

THE BIGELOW PAPERS



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PAUL BIGELOW

Emeritus Member

"... the branch of land surveying which involves retracing old boundaries must be considered as being far from an 'exact' science, in Vermont at least."

SPECIAL FIELDNOTES
VERMONT SOCIETY OF LAND SURVEYORS

This special publication is dedicated to

PAUL BIGELOW
Land Surveyor
Emeritus Member

A Society founder, raconteur par excellence, dedicated to the advancement
of the profession.

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PREFACE

In May of 1967 the Vermont Society of Land Surveyors, then known as the Vermont Society of Surveyors, held its 3d annual meeting. After dinner President Bob Dufresne introduced Paul Bigelow as the evening speaker. Paul kept every surveyor present spellbound with some well directed 'critical comments'. It was very apparent that Paul knew his subject from first hand experience and that his intent was to educate and not to scorn. His subtle Yankee humor is used constructively, not negatively.

A. Phillips Bill of Deerfield, Massachusetts, President of the American Congress on Surveying and Mapping was in the audience. Phil was so impressed that he had the address printed in the journal of Surveying and Mapping, though under a different title.

The Society's main efforts at that time, however, were directed towards legislation requiring the licensing of land surveyors. After that goal had been accomplished, the membership concerned itself, among other items, with the improvement of land surveying practices in Vermont. From these beginnings, the Society produced the first educational seminar in 1973. Several experienced surveyors from around the state cooperated in a presentation titled "What the Licensed Surveyor in the State of Vermont Should Know". Paul Bigelow prepared the part about record research, which is the second work included herein.

Both of Paul's essays should be read by every Vermont surveyor at least once a year. The editor has added a few footnotes of explanation or to indicate items that are of special significance. These footnotes are keyed into the main text in brackets in this manner [1]. For the footnote itself see page 13 et seq.

Paul Bigelow was born in Stowe, Vermont in 1906 and graduated from Montpelier High School. In 1927 he received a degree in Electrical Engineering from the Rensselaer Polytechnic Institute.

After graduation, Paul worked in New York City testing and repairing meters; in Texas and Louisiana on a seismograph party and in Vermont for the State Highway Department. He then worked on road construction, bulldozing and logging, and in 1932 started to survey lands part-time. In 1935 he became a full time land surveyor.

Paul is licensed in Vermont as a Land Surveyor and as a Professional Engineer. He is a member of the Rotary and the American Congress on Surveying and Mapping; a life member of the Vermont Society of Engineers and Emeritus Member of the Vermont Society of Land Surveyors.

George F. Butts, Editor
Chittenden, Vt.
May 1987

SOME CRITICAL COMMENTS ON VERMONT LAND SURVEYORS

Paul Bigelow

1967

President Dufresne and fellow members of the Vermont Society of Surveyors.

The first stated object of our Society is to "advance the science of surveying and mapping". I might note here that the branch of land surveying which involves retracing old boundaries must be considered as being far from an "exact" science, in Vermont at least. I shall attempt to further our stated object by making a few critical comments on the present state of land surveying in Vermont.

My contention is that the great majority of the land surveyors now practicing in Vermont are doing poor work and this general observation must include the members of this Society. I shall offer several examples of what I consider poor surveying practices and if some should involve our members, please remember that the criticism is not intended as personal, but I do want you to know it is US I am talking about and not some old timer from Essex County who uses only a pocket compass and never heard of the Vermont Society of Surveyors.

While I do not feel uniquely qualified to make these criticisms I have, in 35 years of part time and full time practice, managed to observe, and I hope correct, some of my own mistakes and also to observe poor practices on the part of others which I would like to see corrected.

The land surveying field may be divided into 2 categories:

- A. The monumenting, measuring and mapping of new sub-divisions of existing parcels, including writing of legal descriptions, and [1]
- B. The retracement, remonumenting and mapping of existing parcels.

Our biggest failures in category "A" are as follows:

- 1. Failure to give the basis of bearings used. This is the most common failure of all. Not one map or legal description in a hundred will tell you whether bearings given are based on grid north, true north, magnetic north or "assumed" north.
- 2. Failure to set reasonably permanent monuments.

3. Failure to use the proper precision for the particular job and the tendency to indicate on the map a precision which is entirely unwarranted by the measurements made on the ground. [2]

The latter is really a form of fraud, unintentional though it may be. It is quite common. For the purposes of this discussion "precision" means the degree of refinement of a measurement and a measurement can be accurate without being precise or it can be indicated precisely without being at all accurate.

