, types of soil and sub-marginal lands.

In highway development, the maps will be useful because they locate old route, show pathways for new roads, show that highways may be planned from the map without even getting into the field until the highways are ready to be laid out.

In appraisal of land for tax assessment or loans, the maps may be consulted to determine land under cultivation, distance of farms from roads and cities, drainage of farms, erosion, and absolute value of that land in relation to other tracts around it.

Still Other Uses.

Other uses to which the maps may be put are: Making soil surveys, making topographic surveys, census enumeration, forest fire control, geological services to three agencies, Mr. Holland said.

As an example of a recent request he has received, he mentioned a project for the Bureau of Land Management which involved a 1,000-acre tract in Greene County.

“After all, a plan made on absolute facts is the best and cheapest plan. The use of these maps in planning will save thousands and thousands of dollars for your state because with accurate maps you can plan accurately and intelligently. It is not a hit or miss system.”

A Few Tantalizing Results.

Some of the more tangible results of the maps, as interpreted by Mr. Holland, are:

Cultivation—Greene County, the maps show, is practically all under cultivation, but all by small property owners, forming an average of 60 acres each.

In Lincoln county, less land is farmed, but in plots averaging 120 acres. In Desha county, less than 25 percent of the county is under cultivation. The other 75 percent is devoted to pasture, with practically a monopoly held by its tracts, all large, by outside interests.

Relocation of the old section lines, laid out by the federal government in 1829 when Arkansas was a new territory, was first surveyed. Many of the old lines existed today only on paper. The photo-mapping survey has relocated them. The results of this relocation of lines are many, chief of which is the definite settling of property enclaves, long a matter of intense dispute and moral evil.

Locations of the shifting of the Mississippi river, showing that a good deal of eastern Arkansas now is in western Mississippi and much of western Mississippi in eastern Arkansas. These variations evidently have not been noted before, and certainly not surveyed. Mr. Holland said, for old tax records in Desha county still contain descriptions of the original survey. The present project has been carried up to the original sectional lines, but no attempt has been made to verify the correctness of the descriptions because they were not originally surveyed.

Stupendous Task.

In assembling the mass of information necessary for a complete mosaic, 7,190 property owners were consulted in regard to the property on the 1.130 or 1.767 square miles in these three counties—no small task for a peak working crew of 137 men.
Measuring Land By Air

The Acreage Reduction Agreed to by Arkansas County Rice and Cotton Farmers Are Being Checked This Year by Measurements From Photographs Snapped 14,000 Feet in the Air.

Having been introduced this year to farmers of Arkansas county who are co-operating with the Agricultural Adjustment Administration in its crop reduction program.

Their acreage contracts are being checked, not by crews of surveyors with chain and compass, but by measuring photographs that were taken from an airplane soaring through the sky three miles above the ground at the rate of 80 miles an hour.

And from what Compliance Supervisor Lloyd D. Dhanoway says, this new project is proving highly successful—as well as mightily interesting, to both farmer and compliance worker.

Arkansas county is one of five farm areas in the United States where aerial surveys are being utilized this year to comply with wheat acreage in Washington state, cotton in Texas and Carolina and corn in Kansas contracts in Missouri are also being checked by this method.

Because of the greatly reduced cost and increased benefit of the aerial survey system, it is expected that many more sections will be introduced to the new scheme next year.

This year the rice production quota for Arkansas county was fixed at 79,184 acres and the cotton quota at 23,046 acres. Each farmer contracting to co-operate in the program was allotted a definite acreage of each crop.

It is the duty of Mr. Dhanoway as compliance supervisor to see that each farmer fulfills his contract exactly, not growing too much or too little rice or cotton.

The difficulty and expense involved in making land surveys of each of these crops in the county is not hard to understand.

A section of an aerial map of Arkansas county for use in checking rice and cotton compliance contracts. The vertical lines at the right show how the pictures overlap. The town in the upper left is Stuttgart.

Note how clearly each tract of land is discernable. Not only has the aerial survey method proven much less expensive, but it has expedited the work far more than had been expected.

The Arkansas county survey was made by the P. R. Pope Aerial Survey Company of St. Louis. The contract was for about $7,700, or several thousand dollars cheaper than the most hurriedly done ground survey could have been made.

During the taking of the pictures the aerial survey company made headquarters at Toney Field, Pine Bluff, where there were hangar facilities, railroad connections and other advantages.

The flying required for making aerial photographs presents difficulties that call for experience and skill on the part of both pilot and photographer. Usually the team has worked together for several years. In the case of the Arkansas county survey James H. Gray, the pilot, and Paul J. Creese, the photographer, or cameraman, have been teamed for three years. Prior to the time they started working together each had done the same work for three years previously. Both are former members of the United States Army Air Corps.

By a little experimenting they discovered that the best pictures of the rice country could be obtained during the morning because of the position of sun, and they made their pictures from 8:30 s.m. to 12 noon.

