



PDHonline Course L178 (1 PDH)

Priority of Calls in Boundary Surveying

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Introduction

The purpose of a resurvey is merely to ascertain lines of original survey, and original boundaries and monuments, and parties cannot be bound by any survey not based on that originally made.

--Day v. Stenger, 274 P. 112 (Idaho, 1929)

Boundary resolution is a high stakes undertaking, and a professional land surveyor needs every tool in the surveying toolbox to justify conclusions. When retracing boundaries a surveyor gathers extensive evidence, including recorded deeds and plans, and physical on-ground evidence as a result of field work. The totality of that evidence must be evaluated.

A land surveyor is either the original surveyor of a parcel or follows in the footsteps of the original surveyor. All boundary law builds on that presumption. This principle is the backbone of surveying. There is no gray area between the two positions. You are either the original surveyor, or you are not.

If you are not, you are retracing the original surveyor's work. A retracement survey has as its sole goal the reestablishment of the original boundary--*not* the staking of the bearings and distances recited in an associated deed.

Proper retracement depends upon priority of calls, that is, the legal doctrine specifying the importance of each piece of evidence. Priority of calls only affects boundary retracements. Or put another way, surveyors making their own boundaries are not concerned whatsoever with the legal order of calls that control a retracement survey.

Remember: Original surveyors create new boundaries from within larger parcels. They are not concerned with evidence or with multiple corners. Retracement surveyors frequently encounter conflicting boundary evidence in the field, and it is their task to resolve inconsistencies through priority of calls. Misapplication of priority of calls among retracement surveyors is common.

What are some of conflicting situations that retracement surveyors often face when evaluating boundary evidence? The most common are conflicts between deed descriptions and plan information, versus what is actually found on the ground. For instance, a recorded deed may state that the side line between Smith and Alvarez is 200.00 feet, but field work locates front

and rear pipes that are 203.33 feet apart. Does the surveyor who encounters this discrepancy “correct” it by setting new corners?

Another common situation arises when property corners cannot be recovered, yet old fences exist that seem to establish boundaries. In such an instance the surveyor must know whether deed calls prevail over physical evidence. Issues of encroachment, adverse possession and other legal principles may come into play. Simply setting corners at deed angles and distances may ignore the physical evidence encountered, and often dodges the analysis required to correctly reestablish the boundary corners.

Also commonly encountered during retracement surveys is a determination that distances between existing corners are accurate but angles are in conflict with deed and/or plan bearings. Does the surveyor ignore angles, particularly given the physical evidence? Or the opposite situation may arise when the angles between boundary lines are consistent with older surveys, but distances between corners vary. There are numerous variations on these conflicts.

These common problems are not resolved or even recognized by surveyors who view boundary surveys as simply recreating deed calls. Land surveyors who fail to think like forensic investigators become mere craftsmen and arguably perform a public disservice with every “survey” they perform.

Proper retracement surveying requires gathering evidence, weighing that evidence objectively and then applying the correct priority of calls to the data. Correct retracement analysis can become quite complex. Thinking like Sherlock Holmes is appropriate; thinking that you gave a lowball quote to a client and have only limited time to complete your work is not appropriate.

As I will emphasize throughout this course, for well over a century courts throughout this country have provided consistent direction in numerous legal decisions. A review of these decisions leads to an inarguable conclusion: Rarely is “deed staking” during retracement surveying--no matter how mathematically precise--appropriate. Using a one-second total station that has a built-in camera, communicates by bluetooth and shoots distances to a mini prism at 3,000 feet (with an accuracy, say, of 0.01 feet) is not evidence of accurate surveying.

Old man Jones, the retired county surveyor still using his 1955 Gurley transit, may do far better boundary surveying than a hotshot surveyor with the latest electronic gizmos. In short, the surveyor with the most precise instrumentation and technology is not necessarily the most accurate surveyor.

I cannot over-emphasize that fact. Accuracy is not recreating deed descriptions by exact distance and angle in the field, but rather reestablishing the *original* boundaries. Another way to phrase this basic principle is that *original corners cannot be redefined by using modern instrumentation*. The object of a survey is not to have precise measurements, but rather accurate results. Accurate results are, without exception, reestablishing original corners.

A precisely accurate resurvey cannot defeat ownership rights flowing from original grant and boundaries originally marked off.