4. Failure to close the survey.
5. Failure to indicate on the map exactly what the surveyors did and, in many cases, who the surveyor was.

I can offer one horrible example which illustrates all five of these common failures of Vermont surveyors of subdivisions. Recently I was asked to survey a parcel of land being sold and the owner assured me the task would be simple "because", as he said, "you have surveyed most of the surrounding properties and I have had surveys made of the two parcels I have sold off and there is a surveyor's map of one of them".

The first thing I noted on the map was a prominent "Note -- all taping to ground". I interpreted this rather cryptic remark to mean that the surveyor did not level his tape. Some of the lines measured were on slopes of up to 20 degrees from the horizontal; nevertheless, the distances were shown to tenths of feet. This is an example of failing to use the proper precision for the job, as well as indicating on the map a precision which was not actually attained by measurements on the ground.

The map indicated five iron pipes were set for monuments. Of the two I found, one was about 18 inches long, which was driven about 4 inches and could easily have been pulled by a five-year-old and one about 3 feet long laying on the ground, having fallen from its own weight. Fortunately, one witness tree had been blazed, which enabled me to drive it within a probable 3 feet of its original location. This is an example of poor monumentation.

The line which I had to retrace was about 900 feet long through two deep ravines and a dense growth of hemlock. I looked in vain for blazed trees or any cutting to indicate the survey path. I then learned this line had not been run but had been calculated. This line as shown on the map was not marked as calculated, the bearing was shown as a northwest bearing and shown to the nearest minute and the distance was shown to tenths of feet. The actual bearing of this line was a northeast bearing. Inasmuch as the calculation of this line involved slope distances it obviously could not be calculated to the nearest minute or to the nearest tenth of a foot.

Here are examples of failure to indicate what the surveyor did, failure to close a survey with resultant error in bearing which would have been

disclosed by closure, failure to mark the line through the woods and failure to indicate the actual precision attained. The north arrow shown on the map was not marked to indicate which north it represented. My survey indicated it to be magnetic and it appeared that the surveyor had determined the magnetic bearings of one line and had used that line as a basis for the bearings of the remaining lines which were calculated from angles turned to the nearest minute. I consider this method to be entirely appropriate and the only practical one to use for most transit surveys in this vicinity. However, there was nothing on the map to indicate directly that this method was the one used.

Also lacking was the name of the surveyor, only the name of the surveying firm (which name shall remain forever unknown). I wish that those of my audience who are members of surveying firms would give serious consideration to showing on your maps the names of the persons who did the survey and who drafted the map. I believe this would make these men more conscious of their responsibilities and would encourage better work by assuring recognition of work well done. [3]

I sincerely hope that if the man who did the survey I have cited is in this audience, he will forgive me for using this particular example. I can assure him that all of the failures are, unfortunately, quite common in Vermont.

Some surveyors in Vermont are still using magnetic bearings in the survey of small sub-divisions. This means that future relocations of lost corners can be uncertain by as much as several feet because of the inherent inaccuracy of the compass.

One of my associates recently completed a map which included his own survey, plus an adjoining parcel recently surveyed by others. The map furnished for the adjoining survey showed bearings to the nearest minute and indicated that they were "true north bearings". My associate's bearings, when adjusted for approximate declination, failed to check these so-called "true north bearings" by several degrees. When a surveyor gives "true north" bearings to the nearest minute, he is implying thereby that he has determined true north, either by observation or from a suitable reference line, with a precision of one minute of arc. There were no reference lines in the vicinity and I am quite sure this surveyor did not take observations to determine true north with a precision of one minute. This is an example of "pretended precision" which could have been avoided if the surveyor had correctly indicated the basis of his bearings.

Before proceeding to category "B" I would like to offer, for the benefit of any of you who will be searching land records for that elusive legal description needed to furnish vague hints for your search on the ground for equally elusive evidence, if any, left by former "surveyors", so-called, definitions of the words and phrases as used in these descriptions. Certain terms had entirely different meanings to the

farmers, lawyers, loggers, town clerks and store keepers who wrote these descriptions than to the men who compiled our dictionaries.

"Parallel lines" are any lines which do not actually intersect each other within the vision of a rather near-sighted person. Any lines which do visibly intersect always form "90 degree angles" or "right angles".

