College Park, Maryland, April 19, 1937.

To the Dean and Heads of Departments, College of Engineering, University of Maryland, College Park, Maryland,

Gentlemen:

Having complied with all the other requirements for the post-graduate degree of Civil Engineer, as prescribed by the regulations for granting such degree by the University of Maryland, I now submit herewith, as further required, a thesis on the subject "An Investigation of the Original Deed Description of the University of Maryland Property at College Park with Reference to some of the Oldest Land Marks."

Very respectfully yours,

M. A. Pyle, B. S. in Civil Engineering

Class of 1918.

UNIVERSITY OF MARYLAND College of Engineering

THESIS

SUBMITTED FOR THE POST-GRADUATE DEGREE OF CIVIL ENGINEER

by M. A. PYLE,

Class of 1918.

TITLE

AN INVESTIGATION OF THE ORIGINAL DEED DESCRIPTION OF THE UNIVERSITY OF MARYLAND PROPERTY AT COLLEGE PARK WITH REFERENCE TO SOME OF THE OLDEST LAND MARKS.

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Also map placed in map collection with the following map mo: College Park (oversige)

INTRODUCTION

The boundary lines of the University of Maryland property at College Park have been of interest to me since I began teaching Surveying there some time ago. In my work I have been called on several occasions to determine the positions of some of these boundary lines and to part off land by establishing. on the ground, some original lines. In making these determinations I have collected a large quantity of fragmentary information relative to these boundary lines. While, even now, this information is incomplete, I feel that it should be put together in the form of a permanent record. The information is not only valuable as a part of the history of the University, but it may be desirable in relieving future generations of the necessity of going over this same material in order to answer questions that might arise about these boundary lines. With this information on record there will also be eliminated the hazards attendant to transmitting it verbally to future generations.

I have found no record of a complete resurvey of the University boundary lines having been made since the original deed was made in 1858. I have grave doubts that a complete survey was made at the time the original deed description was drawn. At several points in this study it would appear that this deed description

was drawn from three or more older surveys that are not on the same meridian. I find that this old deed description, with its weaknesses and errors, was copied into a transaction as late as 1912 without making any corrections. In fact, this 1912 description leaves out entirely two lines of 660 feet each.

That a complete study and modern resurvey of the University boundary lines should be made and carefully recorded on a map, there can be no doubt. The lines on the ground should then be carefully and adequately marked with concrete monuments suitably identified. These monuments would then serve as a guide for resurveys of adjoining properties and show the extent of the University property. There are, even at this time, several lines of the University boundary that are not adequately and permanently marked. It will require considerable field and office work to determine the proper location of these lines. It is my sincere hope that this thesis will at least be the beginning of a study that will eventually lead to a definite location of the University boundary lines on the ground and that a map can be made that will be consistent with the ground location; furthermore, that the information contained on the map can be duplicated in future years to the complete satisfaction of anyone concerned. Such a map does not exist at the present time.

Besides my own interest in this problem of depicting the University boundary lines adequately, I know that there are other people at the University who would appreciate having information about these boundary lines on which they could depend. I have received many official requests for information relative to line positions, the area of the whole tract, and numerous other questions, that could be answered if a complete modern map of the property were available.

Furthermore, I have been called upon to relocate quickly certain portions of this boundary line with very meager information with which to work. That the lines so relocated have been close to their original positions there has been no doubt. This statement is borne out by the fact that there has been no questioning of the positions of the lines so established by adjoining landowners. This was partly due also to the fact that in these locations satisfactory checks on the line positions were available before any lines were actually placed on the ground.

There are several reasons why a satisfactory survey of this kind has not been made in the past, among which the following are offered:

- 1 My teaching load has been tooheavy to attempt a project of this magnitude during regular school time.
- 2 That student assistance without direct supervision is not satisfactory on such a project.
- 3 That up to within recent years no satisfactory system of horizontal control, that would give permanent results, and be relied upon, has been established in this vicinity. Such a control, established by the United States Coast and Geodetic Survey, is now available on our campus.
- 4 That I have found a certain horizontal control, which is well established in this vicinity, cannot be depended upon for work of this kind.

In connection with resurveys of this type, which involve deed descriptions of ancient vintage, there are always a number of questions that arise in a conscientious surveyor's mind that should be explained before, or at least during, his investigations. Some of these questions follow:

- 1 Where were the original boundary lines located?
- 2 Where are the present locations of the boundary lines?
- 3 Why do not the ground lines agree with the deed description lines? Why have apparent transitions taken place in some lines and not in others?
- 4 Why are not land marks and boundary monuments protected by land owners?
- 5 Why do such large errors of closure exist in the legal descriptions of properties?

In this particular study, many questionable situations arise and cannot be satisfactorily answered because of the fact that there are in this vicinity very few of the land marks that can actually be traced back to the date of the original conveyance. This difficulty could have been largely eliminated if the lines as they have been determined by the older surveys and resurveys had been adequately marked and the marks protected.

In making this study the inadequacy of the present method of land surveying in Prince George's County is very forcibly indicated. Each tract of land is at present a separate entity with its own independent control. Adjoiners lines, even of considerable length, will show

between the same two points. These differences often give great difficulty in actually identifying the same line from two different deed descriptions. Further, it is almost impossible, at the present time, to take the deed descriptions of two or more adjacent properties and get any satisfaction out of putting them together and ever hoping that they will fit the land lines they are intended to represent. The only satisfactory solution, I have found, to such a problem is actually to get out on the ground and find out where the adjacent owners actually use the land.

This study really began some nineteen years ago when as Instructor in Civil Engineering I began to collect this information. At that time I knew very little about the boundary lines of the University of Maryland property. As the information came into my possession it was filed until, in rather recent years, I find that I have accumulated quite a lot of it. As I have made surveys in this vicinity, both regular and student, I have gained knowledge of the positions of most of the boundary lines, as they now exist on the ground. From this information I shall endeavor to show the positions of the original lines and their present positions, as well as can be determined from the ground evidence as it exists at the present time.

Unfortunately, most of the controlling points along these boundary lines are of rather recent origin. To the best of my knowledge the oldest monumented corner does not date much farther back than 1870. This marker is an old shale stone that for a long time marked the Northwest corner of the University farm. This stone was a corner of four farms; namely, the University Farm, the Keily Farm, the Buckley Farm, and the McNamee Farm. Older monuments are not available because they have been dislocated, pulled out, moved, lost by vandalism, or destroyed to make room for modern improvements.

I am indebted to Dr. H. J. Patterson and Dr. W. T. L. Taliaferro for valuable information. Free use has been made of the Prince George's County Land Records and all Liber and Folio numbers refer to that record.