--*U.S. v. Doyle*, 468 F.2d 633 (1972)

Jeffrey Lucas, attorney and land surveyor, has written, “For decades now, the land surveyor has treated the title and the location questions as one-in-the-same. If the land does not comport to the description in the title documents, then the land must be made to reflect the geometry in the deed. This is exactly the opposite of what happens when the appropriate boundary law principles are in play and the boundary dispute goes to court.” (*POB* December 2015)

With that background let’s look in some detail at what courts have determined to be appropriate.

First, in retracing boundaries the entirety of evidence must be weighed. As Walter Robillard notes in *Evidence and Procedures for Boundary Location* (2006), “Only the original evidence is absolute. All other evidence is secondary and not controlling.” Robillard is not referring to deed calls. He is referring to original monuments and other physical indicators.

T.S. Madson in *Fading Footsteps* (1980) notes, “The original surveyor’s corner monuments become the actual corners, regardless of plat, field notes or deed. In a dependent resurvey, wherever and whenever the original, called-for and proven monuments are identified, their authority is absolute.”

Madson's takeaway phrase here is *original, called-for and proven monuments*. (To have absolute authority as the correct monuments, they must be cited and identifiable as such; a mere hunch that an old monument may be the original is not sufficient to meet this high bar.)

Lucas (*The Pincushion Effect*, 2011) emphasizes repeatedly the error of ignoring existing corners and setting a new, "more precise" corner. This common practice creates a "pincushion" of corners, resulting in sometimes as many as three and four rebar or pipes set within a half foot of each other.

This practice is confusing to the public, does the surveying profession a disservice and can only be justified by surveyors who are watching the clock or ignorant of their legal obligations. The practice of staking deed mathematics is contrary to more than a century of court decisions. Such practices are conducted at the practicing surveyor's peril; survey procedures become issues during any dispute, particularly those that devolve into lawsuits.

In addition, if a surveyor conducts a retracement of, say, a 1950s survey, today's surveyor needs to be aware of the accuracy of equipment used then (or earlier, as many surveyors would have been using transits purchased decades before). Good angular accuracy 70 years ago might have been 30 seconds, not three. Distances would have been measured using chains or steel tapes, not electronically to today's high precision.

A plan distance of 400.00 on a 1930s plat might have measured 399.82 feet at the time, and have been considered unusually accurate. As Robillard notes in the book referenced above, "Technology cannot be a substitute for legal principles or law." Today's retracement surveyor is tasked by law to establish the *original* boundaries, not mathematically more accurate boundaries--and never to simply set corners blindly using the deed description.

Priority of Calls

With that context we will now shift to an examination of the actual *priority of calls* as established and defined by law. Without a comprehensive knowledge of these priorities, retracement surveying--that is, the majority of boundary surveying--becomes a potential minefield.

Of great importance, note that priority of calls is not arbitrary; rather priority is based on a number of recognized factors, including common sense, English Common Law and numerous American court decisions. Also of consequence, there is no on-going legal argument within this country about the order of the following elements (this list reflects the law in the majority of states, although one state may place an element in a somewhat different position on the list).

The legal profession does not dispute the supremacy of the long-recognized list of priorities. It is accepted doctrine, and will be encountered as the standard in every court of law. For instance, the Supreme Judicial Court of Maine in *Theriault v. Murray* (1991), stated,

*We have consistently held that what boundaries a deed refers to is a question of law, while the location of those boundaries on the face of the earth is a question of fact. If facts extrinsic to the deed reveal a latent ambiguity, then we determine the intent from contemporaneous circumstances and from standard rules of construction. **A basic rule is that boundaries are controlled, in descending priority, by monuments, courses, distances, and quantity, unless this priority produces absurd results.** The physical disappearance of a monument does not end its use in defining a boundary if its former location can be ascertained. [Emphasis added.]*

A comprehensive recitation of surveying calls is found in *Brown's Boundary Control and Legal Principles* (Robillard and Wilson, 5th ed., 2003). Because of the authority of this text, I have borrowed liberally from it for the following discussion. A copy of *Brown's Boundary Control and Legal Principles* should be in every surveyor's library.

Elements are listed by importance, and in descending priority. Priorities are:

1. Boundary lines actually run by the original surveyor including corners established, monuments set and lines marked on the ground at the time of the original survey.
1. Calls for monuments set at the time of the survey. Such "calls" may be recited on a survey plan created by the original surveyor, or noted in a deed created subsequent to and in reference to said survey.
2. Natural monuments set at the time of the original survey, which prevail over artificial monuments.

