PRESERVATION OF EVIDENCE

Vanishing Evidence

Although the early surveyors set stakes, monuments, blazed trees, and recorded the facts in field notes, precious little, if any, of their original marks are left today. New roads, cultivation, cutting timber, and improvements have all taken their toll. With the advent of the machine age, the inventions of the bulldozer, the plough, and the ditch digger have contributed substantially to the loss of permanent markers.

Time eradicates everything living - along with many physical inanimate objects. Trees eventually die, and, with their death, corners and witness monuments to corners disappear. People die and with them vanishes knowledge of old corner locations. Erosion and weathering will eventually, although sometimes very slowly, erase mounds, pits, and even stones. Iron will rust and eventually fade away. Documents are lost by fire, age, or destruction.

In early times trees were the most common witness objects; today, it is quite obvious that trees fall far short of being satisfactory. In some states witness trees have almost completely disappeared. Even in states still wooded, fire and old age have caused original trees to vanish.

Evidence of physical objects cannot be expected to last forever. By learning from past experience the surveyor today, by better selection of monument material and better methods of referencing monuments, can preserve the certainty of a monument's position.

As previously pointed out, the spot occupied by the original monument at the time it was set is the controlling consideration. Hence, if it’s former position is known, or can be determined with a degree of certainty, the monument is merely obliterated, not lost, even though the original monument may be destroyed. After an original surveyor sets a monument the problem is one of perpetuating its position, even though the physical evidence of the monument itself may be destroyed.

Perpetuation of Evidence

It is the duty of the original surveyor to set monuments indicating his footsteps; it is not this surveyor's duty to see that those monuments are preserved forever, but his efforts should be directed in that direction. Although the original surveyor can do much toward establishing the permanency of monumentation by selecting better monument materials, setting them in positions unlikely to be disturbed, and selecting adequate reference monuments, he obviously cannot prevent destructive forces. Once an owner enters on land, he has greater control over preservation of his monuments than does the surveyor.

The surveyor is often given by law the exclusive right to prepare and survey subdivision plats and to resurvey lands. In exchange for these exclusive rights he has obligations to the public, and one of those obligations ought to be devising some means of perpetuation of monument positions.
The United States devised one of the finest survey systems in the world. And with this system numerous monuments have been set. Perpetuation of the system was not provided for; it was delegated to the state as their responsibility. Some states enacted laws that assisted perpetuation; most did nothing. It is the disappearance of monument evidence and the lack of re-monumentation that causes survey difficulty today.

**Authority to Perpetuate**

The authority to perpetuate monument positions and the responsibility of doing so are not the same. Many states delegate by law the privilege of allowing licensed surveyors to re-monument and replace original corners, but they do not often delegate to the surveyors the responsibility of re-monumentation. The usual provision of the law is that surveyors may, among other things,

“locate, relocate, establish, re-establish, or retrace any property line or boundary of any parcel of land or of any road, right-of-way, easement or alignment; perform any survey for the subdivision or re-subdivision of any tract of land; set, reset or replace any monuments or reference points”.

California Land Surveyors Act.

If a surveyor does re-monumentation and if he keeps his acts of re-monumentation as well as the evidence discovered his personal secret, with his death all is lost. Normally, what a surveyor did or found is not allowed as evidence unless accompanied by the personal testimony of the surveyor. Even though the surveyor may leave evidence in the form of writings, it is usually impossible to introduce these writings as evidence.

In the usual course of a survey, the surveyor discovers a section corner post that is deteriorated and well rotted and replaces it with a 2-inch iron pipe. Since the post is now gone, how can any other surveyor or the court prove the correctness of the pipe? Perhaps a farmer used the pipe for staking out a cow or possibly someone set a pipe where he believed the corner ought to be. The only link in the chain of evidence is the surveyor, who does not live or remember forever. Only the surveyor's properly recorded record may be everlasting. Delegating authority to re-monument old original corners without the responsibility of perpetuating the chain of evidence is futile.