It is my hope that this study will be of some value to the University of Maryland and that it will eliminate any necessity for similar studies of the original description of the University of Maryland property being made in the future.

THE ORIGINAL CONVEYANCE OF 1858

On beginning this intensive study I was surprised to find that there was no deed description of the University of Maryland property available at the University. No one at the University had any knowledge of where the original deed description could be found unless a trip was made to Upper Marlboro to get this information from the Prince George's County Land Record Office. On one of my trips to Upper Marlboro I began searching the record for the original transaction. I finally located it and from this point, additional information has been found that has enabled me to make a start on this study.

I find that the original conveyance of the land, upon which the Maryland Agricultural College was established, is recorded in the Prince George's County Land Record in Liber C.S.M. 2 at Folio 294 as follows:

On March 22, 1858, "George H. Calvert and Elizabeth Calvert, his wife, and Charles B. Calvert and Charlotte Calvert, his wife, parties of the first part, (George H. Calvert and Charles B. Calvert acting as trustees under deed from their father George Calvert dated November 11, 1837, and recorded in Liber A.B. 11 at Folio 377, and as devisees under the will of their father, George Calvert, June 8, 1853) and the Maryland Agricultural College, a corporation by Act of the General Assembly of Maryland, December session 1856, party of the second part."

The consideration is stated to be \$20,000.

The description by metes and bounds, of this conveyance is recited as follows:

"All that tract or parcel of land known as the Rossburgh Farm, Beginning for the same at the end of four perches on the seventh line of Bucklodge, being at the intersection of the S 66 1/4°W, 10 perches line in the courses and distances of 'Riversdale' and running thence

as follows: (1) S 64 1/2°W, 21 17/25 perches; (2) S 84°W, 105 perches to a stone on the East side of the Washington-Baltimore Turnpike Road; (3) then S 14 3/4°W, 28 6/25 perches to a stone on the West side of said Turnpike Road; (4) then S 1 1/4°E, 56 perches to a stone on the East side of said Road; (5) then S 3 1/4°W, 42 1/2 perches; (6) then N 58 1/2°W, 199 perches; (7) then N 15° W, 78 perches; (8) then N 44°E, 262 20/25 perches to a Pin Oak; (9) then S 66 1/2°E, 70 20/25 perches to a corner of "Jackson's Necessity"; (10) then S 2 1/2°E, 6 perches; (11) then N 2 1/2°W, 309 perches; (12) then N 56°E, 21 3/4 perches; (13) then S 3 3/4°E, 305 perches, being at the end of 28 perches on the 3rd line of "Red House"; (14) then with said 3rd line reversed S 2 3/4°W, 28 perches to the end of the 2nd line of "Red House"; (15) then S 38 3/4°E, 16 perches; (16) then S 21 1/2°W, 32 perches; (17) then S 2 7/8°E, 28 1/2 perches; (18) then S 1 3/4°E, 40 perches; (19) then S 46 $3/4^{\circ}E$, 40 perches; (20) then S 1 $3/4^{\circ}E$, 40 perches; (21) then S 46 $3/4^{\circ}E$, 28 perches to the beginning of the seventh line of "Bucklodge"; (22) then binding on said line S 16°W, 14 perches to the place of beginning, containing 428 acres of land more or less."

In order to find out how this deed description closes, a tabulation is made, on pages 8a, 8b and 8c, showing each course and distance as called for in the deed. From this tabulation the latitudes and departures of all the courses were computed and summed up. The north and south latitudes fail to sum to zero by 34.08 perches (562.32 feet) and the east and west departures fail to sum to zero by 3.52 perches (58.08 feet). This is an exceedingly large error for any survey.

The error of closure in the deed description was then determined from the difference in latitudes and the difference in departure. The line that would close up the survey was found to be 34.26 perches (565.29 feet) long and its bearing would have to be N 6° E (to nearest 1/4°, which is as close as the original bearings were observed).

In an endeavor to locate the reason for such an error of closure, as this deed description contains, I shall begin

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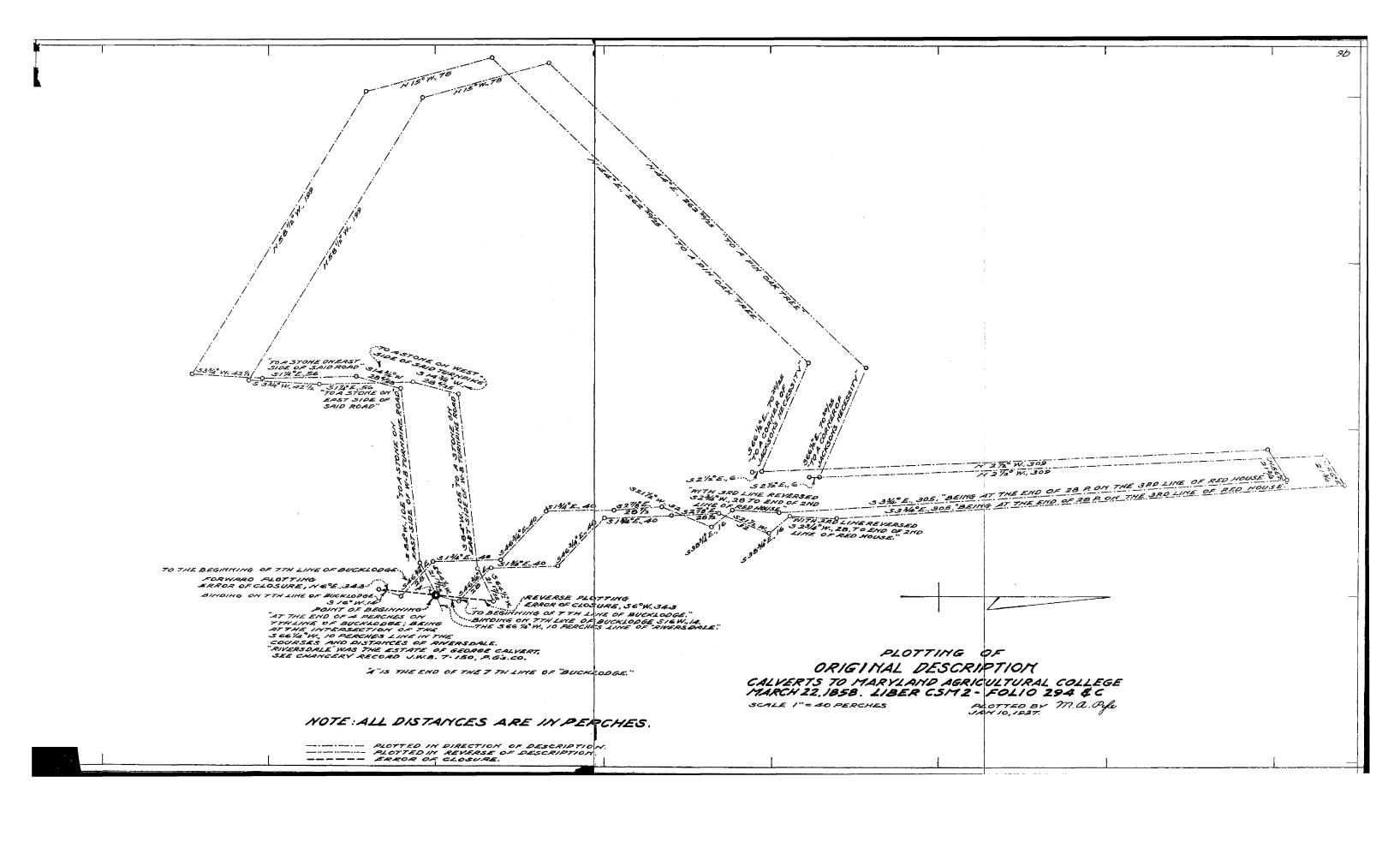
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by computing the coordinates of the corners, by use of the unadjusted latitudes and departures. This will hold the original direction on each of the courses and make the position of the courses dependent upon the distances. I feel, that with an error of closure of the size of the one contained in this description, the distances are more at fault than are the directions.