3. Artificial monuments set and referred to in the original deed description.
4. Calls for adjoining parcels that are senior in title which are identified in the survey and called for in the description.
5. Calls for courses.
6. Calls for distance, and
7. Area (that is, quantity).

As noted above, this list also reflects the law in the majority of states. Surveyors should always be aware of the specific requirements of their own state. State-by-state differences sometimes arise from unusual court cases or odd circumstances. Know the cases adjudicated in your own state. Federal surveys have nuances to these priorities and may differ slightly, depending on circumstances.

Be mindful that the list begins by citing the most important element as being boundary lines actually run by the original surveyor. In contrast, the least important element is area. Note also that *distance*, #7 in the list, is next to last in importance. Why? Courts have repeatedly determined that angles can be projected accurately over great distances, whereas the accuracy of distances is predicated upon factors that are more difficult to control. Until the modern era (post-1980s), distances were usually taped using chains or steel tapes. Surveyors had to calculate slope distances because of hills and gullies. Dense vegetation prevented tapes from being pulled straight. Wear, weather factors and material influenced the length of tapes. Typically, the greater the distance measured, the greater the error in measurement. Courts are always practical.

It is only in the absence of all monuments and marks upon the ground and in the total failure of evidence to supply them that recourse can be had to calls for courses and distances as authoritative.

--12 Am. Jur. 2d Boundaries, section 73

Skelton in *Boundaries and Adjacent Properties* (1930) words the ranking of priorities differently, without changing the order and while giving the same emphasis to the importance of monuments. He states,

It is generally recognized that the control of courses and distance is primarily negative, and therefore it follows that courses and distances control only when

- (a) There are no calls for natural or artificial monuments, lines marked or surveyed, or adjoiners;*
- (b) The monuments or lines called for cannot be located or identified;*
- (c) The monuments or lines called for were referred to erroneously, or upon conjecture, or are impossible calls, and therefore compliance with them would defeat the evident intention...*

All ordering of priorities by courts and boundary experts rank natural monuments over artificial ones. Natural monuments trump all other elements. As a brief review, a natural monument may be a stream centerline, a spring, the top bank of a river, a tree or a large boulder or outcrop. If it is used as a boundary corner by the original surveyor (and properly referenced on survey plan created by the original surveyor), a natural monument will generally control over any artificial corner set. Courts assume that natural monuments are less subject to mischief and/or disappearance than manmade monuments.

Note that natural monuments such as rivers are subject to dramatic changes in location; trees are ephemeral and rarely live for more than a century; springs dry up. That said, rivers can become "movable" natural monuments. For instance, rivers may shift location within a floodplain. Riparian laws generally dictate that when a river centerline shifts, if a property line is specifically located along that centerline, the property line changes to mirror the change in location. Riparian law is complex, but in general, a surveyor needs to be aware that, when a river is referenced as a monument, distances shown on an original plan may not be relevant if the river has changed course. (PDH Online • PDH Central will offer a boundary course on riparian boundary law in 2017.)

By now, why “staking the deed” is considered poor practice should be increasingly obvious. The deed is simply a written description of a surveyor’s best measurement at the time of a survey. That measurement is subject to errors; the older the survey, the more likely that the survey will not compare favorably to contemporary measurements. And again, the deed is intended to merely reflect the on-ground survey, not the reverse. If the survey is flawed, the deed is flawed. If the original surveyor placed corners 203.2 feet apart, but showed the distance as 200.0 feet on the plan, the physical corners, regardless of the plan distance, prevail.

A frequently cited court decision states, in part,

It has ever been held that the marks on the ground constitute the survey; the courses and distance are only evidence of the survey. Where a surveyor when making an actual survey marks division lines on the ground with monuments, such lines control calls and distances indicated on his map...

--Andrews v. Wheeler, 103 P. 144, 10 Cal. App. 614 (1909)

A more recent cast in Wisconsin (*Northrop v. Opperman*, 2011) found,

The answer to the pertinent question -- Where is the boundary line? -- must be established by the best evidence available. Monuments set by the original survey in the ground, and named and referred to in the plat, are the highest and best evidence. If there are no such monuments, then stakes set by the surveyor or soon thereafter are the next best evidence. Buildings, fences and other substantial improvements built according to the stakes laid out while they were present are the next best evidence of the line.