"Northerly" means any direction except due south and may occasionally include that. [4]

"100 acres more or less" means somewhere between 5 and 500 acres.

"A stake and stones" means a small twig long since rotted away, surrounded by up to 3 small cobbles well concealed under 6 inches of dead leaves. If there has been logging in the vicinity, there will be at least 3 tree tops over the leaves.

An "iron stake" is a figment of some lawyer's imagination. It was mentioned in his reference book example of survey descriptions. Many hours have been wasted by surveyors looking for these "iron stakes" on the ground.

A "rectangle" is any 4-sided figure.

"Beginning at a point in the road" means beginning at what the farmer, in 1872, imagined to be the center line of travelled way, the center line of right-of-way, the edge of travelled way, the edge of right-of-way or any other convenient point near a road from which to start pacing.

And so on. [5]

Land surveying category "B", the retracement and remonumentation of former surveys, also includes the surveying and marking on the ground of previous subdivisions established in deed descriptions only without benefit of survey. Many of our failures in category "A" apply equally to category "B". In addition, there are two other common failures peculiar to category "B".

(1) Failure to recognize the cardinal principle of retracement; namely, the surveyor must attempt to retrace the steps of the original surveyor. If there was no original survey, he must attempt to determine the intent of the original grantor and grantee from the appropriate deed descriptions. In either case he must rely on evidence in the land records and on the ground rather than on the precision of his measurements. One prominent land surveyor has aptly stated he was more of a land detective than a land surveyor.

A corollary of this failure is our failure to indicate on our maps the evidence upon which we based our survey and to indicate any specific

uncertainties caused by ambiguities in descriptions and evidence. I am sure many of you will agree with me that there are many such ambiguities.

A decision of the Vermont Supreme Court in 1930 is an excellent illustration of the cardinal principle. [6] The case involved an owner of an original town lot which was deeded to him as 100 acres, shown on the town lotting map as 100 acres and described in the original town field book by such metes and bounds as to make it 100 acres. The surveyor for the adjoining property owner was able to show from evidence on the ground that the original surveyors made errors in measurements that made one whole tier of town lots about one-half their prescribed widths.

The Supreme Court ruled, in effect, that what the owner really owned was the town lot as laid out on the ground by the original survey of the town, instead of what that same survey called for in the field book. In other words, it was not what the original surveyors said they did that counted, it was what they actually did as proven by evidence on the ground.

These surveyors of our original town lots went into the then completely uninhabited wilderness for periods of several weeks, taking for provisions a barrel of salted cod fish and a barrel of rum. At the end of the period there was usually some cod fish left. This cod fish surplus might explain the gross inaccuracy cited. Smaller inaccuracies might be explained by a Vermont law passed around 1780 which was something like this -- "In perambulating or running town lines through-out this state, an allowance of one chain in 30 shall be made for swagg". In other words, if a surveyor's work was otherwise accurate he was required by law to arbitrarily introduce a 3-1/3 percent inaccuracy.

In view of all of the above, I maintain that a retracement surveyor who measures distances to a hundredth of a foot and angles to the nearest minute in attempting to retrace the steps of these original surveyors is engaged primarily in wasting his client's money. [7]

Most retracement surveyors fail to indicate on their maps which corner markers they found and which they set and also what evidence was found on the ground or in the land records determined their survey.

A few years ago a client for whom I had done considerable subdivision work on a tract of about a hundred acres decided he wanted a perimeter survey of the part I had not surveyed. I was busy at the time and he hired another surveyor to do the work and asked me to combine our surveys into an overall map. This surveyor got the former owner to show him the corners and then proceeded to tie them together by a random survey with stadia distances and with angles read to the nearest minute. From these measurements he calculated the bearings and distances of the boundaries which he expressed to the nearest second of arc and hundredth of a foot.

He had an excellent opportunity to close a large loop of the survey with

very little additional work but failed to take advantage of it. I was not too surprised to find the error of closure of our combined surveys to be about 300 feet. After this surveyor did some re-calculating, the error was reduced to about 200 feet. His purported results indicated a precision far beyond what could possibly be attained with his methods of measurement. Because he failed to close his survey, he was unaware of large errors made in measurements or calculations or both. His representations were so misleading that they bordered on fraud.