To compute the coordinates of the corners I shall assume the coordinates of the point of beginning at N 1000.00 - E 1000.00 so that all corners concerned will fall in the N.E. quadrant and, therefore, all have positive coordinate positions. The coordinate positions of the corners will be computed first in the direction in which the deed description reads and then, in order to observe the effect, a second set of coordinate positions will be computed in the reverse direction of the deed description. Tabulation of these coordinates will be found on pages 8a, b. c. and 9a. The distance between the coordinate position of the corner on the first computation and the same corner on the second computation will always be equal to the error of closure. The results of the computation of these coordinates are then plotted, on page 9b, to get a general idea of the outline of this tract of land. If the two plottings, forward and reverse, can be brought into coincidence by finding, in the land record, corrections to some of the distances, it will be reasonable to assume that the correct positions of the old lines will have been found.

Due to the map, on page 9b, already containing a great

DETABLITY OF MARYLAND 是初级的图式文件。 COLLEGE OF ENGINEERING 111F). Computation of coordinates or sees. Traverse or boundary of THE ORIGINAL CALVERTS - MAC DESCRIPTION 118.C.SM.2-For 294
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quantity of information, especially in the vicinity of the point of beginning, a second map, page 9c, was made. The purpose of this map is to give each line an identification number to simplify discussion. The numbers used to designate the sequence of lines are in the same order that the lines appear in the deed description. Transitions in the positions of these lines, due to corrections, will be identified by a letter following the number of the original course.

So far as the map shown on page 9b is concerned, it does not reveal the location of the error of closure. In general there appears to be a large mistake in a line that runs close to the north and south. That there is also a mistake of smaller magnitude in one of the courses running nearly east and west is revealed by the displacement of the lines such as 11 and 11a. Thus further investigation must be made to see if these differences can be found.

THE CONVEYANCES OF 1865 AND 1867

On investigating in the land record, I find that the following three conveyances were made out of the land conveyed by Calverts to the Maryland Agricultural College, as described in Liber C.S.M. 2 at Folio 294.

1 - That on March 14, 1865, a portion of the original Maryland Agricultural College tract was conveyed by J. T. Earle, President of the Maryland Agricultural College, to John Berry. Record of this transaction is found in Liber F.S. 2 at Folio 569. The following description is

-11-

contained therein:

"Beginning at a corner of 'Jackson's Necessity', on the East Bank of Paint Branch, and running (1) thence with a line of 'Jackson's Necessity' N 1°W, 334 perches; (2) thence N 56°E, 17 perches; (3) thence S 1 1/2°E, 333 perches to a stone; (4) thence S 38 1/2°E, 18 perches to the Washington-Baltimore Turnpike Road; (5) thence S 24°W, 8 perches; (6) thence N 70°W, 29 perches to the place of beginning, containing 36 1/4 acres of land more or less."

2 - That on May 6, 1865, another portion of the original tract was conveyed by J. T. Earle, President of the Maryland Agricultural College, to Dr. Montgomery Johns. This conveyance, containing the following description, is recorded in Liber F.S. 2 at Folio 633.

"Beginning for the same at a stone on the East side of Washington-Baltimore Turnpike Road, being at the end of the 4th line in the courses and distances of 'Rossburgh Farm' and running (1) with the said 4th line reversed, as the needle now points, North, 56 perches to its end; (2) then with the 3rd line of the aforementioned tract reversed N 15 1/2°E, 10 9/25 perches; (3) then West, 97 4/5 perches; (4) then N 78°W, 75 23/25 perches; (5) then S 13 1/2°E, 20 24/25 perches to a line of the aforesaid 'Rossburgh Farm' running N 57 1/4°E, 199 perches; (6) then reversing said line S 57 1/4°E, 199 perches to the East side of the Washington-Baltimore Turnpike Road and (7) thence N 3°E, 42 1/2 perches to the beginning, containing and laid out for 62 5/8 acres of land more or less."

3 - That on June 1, 1867, still another portion of the original tract was sold by James T. Earle, President of the Board of Trustees of the Maryland Agricultural College, to Christian Engle. This conveyance, containing the following description, is recorded in Liber F.S. 5 at Folio 20.

"Beginning at the end of the 7th line of the Maryland Agricultural College and running thence (1) N 44°E, 58 1/2 perches to a Pin Oak; (2) thence S 66 1/2°E, 74 4/5 perches; (3) thence N 5 1/2°E, 8 1/10 perches to a corner of Berry's part of the Rossburg tract; (4) thence S 71°E, 20 3/4 (twenty and three quarters) perches to the Baltimore and Washington Turnpike Road; (5) thence S 23°W, 76 3/5 perches to a Persimmon Tree on the West side of said road; (6) thence to the beginning, containing 43 acres more or less."