Last, note that priority #5 from the list above is *Calls for adjoining parcels that are senior in title which are identified in the survey and called for in the description*. This is a reference to junior/senior rights, a topic which I discuss at length in a different boundary course also offered by PDH Online • PDH Central. Basically, junior/senior rights refer to the sequence of conveyance, with senior rights being the more ancient. Senior rights prevail or eclipse newer conveyances. Note that priority #5 requires that said senior rights be *identified in the survey and called for in the description*. Such a reference would be an acknowledgment by the original surveyor of the existing rights of the adjoiner. Note also that senior rights trump both courses, distances and area.

In reference to junior-senior rights, Skelton in *Boundaries and Adjacent Properties* states,

In general, the calls for the monuments of a junior survey abutting an older tract can substantiate but not contradict the monuments of the senior survey, and when there is conflict, the lines of the older tract are best established by courses and distances from acknowledged monuments of the older survey...

Madson in *Fading Footsteps* states the same thing, somewhat differently,

If a property's location on the earth's surface is to be absolutely certain, its boundaries must be defined by indestructible, visible, and certain monuments. The called-for monuments must not interfere with monuments (or calls) with a senior, i.e., older, or superior right.

Once again, with both experts the emphasis is placed on monuments, not deed descriptions. Madson cautions against violating senior rights, and requires monuments to be *indestructible, visible, and certain*. Skelton requires courses and distances be established from *acknowledged monuments*.

We see repeatedly that the deed surveyor has little, if any place in the professional surveying sphere. Use of distances and courses is at best a guide, a starting point. Use of distances and courses is almost a last resort, not the reverse. When all else fails, the courts affirm that a land surveyor may turn to mere mathematics. But a professional surveyor does not automatically input the deed description, check it for closure and then, if satisfied, set corners based on that deed. Instead, the surveyor must ascertain the intent of the original surveyor. And as we have seen, that intent may not be reflected in a deed.

As confirmed in *Theriault v. Murray*, if facts extrinsic to the deed reveal a latent ambiguity, then the intent is determined from contemporaneous circumstances and from standard rules of construction. The court emphasized that *a basic rule is that boundaries are controlled by monuments first, and courses, distances, and quantity last*.

A Brief Review

We have seen that priority of calls, in descending priority is, as elements of evidence:

- (1) Boundary lines actually run by the original surveyor, including corners established.
- (2) Calls for monuments set at the time of the survey.
- (3) Natural monuments set at the time of the original survey.
- (4) Artificial monuments set and referred to in the original deed description.
- (5) Calls for adjoining parcels that are senior in title.
- (6) Calls for courses.
- (7) Calls for distance, and

(8) Area.

Use of these elements, in the order shown, becomes a true litmus test during a boundary dispute. A court will ask, Did the surveyor establish the original lines and/or find original monuments? Were the monuments found those called for at the time of the original survey? If not, did the surveyor take senior rights into account? Was greater weight given to courses than to distance? Was greater emphasis placed on distances than on area?

Priority of calls is so well established and acknowledged that they are the foundation of all retracement surveys. As I wrote in the preamble to this course, a land surveyor is either the original surveyor of a parcel or follows in the footsteps of the original surveyor. All boundary law builds on that presumption. And this principle is the backbone of surveying. There is no gray area between the two positions. You are either the original surveyor, or you are not. If you are not, you are retracing the original surveyor's work.

I noted that a retracement survey has as its sole goal the reestablishment of the original boundary, *not* the staking of the bearings and distances recited in an associated deed. The deed is a mere reflection of the surveyor's intent, and frequently differs from what is actually monumented. Original monuments prevail without exception.

Up to this point in the course we have reviewed court decisions, discussed priority of calls and examined the logic that influenced their order. In a short time we will look at a number of case studies that incorporate these issues. But beforehand, let's look at problems that may commonly arise in trying to apply the principles discussed. Problems I highlight are: identifying original monuments, reviewing corner descriptions, conducting interviews, being aware of natural monument issues, relying on older surveys and encountering unwritten transfers of title.

Common Problems

Original Monuments

Saying that original boundary lines and original corners prevail is easy. Yet establishing that corners found are original--or not--is often a challenge. Ambiguous evidence is common, and one surveyor may easily reach a decision about the originality of monuments that contradicts another surveyor's opinion.

Be certain if you conclude that a found monument is original. In reality, professional “opinions” should play little role in these decisions. A monument is identified as original if it is called for at the time of the original survey. In other words, an identifiable monument must be cited in a deed or shown on a plan created at the time of the original survey. Therefore, the best original monuments are indisputable, and are always those described in detail on a plan or deed.