Even most taped distances are not determined with a precision justifying their expression to hundredths of a foot. Just the temperature correction for a mild winter day would amount to about 0.03 feet in every 100 feet. Any bearings calculated from stadia distances will be uncertain by up to $1/4$ degree. [8]

(2) The second common failure is the failure to recognize the proper function of a surveyor. The proper function of a surveyor in retracement surveys can best be compared to that of a lawyer. A lawyer does not establish laws. Statute laws are established by legislatures and common laws are established by courts-of-law. The lawyer's function is to give his client his opinion on what the established law is and how it affects the case at hand. And never forget that 50 per cent of the lawyers who go to court are wrong.

Similarly, a surveyor does not establish lines and corners. They are established by deeds which express the common consent of the parties concerned or by court order. The surveyor's function is to give his client his opinion, based on evidence found in the land records and on the ground, where these established lines and corners are and to mark them as nearly as possible in the previously established locations. And never forget that at least 50 per cent of surveyors who testify in court are wrong.

We retracement surveyors are sadly lacking in humility. We should be more forthright in admitting that our conclusions are far from infallible. We should let our clients know that due to circumstances beyond our control it is usually impossible for us to give them answers that are certain. We should indulge in some justified and legitimate "buck passing" by making appropriate notes on our maps, or in our reports, that not only may get us "off the hook", but will also educate the public in the primary causes of our uncertainties and just possibly might encourage the voters to demand laws to correct the inexcusably casual manner in which land transactions have been, and are being, handled in Vermont.

Following are two examples of appropriate notes on maps:

1. "The N. $80-3/4^{\circ}$ W. and S. 79° W. lines and line following Slide Brook were run and marked as agreed to by George Sawyer (the adjoining property owner) July 1960, and are a compromise between fences found

and an ambiguous description in a deed recorded in Book 8, Page 145, of Fayston Land Records."

2. "The description, (on which this survey depends) in a deed recorded in Book 21, Page 233, of Fayston Land Records, is incomplete, self-contradictory and otherwise incorrect. Lines and corners were marked to conform as nearly as possible with apparent intent of parties concerned."

Now a word about fences. I very much deplore the tendency of all lawyers and many surveyors to consider any existing fence, no matter how crooked it is or what bearing it follows, to be a property line. The implication of such a line of reasoning is that no man can build a fence on his own land without risking the loss of part of his land to the adjoining property owner. The determination of adverse possession is extremely complicated and in any case is definitely not the proper function of a surveyor. The surveyor should make his survey conform as nearly as possible to evidence in the land records and on the ground and report the extent of any apparent adverse possession to his client and advise him to get legal counsel if needed.

A fence should only be considered as indicating a boundary if it satisfies all of three conditions: 1. It should be reasonably straight. 2. It should be on the proper bearing. 3. It should be the best available evidence indicating the original location of the boundary. [9] The only exception to this rule is when the deed description specifically calls for a line following an existing fence, in which case the surveyor must follow every crook and turn and hope it is the same fence, or in the same location, as the fence originally called for. An example of irresponsible use of fences as evidence follows.

A few years ago one of my clients discovered a well blazed, brightly painted line marked through the middle of what he had always supposed was his sugar orchard. My search of the land records revealed that his boundary was an original lot line which was well defined for several miles by a reasonably straight fence. Straight, that is, except for a short section below the sugar place where the fence changed direction to by-pass a ledge and faded away instead of turning back to join the remaining straight fence above the ledge. The new owner of the adjoining property had hired a self-styled "surveyor" who had not wasted any time by consulting the land records or by determining lot line bearings. When he came to the bend in the fence he faithfully followed it as far as he could find it and then continued in the same direction through the sugar place for about a thousand feet, finally dead-ending about 140 feet from the true boundary.

The man who perpetrated this outrage was one of the loudest critics at a legislature hearing on our proposed surveyor's registration law. We can appreciate his desire to keep required standards for surveyors as low as

possible. I will say he did a wonderful job of blazing trees, making many deep cuts and painting them a bright red. Too bad they weren't on a property line.