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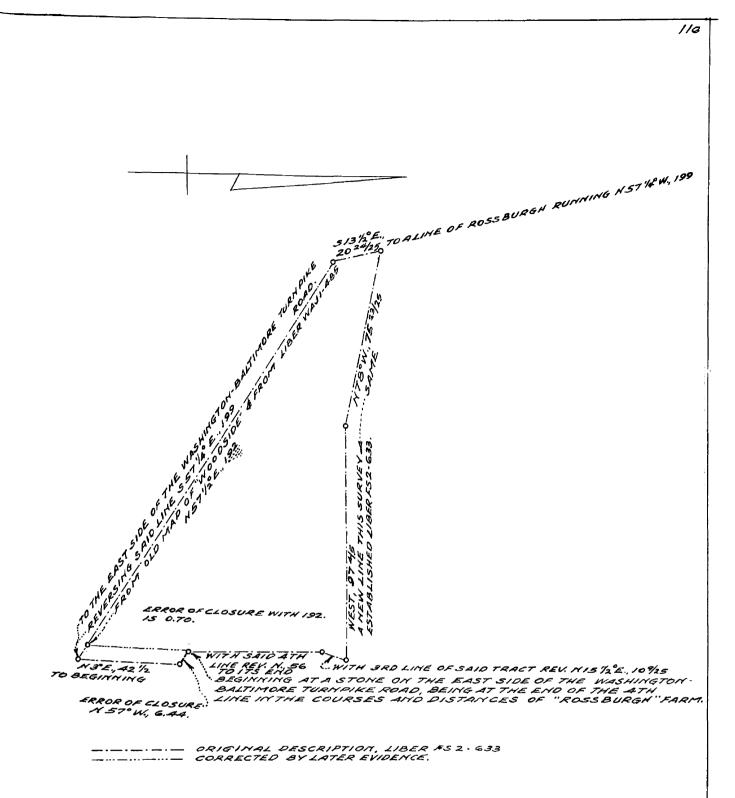
PLOTTING OF

ORIGINAL BERRY TRACT

SCALE 1=40P PLOTTED. FEB. 6, 1937

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PLOTTING OF MARYLAND AGRICULTURAL COLLEGE TO OMERY JOHNS DR. MONTGOMERY WAJ1-485 PLOTTED BY M.a. Pyle SCALE I" . 40 PERCHES JAN. 22, 1937.

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PLOTTING OF

MARYLAND AGRICULTURAL COLLEGE TO

CHRISTIAN ENGLE

LIBER FSS-POLIO 20

SCALE 1"= 40P.

M.A. Pyla

The information contained in each of the above three descriptions was then used to compute the latitudes and departures of each of their courses. This indicated the error of closure involved in each tract and also gave data necessary to make a careful plotting of each of the lines. The computation of these latitudes and departures will be found on pages lla, llb and llc. The plotting of this data will be found on pages lld, lle and llf.

A study of each of the three plotting of these descriptions will show the following information:

THE BERRY TRACT

That the Berry description intended to convey a part of the long narrow strip of land that ran north from the end of the lOth line of the original Calverts-M. A. C. description, Liber C.S.M. 2 at Folio 294, there can be no doubt. See maps, pages 9b and lld. This is evidenced by the following facts:

- 1 That the Berry tract was intended to begin at "a corner of Jackson's Necessity". See end of the 9th course Calverts to M. A. C., Liber C.S.M. 2 at Folio 294, map page 9a.
- 2 That the first line of Berry was intended to be all or a part of the 11th line of Calverts to M. A. C.
- 3 That the second line of Berry has the same bearing as does the 12th line of Calverts to M. A. C.
- 4 That the 3rd line of Berry seems to be a combination of the 13th and 14th lines of Calverts to M. A. C.
 - 5 That the 4th and 5th lines of Berry are intended

to be respectively the 15th and 16th lines of Calverts to M. A. C.

There are, however, some discrepancies between the two descriptions of this Berry tract, that is, the Calverts to M. A. C. description and the M. A. C.-Berry description, that should be noted.

- 1 That the Berry line 1, which no doubt was intended to be a resurvey of the Calverts-M. A. C. line 11, there has been a change in direction of 1 1/2° in a clockwise direction. This may be due to a change in declination from 1858 to 1865, but is more likely due to a change in position. See comment #2 below. Furthermore, something radical has happened in this line because the Calverts-M. A. C. description calls for only 309 perches overall, while the M. A. C.-Berry description calls for 334 perches and then, as will be found later, does not use up all of this line. The Engle tract will be found to contain some of this same line.
- 2 That Berry line 2, which was intended to be the Calverts-M. A. C. line 12, shows no change in direction. This conflicts with #1 above, which showed a change of 1 1/2° clockwise. Either a mistake has been made in identifying the position of one or the other of these lines or a transition has taken place in Berry's line 1. Furthermore, I find that the length of the Berry line 2 is given as 17 perches only, when the length of Calverts-M. A. C. line was 21 3/4 perches, an adjustment in length of 4 3/4 perches (78.37 feet).

- 3 That the Berry line 3 was intended to be the Calverts-M. A. C. lines 13 and 14. That in this line there is a difference in direction of 2 1/4° clockwise. This may be partially due to the combining of the 13th and 14th lines of Calverts-M. A. C. and determining the direction from the north end of line 13 to the south end of line 14. The distance given in the Berry line 3 (333 perches) is the sum of lines 13 (305 perches) and 14 (28 perches) in Calverts-M. A. C. description.
- 4 That the Berry line 4 was intended to be the Calverts-M. A. C. line 15. In this line the change in direction is only 0 1/4° clockwise. The distance, however, changes from 16 perches to 18 perches, a difference of 2 perches (33.0 feet).
- 5 That the Berry line 5 was intended to be a portion of the Calverts-M. A. C. line 16. In this line a change in direction of 2 1/2° clockwise has been made.

Tabulation of Changes from Description of Calverts--M. A. C. to Description of M. A. C.--Berry

Line of Berry	Line of MAC	Direction MAC	n B erry	Direction Change from MAC		th, Pe B erry	rches Diff.
1	11	N 2 1/2°W	N 1°W	1 1/2° clockwise	309	334	+25
2	12	N 56°E	N 56°E	0	21.75	17	-4.75
3	13 & 14	S 3 3/4°E	S 1 1/2°E	2 1/4° clockwise	305+28	333	0
4	15	S 38 3/4°E	S 38 1/2°E	0 1/4° clockwise	16	18	+2
5	16	S 21 1/2°W	S 24°W	2 1/2° clockwise		8	

6 This is a new line established by recording of the Berry conveyance in Liber F.S. 2 at Folio 569.

From the above facts it will be seen that there is no consistency in the change in direction of the lines referred to. Since no declination is mentioned in either description, I cannot account for the parts of the above changes that are due to declination, mistaken direction or actual transition of the line position.

time since M. A. C. acquired the land until the time that this tract was sold to Berry. This principally indicated by the narrowing of the tract at the north end from 21.75 perches to 17 perches. This narrowing may also explain some of the changes in direction of the two long lines on the east and west sides of the tract. I could find nothing in the land record to substantiate this change.