Accurate Corner Description

For instance, if surveyor Santana on a 1954 plan calls for a 6-inch diameter truck axle set in the northeast corner of Parcel A, a modern surveyor who recovers an identical 6-inch diameter truck axle in the same general location can proceed with relative confidence that the original corner has been found. This example also illustrates the importance on modern plans of correctly stating exactly the diameter, material and length of any corner set, versus the typical “IPS”, “IPF” or “Rebar set” note that appears on so many plans. Anyone who is not a surveyor would have to wonder what the acronym IPF represents.

Imagine a homeowner searching for an IPF. Is that a wood stake? A rebar? A pipe? And if a rebar, is it $\frac{1}{2}$ ”, $\frac{5}{8}$ ”, $\frac{3}{4}$ ” in diameter? Even professional surveyors are flummoxed by such obscure descriptions. A future surveyor, recovering a corner described on a plan as IPS will have no idea whether it is original or something pounded into the ground by a neighbor.

This surveyor-created ambiguity does not have to be. Plans can be precise in citing corners. Further, surveyors are frequently asked to write a deed description of their survey which will be inserted in a deed. This is an opportunity to state that the northeast corner is, for instance, a $\frac{5}{8}$ ” x 30” rebar. Being exact about the type and sizing of corners found and set is critical to guide any future surveyor who may follow in your footsteps.

Interviews and Testimony

Because establishing that a given corner, no matter its apparent age, is original is frequently difficult (commonly due to poor or missing descriptions), use of interviews of property owners and abutters is possible. The reliability of this technique is dependent on whether a given owner or abutter was present when an original survey was conducted. If so, their reliability as witnesses must be ascertained.

The interviewer must be objective. Testimony from owners, sellers and abutters is notoriously questionable, and may be driven by motives not apparent to the surveyor. Interviews are rarely used, but can become invaluable in certain circumstances. For example, a fence may date back to the year of the original survey, and an old relative living near the property may remember the fence being erected immediately after the survey was completed. Such interviews should not be left to inexperienced personnel. Interviews should be recorded and transcribed. An excellent text that describes interview techniques is *Forensic Procedures for Boundary and Title Investigation* (Wilson, 2008).

Natural Monuments

Other problems relate to analysis of even that strongest of evidence--natural monuments. As noted, natural monuments are subject to movement or destruction. Rivers, unless heavily manipulated via dams and levees, frequently make dynamic shifts during large storm events. Pond edges change during periods of flooding or drought. Springs dry up as water tables drop.

Riparian boundary law has been created and refined over many decades to provide guidance in such cases. Regardless, a 1932 survey that indicates a rear property line as following the centerline of a stream requires a modern surveyor to research historic aerial photography to ensure the stream has not moved. Similarly, a plan description of a 36-inch blazed white oak is useful only if such a tree exists. Often the whims of nature--lightning strikes, high winds, or age--have eliminated all traces of older trees.

Reliance on Old Surveys

An assumption that old surveys have veracity and reputability due to their age and neighborhood acceptance may present serious consequences for surveyors. An old survey is not necessarily an original survey. An old survey may simply be one in a secession of surveys performed on the same parcel, each separated by time. Age alone does not indicate fidelity.

As Wilson notes in *Forensic Procedures for Boundary and Title Investigation*, surveys “are only as good as their basis, and if the basic survey is incorrect, all subsequent surveys relying on it will also be incorrect.” He goes on to note, “failure to find the corner, or its original

position, means troubles have only begun.” In other words, reliance on an old survey that itself is incorrect solves nothing, and is arguably carelessness.

Unwritten Transfers of Title

There are circumstances when adverse possession, acquiescence, estoppel and other legal doctrines may trump original boundaries. Fence lines, significant improvements, hostile possession, combined with time, may alter the original boundary. These issues are outside of this course’s parameters-- and are dealt with in great detail in other PDH Online • PDH Central survey courses. Clearly, a practicing retracement surveyor must be familiar with -- indeed, an expert in -- all common legal boundary principles, in addition to being familiar with priority of calls that we examine here.

Case Studies

Given what we have learned to this point, we will consider a series of case studies that look at different scenarios using the principles described. Each study examines errors or correct decisions made by a practicing land surveyor who must decide which calls, if any, take priority when conducting retracement surveys.