Their plane was equipped with special instruments for the photography. An exposure and sensitive altimeter enabled the pilot to remain on a level line of flight at an altitude of 14,000 feet. An unusually sensitive drift indicator made possible a straight line of flight. In addition to the assistance of these instruments, the flights were charted along section lines, ensuring still better accuracy.

The photographer sat behind the pilot and operated a $1,000 aerial camera, equipped with a special lens. The camera was capable of snapping a picture encompassing an area 1,000 feet long and 9,000 feet wide. The plane was kept at a constant speed of 80 miles an hour and the shutter on the camera synchronized with the motor so that a picture was snapped every mile.

Hence the pictures themselves embrace an area nearly two miles wide. It is seen that each contained about half of the area taken in the proceeding picture. Thus, in assembling the finished picture, the overlapping areas could be trimmed and only that portion of each picture in focus utilized in arranging the composite map of the aerial photograph.

At a height of 14,000 feet, the pictures were confirmed to be in focus on the picture representing 1,000 feet on the ground.

Immediately after the pictures were taken, the pilot flying back and forth across the county, each time a mile away and also parallel to the previous flight, the prints were made and assembled on a plywood board for field use.

The maps were assembled for each township and were later delivered to the farmers and cotton farmers who took them to the various townships and ob-tained from them designations of the fields on the picture. Each plot was numbered.

This done, the maps are being brought back to the office of Mr. Dhanoway, where the designated areas are being measured and checked against the quota as shown in the crop reduction contracts.

The measuring of the various plots on the aerial photographs is another interesting part of the project. In some instances enlargements have been made of particular areas to increase the convenience in handling the maps. These enlargements are made exactly twice as large as the original picture, thus bringing the scale to one inch for each 500 feet of ground surface.

Just as scientific equipment in the air-plane made the proper flying possible for the photographers to be made, so is a delicate little piece of mechanism brought into use to measure the areas that have been reduced to paper. This little instrument is a planimeter, one of the most fascinating and useful devices known to engineers. Its only use is for measuring the areas of plane surfaces.

The planimeter has a stationary base and a movable arm with a pin point end. The arm can be moved about in any direction. Geometric transmits to a graduated wheel the distance that the arm moves about. The planimeter operator fastens an aerial photograph securely to his desk and marks the planimeter beside it and runs the pointed free arm around the boundary of any field he desires to measure, regardless of the irregularity of the border. On completion of the circuit the circumference is automatically registered on the graduated wheel. Each field is measured three times and readings taken each time to insure accuracy.

As is easily seen, the use of the planimeter makes it necessary that photographs be accurately scaled. In order to get the pictures as nearly as possible to scale, a common determinate test is made, each fourth picture being tested for possible changes in scale, altitude or direction.

The near corrections with which it has been possible to measure areas from aerial photographs has caused considerable favorable comment on the use of this method throughout the country, Superintendent Dhanoway says. In Washington state, where wheat acreages were measured in this manner last year, he said, a group of check tests revealed a difference of not more than one per cent in several hundred acres. He pointed out, too, that it was possible that the ground survey crews might have made errors in their measurements because the territory surveyed was hilly and rough and various variations that should have been might not have been included in the computations made on the ground.

As the measuring of the land from the aerial photographs progresses, field crews of engineers are constantly making tests to prove the measurements made, where noticeable differences are found to exist in known areas.

When the final acreage of each tract is measured from the aerial map, this plot is checked against the acreage of the individual farmer as shown in his contract.

If differences are found a complete check of both contract and map area is made, and if there still is a wide discrepancy, the situation is discussed with the farmer.

In most of the cases, Mr. Dhanoway says, the farmers are ready to accept or re-final the measurements taken from the aerial survey, particularly after the method is explained to them fully.

But there have been some who have been doubtful about it and several tests have had to be made to bring the accuracy of the survey computations in line with the compliance contract.

The farmer has heard the aerial photography plane over his farm, but has been unable to see it because of the great height at which it flew. The farmers are skeptical about a plane so high in the air being able to take pictures big enough for land to be measured from them down to the tenth of an acre. But as a whole there has been little trouble in utilizing the aerial survey successfully in the compliance work, he says.

As the work progresses, more and more use of the aerial survey picture is being desired by farmers to show the location of each planned tract, and even large wood patches.

Several farmers have ordered enlarged maps with a view of planning future crop rotation operations.

In Washington state last year a county committee obtained a map of the county for use in fixing land valuation. It was found that by using the map many trips to the courthouse could be saved.

In some instances county agents have utilized the maps for measuring the land in the same study land utilization, not erosion control or drainage problems and other features.

K. H. Bauder, director of the Washington state Extension Service, in an address recently declared the development of the aerial survey maps one of the big advances in recent years. He further said, "It reveals the entire range of man's relations to the earth. It shows man using and living on the earth, invested a man to windbreaks, shelter belts, tillage, drainage, irrigation, crops, pastures, meadows, timber, and topography, land utilization, land planning, highways, markets, roads, public educational schools, wild life, recreational purposes, co-operative action and responsibilities to and service of the government."