After computing the latitudes and departures of the Berry description, I find that it has an error of closure of 2.48 perches (40.92 feet) and that its direction is N 68 1/2°E. Since there are no courses in this description that run near this direction, the tendency would seem to indicate that the error of closure was general throughout the courses and distances. This error of closure is not bad when considering surveys made at the period it represents. The ratio of precision is about 1 in 350.

THE DR. JOHNS TRACT

The position of the Dr. Johns tract of land has been placed at the south end of the tract conveyed by Calverts to M. A. C. and on the west side of the Washington-Baltimore Boulevard. See map, pages 9b and lle. Evidence as to

-16-

location is borne out by the description of Dr. Johns point of beginning, his first, second and sixth lines.

There are, however, some discrepancies to be noted here between the Calverts-M. A. C. description and the M. A. C.-Dr. Johns description.

- I There can be no doubt that the 5th line of Dr. Johns is the south end of the 7th line of Calverts-M.A.C. The parting lines of Dr. Johns certainly ran from a point on the Calverts-M. A. C. 3rd line to a point on the 7th line of the same description. The direction of the 7th line of Calverts-M. A. C. is given as N 15°W, while Dr. Johns description places the line at S 13 1/2°E. This makes an apparent change in declination of 1 1/2° clockwise from the Calvert-M. A. C. direction.
- 2 The 6th line of Dr. Johns is identified to be the whole of the 6th line of Calverts-M. A. C. The direction of this line shows a change from N 58 1/4°W in Calverts-M. A. C. to S 57 1/4°E in M. A. C.-Dr. Johns. A change of 1° clockwise from the M. A. C. description. The distances are identical.
- 3 The 7th line of Dr. Johns is identified as being the 5th line of Calverts-M. A. C. The direction of this line in the Calverts-M. A. C. description is given S 3 1/4°W, while in Dr. Johns description the same line is N 3°E. A change in direction is here indicated of O 1/4° clockwise from the Calverts-M. A. C. description. The distances are identical in both descriptions.
 - 4 The 1st line of Dr. Johns is given North, while in

the Calverts-M. A. C. description this line is given S 1 1/4°E. Thus this line shows a change in direction of 1 1/4° clockwise from the Calverts-M. A. C. direction.

5 - The second line of Dr. Johns runs N 15 1/2°E, while the 3rd line of Calverts-M. A. C. is given S 14 3/4°W, a change in direction of 1 1/4° clockwise from Calverts-M. A. C.

Tabulation of Changes from Description of Calverts--M. A. C. to Description of M. A. C.--Dr. Johns

Line of Dr.Johns	Line of MAC M	Direction AC	n Dr.Johns	Direction Change from MAC	_	th,Percl	hes D if.
1	4 S	1 1/4°E	North	1 1/4° clockwise	56	56	0
2	Part of N 3	15 1/2°E	S 14 3/4°W	l 1/4° clockwise	=	=	
3	New	line this	description				
4	New Part	line this	description				
5		15°W	S 13 1/2°E	1 1/2° clockwise	=	=	
. 6	6 S	58 1/4°W	S 5 7 1/4°E	l° clock- wise	199	199	0
7	5 S	3 1/4°W	и зое	0 1/4° clockwise	42 1/2	42 1/2	0

From the above tabulation it can be seen that the apparent change in direction of these lines will indicate that the change is not entirely due to change in magnetic declination. Some of the differences, however, must be due to observing the positions of these lines differently in the two surveys. It would seem that, in general the change in declination here has been $1 \frac{1}{4^\circ}$.

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From the above information, there can be no doubt about identifying the location of the Dr. Johns tract.

After computing the latitudes and departures of the courses in the Dr. Johns description, an error of closure of 6.44 perches (106.26 feet) is found to exist. The direction of this error of closure is computed to be N.57° W. This it would seem that the mistake producing this error was made in the 6th line of Dr. Johns, which line runs S.57-1/4° W., 199 perches, since this line is within 0-1/4° of being parallel to the error of closure. This line is also the 6th line of Calverts-M.A.C., which line ran N.58-1/4° W., 199 perches.

THE CHRISTIAN ENGLE TRACT

That this tract was located at the northern end of the Calverts-M.A.C. description, west of the Washington-Baltimore Boulevard and south and southwest of the Berry tract is evidenced by the following:

l - The 7th line of the Calverts-M.A.C. description ran "N. 44° E., 262-20/25 perches to a Pin Oak." The first line of the Engle conveyance runs "N. 44° E., 58-1/2 perches to a Pin Oak." The phrase in the Engle description, "Beginning at the end of the 7th line of the Agricultural College Farm" seems to be a mistake. There is no doubt that the intention was, "Beginning in the 7th line...." because this line, after the Dr. Johns conveyance, became the 7th line of M.A.C. It was originally the 8th line of Calverts-M.A.C.

- 2 That the second line of Engle was intended to follow the 9th line of Calverts-M.A.C. is evidenced by the fact that both lines have the same bearing, S. 66-1/2° E. The distance, however, changes from 70 4/5 perches in Calverts-M.A.C. to 74-4/5 perches in M.A.C.-Engle. A difference of four perches. Whether this change was influenced by the change in the north line of Berry or not will have to be investigated. With the similarity of figures, this could very easily have been a mistake in calling or transcribing.
- 3 The 3rd line of Engle, which cannot be identified with anything in the Calverts-M.A.C. description, runs "to a corner of Berry's part of the Rossburg tract." This corner, as will be shown on a map later, is the beginning of the Berry tract.
- 4 The 4th line of Engle is no doubt the same as the 6th line of Berry, because, having come into contact with the Berry tract in 3 above, the natural course of the Engle boundary would be to follow a line of the Berry tract. However, M.A.C.-Berry describes this line as being N. 70° W., while the M.A.C.-Engle description gives S. 71° E. A change of 1°. To complicate further this identification, the distance given on this course in the M.A.C.-Engle conveyance is 20-3/4 perches. This distance will later be shown to be a mistake, either in measurement or in transcription. The call in the Berry conveyance was for 29 perches. Later in a conveyance out of Engle, the call is for 28-3/4 perches.

5 - The 5th line of Engle runs S. 23° W. along the west side of the Washington-Baltimore Turnpike Road.

The Calverts-M.A.C. course here ran S. 21-1/2° W. Since the bearings on the first two lines of the Engle description checked with the Calvert-M.A.C. description of these lines, the change in direction is in all probability not a change in declination, but is due to the way in which different surveyors located the center line of the Turnpike Road.