#1 Surveyor Ashberry - Cutting Corners

Surveyor Ashberry works in a prosperous suburban area. His small firm specializes in boundary surveys. There are at least two other firms in the area that compete with Ashberry, keeping prices competitive. Ashberry likes to survey quickly, and his crews understand that time is a constant concern. As he frequently reminds them, surveys pay their salaries. Production has to be high. Fast is good. Faster is better.

His usual procedure is to preload the deed angles and distances for a given parcel into a data collector and to then set any missing corners. If the crew checks the parcel and finds an existing corner six-inches from the computed point, they ignore it, setting a new corner in the “correct” location. Ashberry is so certain of his procedures that he frequently shakes his head at the sloppiness of previous surveyors. What were these guys thinking 10, 25, 50 years ago?

On a good day Ashberry can complete at least two such surveys, and sometimes double that number. Ashberry thinks of himself as making a living while doing good work. People purchase land based on title documents, he

thinks, and setting corners according to the deed is best practice. Even better, he rarely gets calls from attorneys questioning his metes and bounds; after all, his plans almost always mirror the very deed descriptions they have sent him.

What errors is Ashberry making?

Ashberry never takes the doctrine of priority of calls into consideration by. If there is a mathematical “bust” in a deed description, Ashberry balances it beforehand on the computer using least squares or simply “forcing” a bad line. The issue of original monuments is ignored, as Ashberry believes he is actively correcting old survey errors. His plans describe a corner is an IPF or an IPS, and do not have a legend defining these acronyms. As we have discussed, this makes them a meaningless notation, but Ashberry is oblivious to this issue.

Ashberry is setting himself up for failure and professional admonishment upon the first court suit alleging survey error. Any boundary expert will make Ashberry look incompetent. As we have seen, boundary retracement is about reestablishing original lines, not marking deed calls.

Ashberry ignores this most basic principle, and conducts his day-to-day business at his peril. If he finds corners that contradict the deed calls, he ignores them, setting “corrective” corners. He is the epitome of the pincushion surveyor, employing state-of-the-art technology in what too frequently becomes the pursuit of highly precise, highly inaccurate surveying. Speed trumps professionalism--and Ashberry’s rationale is always that the corners set reflect the deed, regardless of established law and common sense to the contrary.

#2 Surveyor Block - Relying on Modern “Corrections”

Block Surveying, a rural firm in the Midwest, is hired to affirm the boundaries of a twenty-five acre parcel. Block finds after his usual thorough research that the parcel was originally created in 1918. He also finds the recorded plan for the original survey and notes that the two rear corners for the parcel are identified on the plan as “Boulder w/ Drill Hole.” Block also determines that the parcel was resurveyed in 1982 by AAA Survey. A plan accompanying the 1982 survey was recorded as well. Comparing the 1918 and 1982 plans, Block observes that the AAA Survey plan calls for concrete monuments at the two rear corners instead of boulders. He is puzzled, but hopeful that his own field work will clear up the mystery.

After Block runs up his crew's field notes, he understands why AAA Survey set monuments. The 1918 plan calls for distances of 1,610 feet along the left side line and 1,587 feet along the right line to the respective boulders. In fact, his crew found both boulders, and even recovered a drill hole in one. But instead of the side distances measuring 1,610 and 1,587 feet as called for on the original plan, they measure 1,606.45 and 1,583.0 feet. Block concludes that the 1918 surveyor erred by some three to four feet, not bad for work from a century ago. He could easily imagine pulling a 100-foot chain up and down the hills on that parcel and being satisfied with similar results.

And clearly, AAA Survey found the errors in distance on both lines and corrected them by setting the concrete monuments. In fact, Block's crew located both AAA monuments in addition to the boulders, and found them to be within 0.10 feet of what the AAA Survey plan recited. Now, several decades later, Block is confident that he can rely on the AAA Survey plan because the concrete monuments they set corrected an original error.

His new plan, like the AAA Survey plan, shows the property lines in the rear ending at the monuments. Block, in his thoroughness, adds a note to his plan that the rear monuments appear to be the same shown on the 1982 AAA Survey plan. He views his plan as an affirmation that AAA Survey established the intended--and therefore correct--boundaries.

What errors is Block making?

Unlike Surveyor Ashberry in the first example (who is essentially a deed staker), Block ignores the original boundary markers, even though he recovered the two natural monuments in the rear--and even though both natural monuments are called for on the original plan. Block feels far safer relying on plan distances and more modern monumentation. The doctrine of priorities is not considered.

