



# The Mystery of [Part I of a two-part series] Surveying

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**S**ome years ago a well-known builder was building a house on an existing lot in an old subdivision on the east side of Baltimore County. The deed for the lot included the bed of the County road in front of the lot. As the builder thought he needed a larger front yard, he dug up the road, piled it up neatly and called the County to come get it. (I am not making this up.) The Director of Public Works was unamused and it was a long time before the builder ever built again in Baltimore County. But that raised the question: If the builder had a deed to the bed of the road, why didn't he own it and why couldn't he do what he wanted with it?

Or, how about this:

Does having a deed to your house conclusively mean that you own it? If you believe it does, why do you get title insurance? You have a title for your car, but why don't you get title insurance for your car?

Early American surveyors didn't speak of surveying as a profession or a trade, rather they referred to the "mystery of surveying." Mystery

is an archaic term that refers to the ancient practices of guilds, but in many respects, it seems that surveying is still quite a mystery to many today.

While there are Biblical, Babylonian and Egyptian references to surveying, the development of measurement is actually fairly recent. The logarithm and the cosine were only invented in the 16th century and Greek geometry was only rediscovered during the Renaissance. The deed is much earlier and dates at least to the 12th century.

As in perhaps no other area, the field of surveying is a marriage between the legal and engineering professions. That marriage is embodied in a relationship between the deed, description and survey of the property in question. The deed, the instrument of conveyance, must contain a description. The description is based upon a survey that in turn is based upon the prior deed. All three are dependent upon the rules of evidence in ways that are poorly understood.

Originally, land was transferred by the *Act of Livery of Seisin*. Livery means delivery and a clod of dirt usually with some sticks were

handed over in a ceremony. For instance, on October 27, 1682, William Penn landed at what is now New Castle, DE and performed the *Livery of Seisin* to take possession of the Province of Pennsylvania. Perhaps because clods of dirt were hard to record in the land records, *Livery of Seisin* was replaced by the written deeds, but was still legal in some places as late as 1925.

The modern era of surveying, however, really began in 1610 when Edmund Gunter invented the famous Gunter's chain, which was ingeniously related to the English linear system and the perch.

Perch, simply a word meaning a pole or rod, was standardized in the 13th century at 16 ½ feet, which was supposedly the measurement of the left feet of the first 12 men out of church on a particular day. The Gunter's chain was an actual chain made up of one hundred links and totaled 66 feet in length or four perches. The Gunter's chain was very convenient because 10 chains square equaled one acre, which was the ancient measure of area, the amount that a yoke of oxen could plow in a day. In addition, 80 chains constituted a mile and so the measurement of both distance and area could be accomplished with one simple instrument.

Many of the railroad, turnpike, and highway rights-of-way, such as Falls Road or Reisterstown Road to name but two, are 66 feet wide because they are based upon the chain. The Gunter's chain remained in use, essentially unchanged, until the late nineteenth century when it was replaced by the steel tape, which even today is still called a chain.

In addition to distance, a surveyor measures angles or direction. The development of angle measuring instruments, in the early 17th century, based upon nautical instruments, allowed for traverse surveys of large areas, which is still the basic method used today. The telescope was attached to the theodolite (an angle measuring device) by the late 18th century and the tools of the surveyor, the chain and the theodolite or transit (simply a telescope mounted over a protractor) have remained nearly unchanged since their introduction until the present day. It is only in the last 20 years or so that electronic distance measuring equipment (called total stations), which measures distance by the use of lasers or microwaves, was introduced to the surveying profession. Some surveys are still done by transit and tape but more typically, electronic measuring equipment and Global Positioning are utilized.

### THE ROLE OF THE SURVEYOR

There is a widespread misconception that a surveyor can determine boundary lines. He can't. With the exception of subdivision of existing property, which a surveyor is legally authorized to do, a surveyor by his own act cannot determine a new boundary line. Nor does the surveyor have judicial or legislative authority to establish the location of an existing boundary line.

A surveyor's determination is only an opinion—an expert opinion—but an opinion nonetheless. No one is required to accept the findings of the surveyor. His findings and monuments are given weight only by the consent of the land owners or a court. In fact, only the Circuit Court (or two adjacent landowners in rare circumstances) can determine a boundary.



The author holding a Range Pole with a reflective prism and from left: a Total Station, a GPS Receiver and a Transit. Surveyors generally used transits and steel tapes from the early part of the 20th century until about 20 years ago when they were largely replaced by Total Stations (which are electronic distance and angle measuring instruments) and GPS.

The location of boundary lines can be extremely subjective and is susceptible to a great deal of judgement.

A surveyor does not decide who owns property. He locates land in accordance with the best evidence and descriptions available to him. The ownership of land depends on many factors: valid signatures, heirs, adverse rights, and numerous other elements all of which are beyond the scope of surveying.

### DETERMINING THE BOUNDARY

An additional misconception is related to the role of the deed. A deed is NOT conclusive proof of ownership of property—it is merely evidence. A deed also does not establish property lines and it is just one element of evidence as to their location.

The manner in which a boundary survey is performed and the judgment involved is also not well understood. The two cardinal principles governing the surveyor in the location of a boundary are to follow in the footsteps of the previous surveyor, and to gather all of the available evidence and weigh the evidence in accordance with certain rules of construction. The rules of construction in determining boundary lines are legal principles established by the courts and yet are used and administered by the surveyor, often with little legal assistance.

A boundary survey is really the search for and evaluation of *evidence*. A surveyor generally: 1) obtains written evidence of title, that is a deed; 2) goes upon the land and seeks evidence of existing monuments and possession; 3) makes measurements from the monuments he was able to locate to determine other areas to search for missing monuments; 4) makes calculations and measurements, which are also a form of evidence; 5) from the evidence of the monuments, measurements and computations he comes to conclusions in accordance with rules of construction and finally, he then uses measurements to set new monuments in accordance with his conclusions.

In determining a property line, there are inevitably many conflicts that must be resolved. There is a hierarchy of rules, which are used in weighing conflicting elements that have been established by the courts. These are:

1. Unwritten rights
2. Senior rights
3. Written rights
4. a) monuments natural artificial  
b) adjoiners  
c) direction  
d) distance  
e) area

More on the principles for determining boundaries and ALTA surveys in Part II of this series.

### LOCATION DRAWINGS

Location drawings, which were formerly known as location surveys, were the subject of considerable controversy in the past because they are not really surveys at all, but rather an inspection usually for the lender. Location drawings are generally required for almost all residential transactions where a lender is involved including most new home sales.

Location drawings provide some level of assurance that the improvements are actually located on the property and this

assurance is for the use of a lender or title insurer only. In Maryland, there are specific regulations related to location drawings: a surveyor is required to have the ultimate consumer sign a specific request and the final location drawing must include the statement that, "[this] location drawing is not a boundary survey and cannot be relied upon by anyone to show where the property's boundaries are." ■



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