Remember, that back in the Berry description there was a 2 perch difference in the line coming out to the Turnpike,

Berry line 4, M.A.C. line 15.

In dealing with the conveyances of 1865 and 1867,

I would prefer to handle them, for mapping purposes, not
in the order in which they went out of M.A.C., but in the
order (1) Dr. Johns, (2) Mr. Berry, and (3) Mr. Engle.

I shall show that in this order I can get a correction to
one of Dr. Johns' lines that will, in my opinion, effect
a very good coincidence of Calverts-M.A.C. lines 11 and
lla (see map on page 9b) and that later will give a check
on the length of the "15th line of Jackson's Necessity".

This, I think, will identify the corner used in CalvertsM.A.C., at the end of course 10, as the "Corner of Jackson's
Necessity", even though it does not check with later surveys that call for this corner; notably, the point of
beginning of the Berry tract.

To investigate the Dr. Johns tract further, in an endeavor to find where the mistake causing the error of

closure is, I will look up some later records of this tract. These later records may show that corrections or adjustments have been made in some of the lines to effect a better closure than now exists.

I have in my possession an old map of a tract called "Woodside". Upon inquiry, I find that "Woodside" was the name given to the Dr. Johns tract, by Dr. Johns, after the tract was conveyed to him. This map, containing no date on the original, but having a date of March, 1865, written on it in ink, confirms all the lines given in the conveyance of M.A.C.-Dr. Johns, Liber FS 2 at Folio 633, except the S. 57-1/4° E., 199 perches line. On this map the course remains the same, but the distance is shown as 192 perches, a shortening in this line of 7 perches. A duplicate of the original of the map of "Woodside" will be found on page 21a.

Upon investigating in the land record, I find that after Dr. Johns sold this tract of land it came into possession of one Henry Carlton who was executor for one Robert Clark. Henry Carlton sold this tract to Julia Mueller, June 7, 1880, as is recorded in Libert W.A.J. 1 at Folio 485. The description in this conveyance follows:

"Beginning at a stone at the end of the 4th line of 'Rossburg', on the East side of the Washington Turnpike and running thence (1) with the 4th line reversed North, 56 perches to its end; thence (2) with the 3rd line of 'Rossburg' reversed N. 15-1/2° E., 10-9/25 perches; thence (3) West, 97-4/25 perches; thence (4) N. 78° W., 75-2/3 perches; thence (5) S. 13-1/2° E., 20-24/25 perches to a line of the aforesaid 'Rossburg' running N. 57-1/4° W., 199 perches (note, added by writer, that the Rossburg course was N. 58-1/2° W., 199 perches, not N. 57-1/4° W); thence (6) reversing said line S. 57-1/4° E., 192 perches to the East side of the Washington Turnpike; thence (7) N. 3° E., 42-1/2 perches to the beginning, containing 62-5/8 acres more or less."

With this evidence the 6th line of Dr. Johns tract, which is the line suspected earlier in this investigation, has been corrected. I will next see what effect this correction will have on the error of closure that originally existed in this tract. On page 22a will be found the computation of the Dr. Johns tract as now corrected.

From this corrected computation of the Dr. Johns tract, it can be seen that the error of closure has been changed by the correction of the 199 perches line to 192 perches. It was N. 57° W., 6.44 perches. It is now, after correction, N. 85° E., 0.70 perch. Since there are no lines in this description that are close to N. 85° E., the assumption will be made that this error of closure has been caused by the usual errors made in a survey of this kind. This error of closure will show that there now exists in the description a ratio of precision of about 1 in 700. This is about as high a degree of precision as could be expected for surveys made at the time this one was. I will, therefore, assume that this description is now in as good condition as is possible to put it from the old record. No adjustment will be made in it, at this time, to get rid of the 0.70 perch error of closure, due to the effect such an adjustment might have in changing the direction of the lines.

From the first discussion of the original description of Dr. Johns tract, from Liber FS 2 - Folio 633, attention was called to the variations that took place in

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Computation of coordinates or area.

Traverse or boundary of De Jours Teach as corrected, Liber WAJ.I-Folio 405. See Pt. 17

Computation by Map Date Unequestion by Map Date

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the directions of the lines from the direction of the original Calverts-M.A.C. lines. Also that this difference was not entirely due to change in magnetic declination, but was also due to differences in observation of these directions. Due to these differences there are two ways in which the Dr. Johns tract may be fitted on to the Calverts-M.A.C. description.

- 1 By assuming that the original directions on the Calverts-M.A.C. lines are just as good as those on the M.A.C.-Dr. Johns lines and thus put this property in place, or
- 2 By assuming that the angles of the Dr. Johns description, as corrected, are better than the original angles of the Calverts-M.A.C. description. This assumption on the basis that the Dr. Johns survey, as now corrected, is the later and perhaps the more accurate survey.

To investigate the first of these two assumptions I will first determine the position of the west end of the 192 perch line on Calverts-M.A.C. forward control and then note the effect that this correction has upon the positions of the corners that follow this one in the Calverts-M.A.C. description.

For making the investigation I will base my computation upon the forward control of the Calverts-M.A.C. description, of Liber C.S.M. 2 at Folio 294. I am doing this because, I am of the opinion, after exhausting

records of adjacent properties to find that the same directions and distances are called for, that these lines represent, as well as can be expected, the better of the two controls in this vicinity, that is, the forward and reverse controls of Calverts-M.A.C. This computation will begin, therefore, at the end of the 5th line of Calverts-M.A.C. applying the 192 perches to the Calverts-M.A.C. direction of the 6th line. The corners that follow in the Calverts-M.A.C. description will be corrected, around to course 11, by the same amount. Tabulation of this computation is shown on page 24a. A map showing the effect of this correction and assumption will be found on page 24b.

To investigate the second assumption, I have computed the angles contained in Dr. Johns corrected description and have adapted them to the Calverts-M.A.C. direction of line 4. This is the first line of Dr. Johns. This computation will then be further adapted to the Calverts-M.A.C. forward control through use of the coordinates of the south end of Calverts-M.A.C. line 4. The computation of angles of Dr. Johns description and their adaptation to Calverts-M.A.C; direction of line 5 are shown on page 24c. The computation of coordinate positions on the basis of this assumption are shown on page 24d.

Since the second assumption causes the lines to fall askew of the original lines, thus complicating the study of this point, I shall temporarily abandon it.