In closing I shall list items that should appear on property maps and are often missing therefrom:

1. A title, usually including the owner's name and the town and state in which the land is located.
2. A scale, including a graphic scale.
3. A north arrow with designation as to which north it represents.
4. Name of surveyor and assistant. [3]
5. Month and year of survey.
6. A source of bearings (or datum line) (usually missing).
7. Bearings and distances of property lines, survey lines, and ties.
8. Names of abutting property owners. (Often missing).
9. A legend.
10. Area, if desired by client.
11. Note any exceptions or easements such as cemeteries, springs, pipe lines, rights-of-way, etc. owned by others.
12. Numbers of any highways and arrows with distances to nearest road intersection or community.
13. A border, also where applicable.
14. Type of survey (if a compass survey).
15. A datum plane and bench locations if elevations are involved.
16. Calculated bearings and distances should be so noted.
17. Type of monument should be noted, also whether each monument was "set" or "found". (Often missing.)
18. At least 4 co-ordinate intersection tick marks. Either your local coordinate system or the Vermont Coordinate System.
19. Show original town lot lines and numbers. (Often missing.)
20. Show record book and page numbers of any key references in the land records.
21. Give month and year of any tree blazing done to mark lines in woods. [10]
22. Note existing evidence, such as old blazes, old corners, fences, stone walls, etc., used to determine boundaries.

SOME LAND RECORDS RESEARCH ASPECTS
OF VERMONT LAND SURVEYING

Paul Bigelow

1973

For 200 years, farmers, storekeepers, lumberjacks, lawyers and other equally unqualified persons have been filling Vermont land records with incomplete descriptions of land being transferred. Many of these transfers, including ones representing new subdivisions, were made without benefit of any survey or durable monuments or measurements of distances and directions between corners. This means that a long monotonous record search is apt to result in a vague and almost useless (occasionally completely useless) description.

This is not to deny the necessity and importance of record searching as part of a survey, rather it is to emphasize that extra work and patience will be required of the Vermont land surveyor in attempting to determine the intent of the parties who originally established the subdivision or subdivisions which are the subject of the research.

For the purpose of this discussion an "original subdivision" will mean the first separation from an identifiable larger parcel (often an original town lot) of the whole or any part of the land which is the subject of the research. The intent of the parties, the parties being the grantor and grantee involved in the "original subdivision", is very important; it is in fact what you are attempting to determine by your record research.

If the description is ambiguous as to the intent, the ambiguity can sometimes be resolved by evidence found on the ground and sometimes by a record search of adjoining subdivisions, or both. [11] Such a search of adjoining should always be made whenever the description of a boundary is in substantial conflict with evidence on the ground or whenever there is a probability of a lawsuit.

Most record searches involve several original subdivisions and each subdivision may have been transferred intact several times, sometimes with the description repeated each time. Many times mistakes were made in copying or words were added or omitted which changed the meaning. Thus the desirability of going back to the original subdivision description.

To cite an extreme case: A description called for the northerly one-half

of a certain original town lot. Ninety-nine times out of a hundred this would have meant the town lot had been divided into approximately equal parts by a line parallel with original lot lines. There was no evidence on the ground in this case to support that supposition and a search of the previous transaction disclosed that the original subdivision was all of the lot northerly of a brook, which happened to involve approximately one-half of the lot area.

Another reason for getting back to the original subdivision description exists whenever a magnetic bearing is involved because the necessary correction for change in declination is dependent on the date of the original subdivision survey. [12]

Many descriptions, old and new, contain glaring technical errors due to ignorance by the writers of what is actually on the ground or of elementary geometry or both. Any two lines which visibly intersect are often described as forming right angles and any two lines which do not are called parallel. Angles are often not specified as to interior, exterior, or deflection. One lawyer, writing a deed description, called for turning "interior angles to the right" and "alternate angles to the left". The basis of bearings is seldom noted, even by surveyors.

The novice record searcher will need to familiarize himself with the history of the lotting subdivisions of Vermont towns and with terms used in early descriptions. Some of these terms and their meanings follow. A compass bearing followed by the phrase "as the needle now points" indicates that the bearing was magnetic as of the time of survey and was read on a compass which did not have a declination correction set off on its declination vernier. [13]

"In the range with" means in the projected line of. "East 32° South" is the same as "South 58° East". A moosewood is a striped maple. A staddle is a small tree. "First division", "second division", etc.; "after division"; "undivided land"; "pitched land"; "pitching rights"; "survey bill"; "original rights"; "public lot"; "lease lot"; "governor's right" are terms which will be explained in the following discussion of the typical original surveys of a Vermont town, being especially typical of a Hampshire Grant made by Governor Benning Wentworth before Vermont became an independent country.

The typical grant was made to approximately sixty original grantees and called for "six miles square and no more" as per charter but as surveyed was seldom square and usually exceeded six miles on each side. [14]

The original grantees, or original proprietors as they were called after the grant was made, held proprietors meetings in Massachusetts or Connecticut or wherever they lived and organized their Vermont town by electing officials and then collected taxes and eventually sent a party of surveyors to lay out the town boundaries and the first division of lots,

which might typically consist of 65 lots of 100 acres each. They also laid out 500 acres in one corner for the "Governor's Right", said right having been reserved for himself by Governor Benning Wentworth in his original charter to the proprietors.