His mistake, as obvious as it is, is to discount the clear forensic data he has recovered. Remember, the first two elements for priorities are:

1. Boundary lines actually run by the original surveyor including corners established, monuments set and lines marked on the ground at the time of the original survey.

2. Calls for monuments set at the time of the survey. Such “calls” may be recited on survey plan created by the original surveyor, or noted in a deed created simultaneously.

From a professional surveyor’s vantage point, Block has been blessed by stumbling across evidence of the original survey, and twice blessed by recovering the original corners. Yet, because the distance to the boulders did not correspond precisely with the distances shown on the 1918 plan, he chooses to honor the mistake made by AAA Survey that was itself intended to “correct” the original survey. Of course, no correction was required as the location of the original survey was so easily determined.

Although distance is one of the weakest of the priorities surveyors use when conducting retracements, both AAA Survey and Block felt more comfortable with a survey that showed the exact plan distances. Block believes incorrectly that the 1918 surveyor intended that the distances be 610 and 587 feet, and due to antique equipment, was unable to measure precisely enough. If challenged in court by a boundary expert, Block will not be able to successfully defend his decisions. When conducting retracement surveys, original monuments always trump distances.

#3 Surveyor Haestad - A Tale of Angles and Distances

Case law in Surveyor Haestad's state is definitive: In a half dozen trials dating back to 1841 the courts have affirmed that, when in doubt, angles or bearings prevail over distances. This doctrine has never made sense to Haestad as he imagines the law should favor distance--the public can easily pull distance down a line, while determining angles requires an instrument and greater expertise. In fact, he has been so irritated by the illogic of the doctrine that he has slowly convinced himself that distances matter more. What used to worry him professionally now rarely registers as a concern. Haestad is a professional, and that entails, he tells himself, being able to make appropriate decisions.

Most of the boundary surveys he conducts are within subdivisions. He has also carved out a niche for himself as the local go-to construction staking guy. All the road builders know Haestad as being fast and reliable. When one of the more successful construction company owners buys a large parcel outside of town, he calls Haestad to set the boundary corners for a fence.

Upon doing the customary research Haestad is slightly dismayed to find that

the only survey of record dates into the late 1890s. The plan does have distances and bearings on six of the seven sides; the seventh side has a bearing only. Several of the corners are identified as "Red oak tree." When Haestad runs the description through his software, he finds it fails to close by more than 30 feet. That is a large error for a 10-acre parcel, even going back to the 1890s.

After spending far more time walking the lines than he intended, Haestad concludes that if there were ever red oak trees on some of the corners, they were lost long ago. He does find one old granite post on a front corner that may correspond to what is shown on the plan as "Stone post set"; he also finds a rebar several hundred feet down the frontage road on the same line as the granite post. He needs to rely on the post and the nearby rebar or he is completely lost. The nearby abutting parcels are similarly bereft of monumentation. There is a small decades-old wooden fence that runs down what appears to be the right side line.

Haestad falls back on his instincts. If he runs the boundary description through his software, he can "force" or compute the missing distance on the seventh line. Doing so blows the plan bearing by almost eight degrees, but Haestad reasons that, since no distance is shown on that last line, whatever he uses cannot be challenged. In other words, he thinks, his distance will be as good as anyone's. He also "balances" several other bearings to make the distances visually fit the plan.

As an afterthought, he double-checks scaling for that missing distance: it scales about 120 feet on the recorded plan. When he forces the distance it computes as 142.18 feet. Not even close, he thinks, but this is rural land. Clearly no one cared back in the day, and his decision will now serve to identify the correct distance for future surveyors. Admittedly, he is somewhat uncomfortable with this decision, but shakes off his disquiet. Haestad then proceeds to set corners, using 142.18 feet as the missing distance on the seventh course. The plan now closes, although his new line on the right hand side misses the decades-old wooden fence by more than 15 feet. Based on his survey, Haestad's client will be the possessor of that old wood fence.

A week after Haestad completes his field work, the owner of the right hand parcel, seeing fresh flagging, walks the new corners. He immediately calls an old friend--who happens to also be a boundary expert. He hires him to check Haestad's work. The expert is dismayed at what he finds. His first

conclusion is that if Haestad had held the granite post and the recorded bearings, the fence line would have matched the line shown on the late 1890s plan. He is puzzled by Haestad's apparent favoring of distances.