Referring to page 23b "The Effect of Correction in Line 6 upon the Outline of the Whole Tract." The importance of the correction in the 6th line of the Dr. Johns

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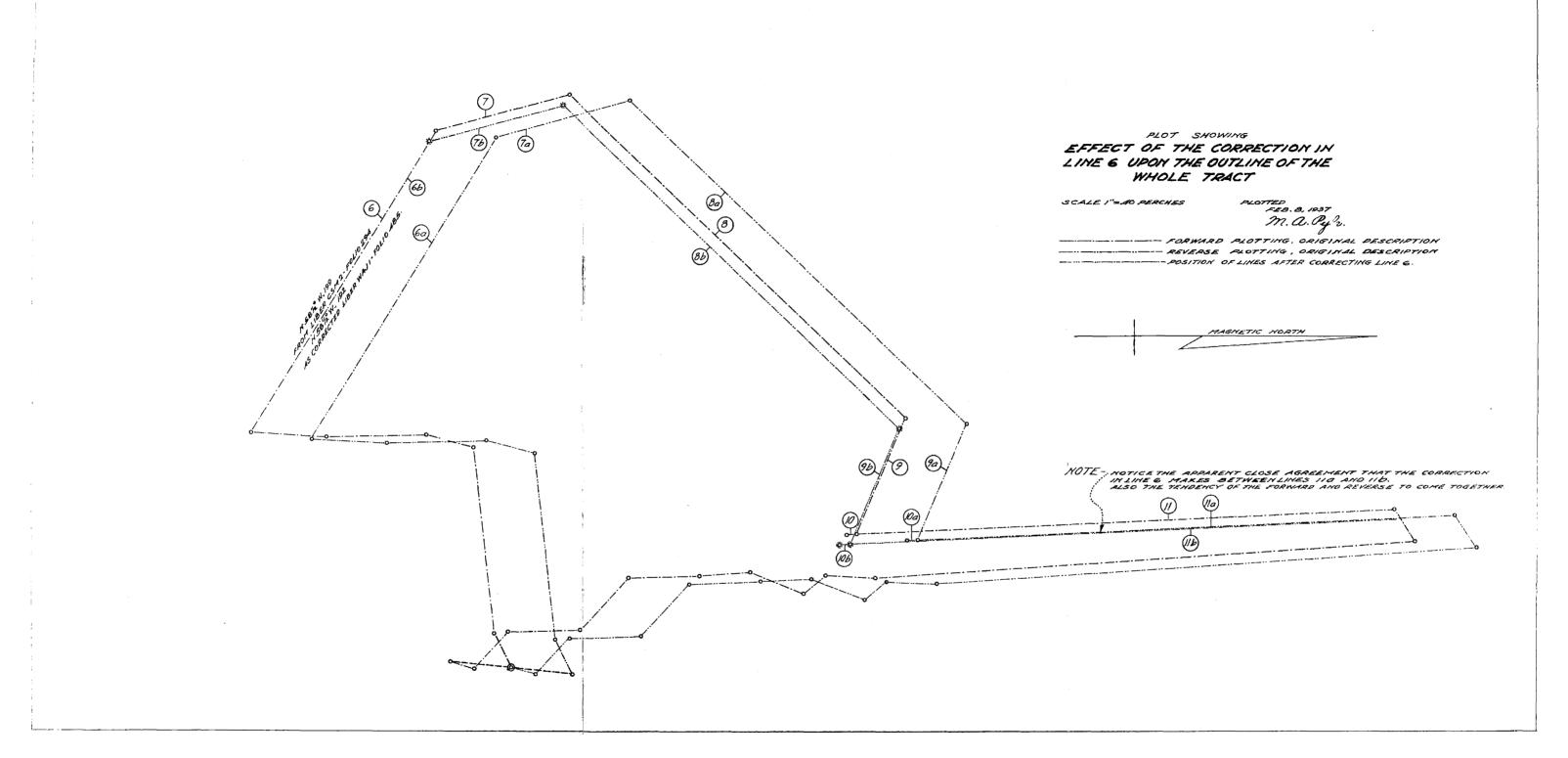
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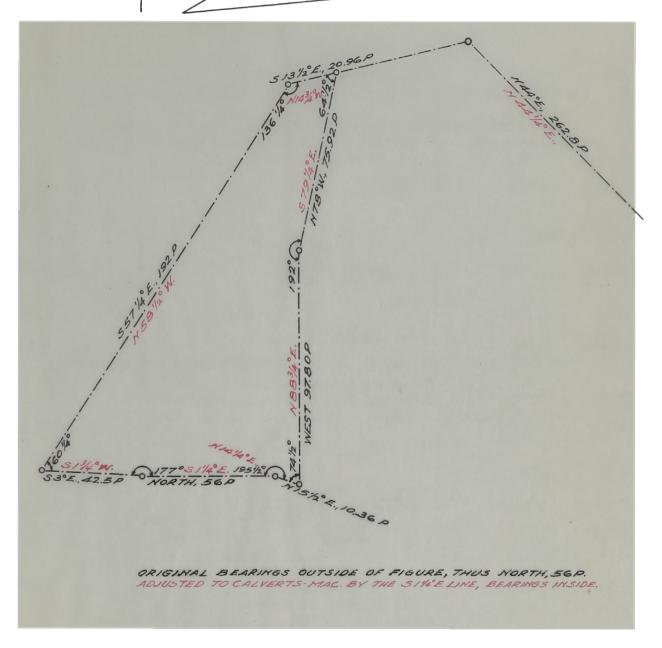
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MAGNETIC MERIDIAN



EFFECT OF
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DR. JOHN'S TRACT
AS CORRECTED
TO

CALVERTS - M.A.C. DESCRIPTION
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description, which is also the 6th line of the Calverts-M.A.C. description, can be realized when observation of the effect of this correction in lines 11 and 11a is made. It will be noticed, in particular, that there is a tendency for lines lla and llb to coincide, thus eliminating to a great extent the East and West portion of the original error of closure. The apparent difference in the position of these lines can now, more than likely, be attributed to the ordinary error of closure that might exist in such a survey, rather than to a mistake. While this correction seems to close the tract satisfactorily East and West, for the time being, it gives no information upon the vast difference in the length of lines lla and llb, running North and South. There is still a difference in the length of these lines of some 28 perches.

Having exhausted all of the information available regarding the Dr. Johns tract of land and the indication now being that the difficulty of effecting a closure of the original Calverts-M.A.C. description lies in line 11, of that tract, I shall now investigate this line. Line 11, it will be recalled, is the first line of the Berry tract.

In order to acquire more information about the Berry tract I shall have to go back in the land record to see if anything can be gained from the previous descriptions. Following this lead, I find that on May 7, 1822, as recorded in Liber A.B. 2 at Folio 211, John Davis conveyed to George Calvert the following

tracts of land; being the 5th and 4th parcels mentioned in that conveyance.