**Responsibility of Perpetuating Evidence**

If the surveyor is delegated the privilege of re-monumentation of deteriorated corners, he should also be delegated the responsibility of perpetuating the evidence. In a few states the land surveyor's law has such provisions as these:

After making a survey in conformity with the practice of land surveying, the surveyor shall file with the County Recorder in the county in which the survey was made a record of such survey. Within 90 days after the establishment of points or lines the licensed land surveyor shall file with the County Recorder in the county in which the survey was made, a record of such survey relating to land boundaries or property lines, which discloses
a. Material evidence, which in whole or in part does not appear on any map or record previously recorded or filed in the office of the County Recorder, County Clerk, Municipal or County Surveying Department or in the records of the Bureau of Land Management of the United States.

b. A material discrepancy with such record.

c. Evidence that, by reasonable analysis, might result in alternate positions of lines or points.

d. Established points not shown on any map.

e. Lines set are not shown on any map.

California Land Surveyor Act
Section 8762.

This law places the responsibility of perpetuating discovered evidence on the private practitioner. If public records preserve evidence of monument positions and if new monuments are set with a continuous chain of evidence from the time of the original monuments, the problems of future location of land are greatly diminished.

The filing of a public record of survey is insufficient unless there is a mandatory provision to require the disclosure of evidence found and monuments set. In conjunction with the foregoing law in California it is mandatory to show the following:

1. All monuments found, set, reset, replaced, or removed. A description of the monuments' kind, size, location, and other data related thereto must be provided.

2. Bearing or witness monuments, basis of bearing, bearing and length of lines, and scale of map.

3. Name and legal designation of tract or grant in which the survey is located and ties to adjoining tracts.

4. Memorandum of oaths.

Within the last 30 years surveyor organizations have been active in obtaining laws requiring land surveyors to preserve evidence in public offices.

On many occasions in the conduct of surveys, surveyors recover evidence of original bearing trees and monuments. At times surveyors are required to cut into trees to verify markings, yet to do this they may have to enter onto private land not directly related to the immediate project at hand. In many state this constitutes trespass. In California, there is the right of entry.

Initially, all monuments and their accessories belonged to the government, and surveyors could do whatever was necessary. Today, there seems to be some confusion about responsibility and liability. The courts have repeatedly held that the surveyor is bound to recover all of the best-available evidence, yet the land no longer is in the public domain, and trespass charges could be likely.
In visiting surveyor's offices one may witness examples of bearing trees, monuments, and other "spoils" exhibited in display cases, shelves, and as doorstops. Although the question has never been addressed, there is some question about the authority to remove these items and make them personal property. If this practice of altering and removing evidence is conducted and no public recording is made of the found evidence, the authenticity of the original corner could be seriously jeopardized.

In those states where it is not mandatory by law for the surveyor to file and record public records of found and altered evidence of monument positions, it should be the duty of the state surveyor organization to seek legislation to that effect.

**Oaths and Witness Evidence**

In the event that an original corner monument is obliterated and there are reliable witnesses to testify about the former location of the monument, the surveyor should be authorized to swear in witnesses and record their testimony under oath. Witnesses do not live forever; it is highly desirable to perpetuate the evidence of witnesses while they are available. In California, Section 8760 of the Licensed Land Surveyors act states:

Every licensed land surveyor may administer and certify oaths.

- When it becomes necessary to take testimony for the identification or establishment of old, lost or obliterated corners.
- When a corner or monument is found in a perishable condition, and it appears desirable that evidence concerning it be perpetuated.
- When the importance of the survey makes it desirable to administer an oath to his assistants for the faithful performance of their duty.

A record of oaths shall be preserved as part of the field notes of the survey and a memorandum of them shall be made on the record of survey filed under this article.

Although affidavits relative to land and surveys in and of themselves cannot be used as evidence, the law of Georgia provides that an affidavit concerning real property can be submitted as evidence if it is filed on record pursuant to the requirements of the law.

**Identifying Marks on Monuments**

A set monument is worthless if it is unidentifiable in the future. The property owner may at any time set markers along his claimed line, and he can use iron pipes or any other material similar to surveyor's monuments. A found monument without a background history of who set it and how it got there is of little value as evidence.