If a river formed one boundary of a town, the first division of lots usually fronted on the river. The surveyors numbered the lots and presented a map of them to the proprietors. Each proprietor and a representative of each "public right" drew a lot number by lot to determine who got which lot in the first division.

The public rights usually consisted of some combination of the following: a school right, meaning a town graded school; a grammar school right, meaning a county school which would now be called a high school; a college right; a glebe right, glebe meaning church land; a right for the first settled minister and a right for the missionary branch of the Church of England called "The Society for the Propagation of the Gospel in Foreign Parts" and whose rights were later transferred to the Episcopal Diocese of Vermont and some of whose lands were later sold outright to the lease holders. [15][16]

Representatives of the public rights sold, or gave, perpetual leases to their so-called "lease lots", subject to an annual rent. For many years the lease holder paid no tax on the lease or the leased land but now the lease is taxed according to the appraised value of the land and the town handles the lease rents. Technically lease land should not be conveyed by warranty deed. [16]

At later intervals the proprietors had second and third divisions surveyed and the lots distributed to the original proprietors and public corporations in the same manner as the first division. The surveyor, in choosing the locations for the three divisions, often deliberately avoided the most mountainous and therefore the least desirable land. These lands, sometimes contiguous and sometimes scattered, were known variously as the "after division", "undivided land" or "pitched land".

Each original proprietor, and in some towns each public corporation, could enter this undivided land and have surveyed his proportional share of its total area. This was called a "pitch" and it could be made in any shape desired and in any part of the undivided land as long as it did not interfere with previous pitches. A proprietor who did not wish to pitch could sell to others his original right to pitch. [17]

The term, "original right of John Doe in the second division" would refer to the lot which the original proprietor, John Doe, drew by lot in the second division, whereas "the original right of John Doe" might refer to his pitching right only. There was no original deed or grant of a pitch. The pitch was recorded in the land records as a "Survey Bill" which was a description of the land pitched and usually included the date of the

survey, the names of the surveyor and of the party claiming the land and the "Original Rights" used to make the pitch.

Some towns had only one division of lots and some had more than three, and original lot sizes varied in different towns and in different divisions in the same town. Different towns have different combinations of the public rights and some have none. Many towns had no undivided land and many, including of course all of the Vermont Grants (that is towns granted by Vermont during the period it was an independent country), had no Governor's Right.

Many recorded transfers do not cite any metes and bounds but only refer to previous deeds such as "being all and the same land conveyed by John Doe to the grantor on December 12, 1872". This situation calls for use of the general index to find the book and page of the previous description. Some records may read "all that John Doe died seized and possessed of". This calls for use of the general index to find all of John Doe's land transactions during his lifetime so the searcher can subtract what he sold from what he bought to determine what was left at his decease.

Extra care must always be taken when a line of title includes an estate as many administrators and executors failed to search the records carefully and either included in their sales parcels previously sold by the deceased or sometimes overlooked parcels owned by the deceased. [18]

Regarding indexing: The record of a sale or purchase of land by an executor, administrator or guardian may be indexed under the name of said agent and not indexed at all under the name of the actual owner. Church transactions may be indexed under the names of the church's trustees and town transactions under "S" for "Selectmen of" or "T" for "town of" or according to the name of the first selectman. [19] Another stumbling block is that the land records do not reflect a change in the name of a corporation. Thus a sale by ABC Corporation might be made of land bought by XYZ Corporation with no recorded transfer by XYZ to ABC.

Every record search should include a review for thirty to fifty years back of all transactions by all parties in the line of title during the period of their ownerships of the subject land to see if parcels or easements were acquired or sold without its being mentioned in subsequent transactions. This is especially important whenever evidence on the ground is vague or does not reasonably conform with the recorded descriptions.

Every record searcher should keep in mind that no one can sell, even by warranty deed, land or easements he does not own. This means the searcher must attempt to determine beyond a reasonable doubt what part or parts of the land purportedly conveyed by the conveyance under investigation was actually owned by the grantor. This determination must be based ultimately upon the intent of the parties involved in each "original subdivision" as that intent is evidenced by the pertinent land record descriptions. [20]

EDITORIAL COMMENTS

These footnotes have been added by the editor to clarify some points, to add additional information and to indicate some of Paul's practices that have been helpful to the editor.