The boundary expert knows that, often to avoid problems, it is better to call his opposite before proceeding; he places a call to Haestad to inform him that he has been asked to double-check Haestad's work. The boundary expert is sure Haestad can explain his decisions. Instead, Haestad is offended by the inquiry, and chooses not to cooperate. To the expert's request to view his field notes, Haestad states, "No way. Make your own." Haestad is angry for hours afterward.

What error has Haestad made?

Clearly Haestad has ignored priority of calls. If he had not he would have relied on bearings above distance. Additionally, he has cut off all professional cooperation, further endangering himself, as the expert will report back to the property owner and note Haestad's lack of cooperation. This may accelerate a lawsuit that could have been avoided.

To adequately deconstruct Haestad's conclusion, this case study would have to discuss whether he should have conducted further research (for instance, into abutting parcels), and whether he should have surveyed nearby properties to fill in missing data. But that detail is not necessary for us to conclude that Haestad was too quick to balance the old survey by relying on incorrect elements. His reliance on distances over bearings places him at risk when his work is challenged. His reliance on distances is willful ignorance and may not be excused by a court if this survey results in a lawsuit.

#4 Surveyor Henry - A Second Tale of Angles and Distances

In this case study, Surveyor Henry is a textbook example of a surveyor making correct decisions throughout his analysis. He is asked to survey a parcel. He researches all available deeds and plans, both for the parcel itself and for abutting properties. During his research he finds the original recorded survey for the parcel, and notes that, although the survey closes reasonably well mathematically, it makes no reference to corners. In effect, the plan is silent regarding monumentation. Henry cannot know whether monuments exist or whether they are so-called "paper" corners. Area is shown on the original plan, but Henry views the cited 20.0 acres with some skepticism. He knows older plans are infamous for exaggerating acreage.

When he conducts his field work, he finds to his surprise that every point of turn is monumented with either a pipe, a rebar or a stone monument. Fences exist on two of the lines and follow nicely from monument to monument. Distances vary a bit from those shown on the original plan. Henry is not surprised as the plan is quite old. But many of the distances match those shown on plans for abutting parcels. He also affirms that the plan bearings largely match those shown for abutting parcels. There are no apparent encroachments.

Henry concludes that none of the monuments can be considered original. After all, the original plan and original deed make no reference to monuments. Some of the monuments he finds may in fact be original, but because they are not cited in the chain of title, including the original plan, he assigns no special weight to them. They could be 80 years old or eight. But because they are not specifically named in the original survey, they are less relevant. In addition, none of the monuments is natural. Henry shifts his focus elsewhere.

Henry concludes correctly that he is simply dealing now with bearings and distances. Further, as he continues to make his analysis, he gives more weight to bearings than to distances; his state law, like most, favors courses. Also of note, upon completion of his work, Henry finds that the actual area is 19.37 acres, not 20.0. As quantity of acreage is at the bottom of the rung in priority of calls, Henry simply shows the correct area on his plan and does not worry about the discrepancy.

Surveyor Henry has made no errors in his procedure.

Like a good forensic scientist, Henry has worked his way through the known priority of calls, and correctly given weight to those factors that apply to this parcel. There are no natural monuments. Original monuments, if they exist, are impossible to identify. His boundary emphasis therefore becomes angular; distances are secondary in his consideration. Safe in his course of action, he can focus on completing his plan, following best practices for map making which will include detailed recitation of all monuments found throughout the site.

COURSE CONCLUSION

The purpose of a retracement survey is to reestablish the original boundary.

Many surveyors believe incorrectly that retracement is simply staking the bearings and distances shown on a deed. Highly precise surveys are not necessarily accurate surveys.

The key when making retracement surveys--as well as when encountering conflicting boundary evidence--is to use the well-established priority of calls. Calls may vary slightly in order from state to state, but the majority of states require the same order of priority: (1) Boundary lines actually run by the original surveyor; (2) Calls for monuments set at the time of the survey, with natural monuments carrying more weight than artificial; (3) Calls for adjoining parcels that are senior in title; (4) Calls for courses; (5) Calls for distance, and finally, (6) Area.

Because boundary retracement is a high stakes undertaking, a professional land surveyor ignores day-to-day use of the calls at great risk. A retracement survey has as its sole goal the reestablishment of the original boundary, *not* the staking of the bearings and distances recited in an associated deed. Calls in a deed are a mere reflection of an original surveyor's *intent*, always subject to some degree of error--and may differ significantly from what was originally monumented.