Without doubt the most certain method of identification of monuments set by surveyors is a legal requirement that their license number be permanently attached or marked on each monument. Not only does the marking lend authority to the monument, but also it serves as a means of checking its past history.
**Recording Documents**

The most certain and best means of perpetuating evidence is to record copies of original documents in a public place. This has three advantages.

The documents itself is not apt to be destroyed; two copies exist, one in the possession of the owner and the other in the public records.

The general public is charged with knowledge of the document's contents.

The recorded document is admissible as evidence in court actions.

Deeds, easements, quitclaim, and similar documents related to land are those most commonly recorded. Maps and plats are the second most important recordings. All land must be located with reference to monuments, and one of the most important documents disclosing evidence of monuments and monument positions is the recorded plat and description.

Plats admissible as evidence include all publicly stored maps that a public official is charged with preparing. Road surveys, maps prepared for taxing purposes, and maps showing monuments or property-line locations that are prepared by the county surveyor as a part of his official duties are similar to recorded plats.

The law often provides for the recording of private surveys. Recording has many advantages. Evidence disclosed in the way of monuments is preserved. If a client adversely occupies lands not his own, a recorded document showing adverse possession is public notice. Recorded surveys tend to decrease arguments between surveyors; both act on the same evidence. After a surveyor's death, publicly recorded documents are admissible evidence.

The surveyor can perpetuate evidence by including descriptions of all monuments found within the writings describing newly created parcels of land such as this: "Beginning at the southwest corner of Section 10, said corner being marked by a stone 10 inches in diameter and 18 inches long; thence..." But the opportunity for including such evidence is limited, since not all resurveys are accompanied by a new parcel description.

**Private Survey Records**

Private survey records, after the death of the surveyor, are rarely of value as evidence. Generally speaking, unless properly identified by witnesses to the act of surveying, unrecorded notes are not admissible as evidence. If the surveyor is alive and if he testifies about the correctness of the notes or plats, the facts are evidence.

Private notes are not entirely useless after the death of the surveyor; the notes enable another surveyor to duplicate measurements and to discover places to seek evidence. If a present surveyor can restore the former private survey, the new surveyor can testify about what he did.
The Use of Aerial and Terrestrial Photographs to Preserve Evidence

Perhaps the photograph itself is of more value to the property surveyor than measurements made from it. Following are some of the more important uses to which aerial (and terrestrial) photographs may be put to aid, implement, and enhance land surveys.

Identification. Many organizations photo-identify all points as soon as found. The U.S. Forest Service, BLM, the Geological Survey, and other such agencies will, by photo identification or other positive identification means, tie the location of a found corner or other boundary evidence to other monuments on the ground. Reference ties to three or more points that are easily identified on the photograph will in effect reference the corner to all the images on the photograph. This identification forms a permanent record for location (on the ground) even long after all the references have disappeared.

Use of Old Photographs

Old photographs show evidence of ancient lines and conditions at the exact time the photograph was exposed. After a road has been obliterated, or a fence removed, the traces of these lines may still be seen on the photograph, even though no evidence appears on the ground. Comparing old photographs with new ones will indicate some of the changes that have taken place. Thus in a 1938 aerial photograph a farm fence that was accepted as a property line between two tracts was discernible. A recent picture of the same area after a new subdivision was improved shows a road purporting to be along the old property line is clearly out of position.

Unfortunately, most of the older aerial photographs of the United States only go back to about the mid-1930s. It would have been a great advantage to have photographic coverage of this country dating back to the time of the original subdivisions, especially for riparian lines.

Old photographs may be of more value to the property surveyor than are old maps. Ancient fence lines, hedgerows, field tiles, old buildings, and ruins of buildings all appear in their true photographic positions at the time the film was exposed. There is no danger of a surveying or drafting blunder in the picture.

Riparian Evidence

By comparing old and new photographs, the action of the water (accretion, reliction, avulsion, etc.) can be determined with some certainty. Photographs will indicate shallow areas and shoals as well as relative beach and shorelines. The location of the shoreline at the time of the original survey is essential information for determining accretion rights.