1. It is interesting to note that 20 years ago Paul considered the writing of new legal descriptions work of the land surveyor. At the present time, how many descriptions of new parcels are being prepared by surveyors?
2. Paul makes a comment here of a "poor surveying practice" that is still going on. Our new EDMIs and our computers spit out distances to the nearest thousandth of a foot and bearings to the nearest second. Some of this raw data is appearing as is on plats, indicating a false degree of accuracy, what Paul calls "pretended precision".
3. This is one of the many ideas we gleaned from Paul. We learned in school that it was important legally to put all names of the field party in the field notebook. When all party members (except one young chainman) are locating the lines between heaven and hades, that former young chainman might be able to testify about the survey work done. Why not the same for the plat? In addition, we have found that our assistants' pride in the work has improved when they see their names on the plat.
4. The Vermont Supreme Court once ruled by inference that the south side of the highway was actually the north side. O'Brien v. Dewey, 120 VT 340 (1958).
5. We have always enjoyed what we call Bigelow's Vermont dictionary. The sad part is that it is as true today as it was 20 years ago.
6. Neill v. Ward, 103 VT 117. This case includes possibly the most boundary law of any Vermont case. Every Vermont surveyor should read the entire case.
7. Paul is right if the survey's only purpose was to locate the client's property boundaries. When you consider, however, that more accurate distances and bearings have great value in the perpetuation of those boundaries, the client's money may not have been wasted.
8. This statement also has a valid exception. In certain cases one can traverse along a line using a transit and stadia and determine the line's bearing to an accuracy greater than 15 minutes. From what we understand, the Vermont-Massachusetts State Boundary was surveyed in this manner in the 1890s. A retracement of 4 miles of this boundary proved that the

bearings were of a high accuracy. The distances, however, were of a much lower accuracy.

9. Even in this year of 1987, Paul's discussion of fences and boundaries is perhaps the best I have ever read. There are far too many surveys today that show irregular fences as boundaries. Wonder how many could pass Paul's 3 point test?

10. This is another of Paul's recommendations we have adopted. There is little value in determining the age of a blaze unless the legal record (your filed plat, or at the minimum a reference in a deed to your survey) indicated who blazed what lines and when. Many lines were blazed a long time after the survey was done. Though some lines blazed after the completion of the survey are in the proper location, many are not. See "Parsons' Gunstock Lot", page 16.

11. Ambiguity may also be resolved by parol evidence, by special knowledge obtained by the investigator, and other types of extrinsic evidence.

12. As with most rules, there is an exception. We have seen original subdivisions where the magnetic bearings given were not referred to the needle at that date, but were referred to the record bearings of the lot and range lines.

13. Though this is generally true, in the words of William C. Wattles mentor of Curtis M. Brown, "the contrary may be shown." Local custom may be such to make this otherwise. One example where this is not true is explained in No. 12 above. Other exceptions occur. "By the needle" is not the same as "as the needle now points".

14. Most of the Wentworth Charters also read "... out of which an Allowance is to be made for High Ways and unimprovable Lands by Rocks, Ponds, Mountains and Rivers, One Thousand and Forty Acres free,"

15. For a complete disertation of Vermont lease lands see The Vermont Lease Lands, Walter Thompson Bogart, 1950. Paul states that this book "should be required reading for every Vermont surveyor."

16. Before 1935 the public corporations could not deed the fee to their lands (excepting the first settled minister). In that year 24 V.S.A. Section 2406 was passed enabling the corporations to convey the fee under certain conditions.

17. The early settlers had several other meanings for the word pitch. Among others, when a settler was discovered that had built the required house and had the required area cleared and under cultivation, but had no legal title to the land, the proprietors granted or 'pitched' him a right. Of course, this helped them perfect certain stipulations in the

charter, as to buildings erected and acres under cultivation.

18. A very important item pointed out by Paul. If a mix-up occurred, look behind the conveyances out of an estate.

19. Another very important item. Peter Chase once located a key church deed indexed under L in the Grantee index for "Ladies of the Community Church". The grantor was an officer of the corporation that actually owned the land.

20. Surveyors should read this paragraph very carefully and perhaps even memorize it. A majority of the boundary problems we have investigated should not have occurred if all surveyors involved understood what Paul says here.