Evidence Undetectable on the Ground

Pipelines and field drains may be valuable title evidence, but they can become completely Undetectable on the ground. Usually, these effects, even when abandoned for many years, will be evident on aerial photographs. In one case a description called for a certain railroad right-of-way, long since abandoned and not visible on the ground because of farm cultivation over the former
location. Photographs clearly showed a slight discoloration along a county road and through a field with about the same geometric shape as the old railroad. Careful measurements from the pictures enabled the surveyor to retrace the old alignment until an old stone culvert was recovered. From there on, more physical evidence was uncovered until the old right-of-way was positively located.

Infrared photography will reveal even the subtlest change in the character of the land. Law-enforcement officers were perplexed by the operation of an illegal still in the remote pine area of one of the East Coast states. Infrared photographs were taken from an airplane. Because such film is sensitive to heat, a strange, light spot among the forest trees disclosed the position of the still, well hidden under the pines.

**Detection of Encroachments**

A building wall, or corner, may appear to be over the property line on a photograph. The extent of overhang or the obstruction of natural drainage is often clearly illustrated on the pictures. Public usage can be determined from examining aerial photos, and such evidence has been admitted in court.

**Identification of Lost Tracts**

Sometimes tracts described by metes and bounds have insufficient title identity. If these parcels are platted to the same scale as an aerial photograph, and if this shape is tried like a piece of jigsaw puzzle until a similar pattern on the aerial photograph is discovered, often title identity can be determined. In a township tax map in an East Coast state, many of the record descriptions were identified by this method. Overlaps, gores, and gaps were revealed.

**Locations of Monuments**

The search for ancient cornerstones, landmarks, and section corners can be greatly aided by a thorough study of the aerial photograph. Faint field lines can be projected, and their intersection will localize the area to search.

**Preservation of Evidence by State Plane Coordinates**

Original monuments, if lost, can be restored to their former position, provided.

i. Some acceptable witness remembered its former position.

ii. Measurements were known from other monuments.

NGS has numerous monuments set and interrelated to one another by monuments in this network can greatly insure the certainty of perpetuation of a monument's position.

Resurvey work and the location of properties as based on the record are interpretive in nature; once the lines called for are located, tying the monuments into a plane-coordinate network is an extra burden of cost that the property owner will object to. And where it is not a legal necessity, it is seldom done. The density of control monuments, with known coordinate positions, is a factor in
voluntary usage of plane-co-ordinate nets. If control monuments are 10 miles apart and a surveyor has to run 3 miles in one direction and 7 in another to obtain tie-out information, the likelihood of it being done is small. But if control monuments are found every half mile, the problem of usage is reduced.

Assigning coordinate values to discovered monument evidence does not in itself mean certainty of future location; the coordinates must be correctly determined by tying into monuments not too far away. A surveyor measuring 3 miles to tie into a monument has an uncertainty of measurement of 1 1/2 feet more or less. In re-establishing the position after it is lost, re-measuring the 3 miles will introduce uncertainty of another 1 1/2 feet. Thus nearby monuments might be far more certain than coordinates. Co-ordinates have no greater value than other known measurements; it is a question of what is the best-available evidence. Coordinates carefully determined will probably be the most certain evidence.

Establishing a net of state plane-co-ordinate positions is a cost impossible to bear by the private surveyors; after the net is established it is not unreasonable to expect that the surveyors should use it. In some areas, such as Los Angeles City, the state plane-co-ordinate net is sufficiently complete that all surveys ought to be related to the system. But in other states the enabling legislation has yet to be passed.

Surveyors who utilize state plane coordinates must understand basic control surveying. Each basic control monument is subject to some error of measurement and adjustment. The land surveyor must identify the monuments from which his coordinates were calculated so that a subsequent surveyor who wants to "follow his footsteps" may duplicate not only the work but the inherent errors as well.

Without question, if a state plane-co-ordinate system were accurately established with high density of monument locations, and if all surveys (including re-surveys) were tied into it, an ideal system to perpetuate evidence would exist. But until such time as the public appropriates sufficient funds to provide for the density of monuments needed in the net, the property surveyor will continue with local monument control.

In the matter of new land divisions the public can regulate how new land division shall be surveyed, and it is within the public's power to require state plane-co-ordinate data.