"Beginning for said part at the end of 28 perches (marked "G" on the surveyor's plat) (Note - this plat could not be found) on the 3rd line of 'Red House' and running with said line N 3°45' W, 305 perches to the end of 79 perches on the 6th line of the original tract of Godfather's Gift; then with the said 6th line to the end thereof S 8° W, 41 perches; then with the given line of the original tract called Godfather's Gift N 23 1/2°W, 31 perches to the 15th line of Jackson's Necessity; then with said 15th line of Jackson's Necessity reversed S 2 1/2°E, 309 perches to the Paint Branch; then by and up with said Branch to the beginning, containing 36 1/2 acres of land more or less."

"Also another tract being part of the original tract called 'Godfather's Gift' conveyed by Obediah Beall to Richard Ross, beginning for same at a stone standing near the Paint Branch and running thence as follows S 8°15' W, 41 perches; N 23°45' W, 32 perches; then with a straight line to the beginning, containing and laid out for 2 acres and 26 perches more or less."

On studying the above two descriptions, I find that they are intended to be combined to form the long narrow tract of land that ran North from the end of the 10th course in the Calverts-M. A. C. description. These two descriptions run back through the land record and are recited in the following conveyances:

October 22, 1814, Richard Ross to John Davis, Liber IRM 16 at Folio 230

April 13, 1804, William Ferguson to Richard Ross, Liber IRM 10 at Folio 278.

From the above two descriptions George Calvert was put in possession of this land by a call for "the 15th line of Jackson's Necessity" either in whole or in part.

When the description was written out of Calverts to M. A. C. no reference is made of "the 15th line of Jackson's Necessity".

Some difficulty will be experienced when studying the earlier descriptions of this tract due to the fact that while several parcels are conveyed there is no adequate tie between the two parcels mentioned above and the other parcels mentioned. This does not, however, cloud the original intention that the west side of the long tract was intended to follow "the 15th line of Jackson's Necessity".

Computations relative to the above two descriptions will be found on pages 27a and 27b. A plotting of each parcel will be found on page 27c.

To get more information about "the 15th line of Jackson's Necessity", I traced back through the land record and found a conveyance made December 21, 1748 between John Jackson and John Eversfield, which is described as follows:

"Beginning at a bounded white oak and stone, at the head of Cattail Marsh, at the end of 44 perches on the 6th course of Jackson's Necessity and running

Courses	Distances, Perches	Line Identification in "Jackson's Necessity"
(1) N 82° E	40	6th
(2) N 20° W	97	.7th
(3) N 6° W	120	8th
(4) N 27° E	141	9th
(5) S 85° E	61	10th
(6) South	60	11th
(7) S 65° E	93	12th
(8) S 5° W	60	13th
(9) S 71 1/2° E	5 3	14th
(10) North	346	15th
(11) N 52° W	34	***************************************
(12) N 82° W	9 3	
(13) S 16° W	198	
(14) N 85° W	20	
(15) S 27° W	143	
(16) N 81° W	46	
(17) S 27° E	120	
(18) Then by a straight	: line to t	he beginning, containing

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300 acres."

The tract of "Jackson's Necessity" antidates 1696, the time of the beginning of the Prince George's County Land Record. I have not had an opportunity, since locating the above description, to confirm my assumption that the line indicated above is actually the "15th line of Jackson's Necessity".

In order to reinforce my assumption, that the line indicated above is involved, I will make a computation between the position of the south end of course 10, of Calverts-M. A. C. as now corrected through findings in the Dr. Johns tract, forward computation, and the position of the west end of course 12a as determined from the reverse computation of Calverts-M. A. C. See plotting of the elements of this computation on page 28a.

Thus the distance along the N 2 1/2° line is 340.48 perches and if the 6 perches called for in course 10 are added to this the result is 346.48 perches. Notice, that the course called for in the preceding description, Liber BB 1 at Folio 592, is 346 perches. The difference of 0.48 perches, in my opinion, represents very closely the probable error of closure along this line that probably should have been in the Calverts-M. A. C. description. The distance along the S 66 1/2° E, course as computed, is seen to be 70.11 perches while the call in the Calverts-M. A. C. description is for 70.80. The difference of 0.69 perches, in my opinion represents very closely the probable error of closure along this line that should have been in the Calverts-M. A. C. description. Note that the probable real,



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PLOTTED - FEB. 12, 1937 mage COMPUTE A CHECK ON THE 15TH LINE OF JACKSON'S MECESSITY ELEMENTS USED SCALE I" - 40 PERCHES

not the apparent, error of closure of Calverts-M. A. C. is in this computation.

for the existence of the 10th course in the Calverts-M. A. C. description, Liber C.S.M. 2 at Folio 294. On first observing this particular course I expressed some wonder as to why such a course should project inside the described boundaries of a tract of land.

If the two differences found in the above computation; namely, 0.48 perches and 0.61 perches are reduced to latitude and departure by projecting them on the north and south axis of the coordinate system in use, there results the computation shown on page 29a. From this computation it will be seen that these figures would represent an error of closure of 0.64 perch only. The total length of the boundary as indicated on page 29b is 1802.27 perches. These figures will represent a relative precision of 1 in 2800, which is very high for a survey made in 1858.

From the above assumption in the deed description, Liber B.B. 1 at Folio 592, and the computation that follows, I think that beyond reasonable doubt the 11th line of Calverts-M. A. C., Liber C.S.M. 2 at Folio 294, was originally intended to have been 346 perches long. Therefore, on page 29b, will be found a summary of the courses and distances of Calverts-M. A. C. description as corrected by evidence entirely from the land record.

After reviewing the summary of the courses and distances, as they now exist, and as shown on page 29b, heeding the

THE SERBITY OF MARYLAND BUNDET INCL SHE TO A SHE COLLEGE OF ENGINEERING .713 (). Computation of coordinates or area. Traverse or boundary of INE DIFFERENCES REDUCED TO LATITUDE & DEPARTURE. SEE PAGE 23. Computation by map Date Chasked by map date GUOPPENATES I AZIMUTH DIOT LOG COS AZ B+ 30 30 30 30 LATITUDE DEFARIURE DMD N OB ANCE LOO DIST N+ S Garage West BISHARING LOG SIN AZ Jeans INO DEP 9.43955 0.27 9.60070 1 56612E 0.69 9.83885 9.96240 9.80125 9.68072 0.48 9.99958 9.68124 8.63968 8.32092 0.02 0.63 0.02 0.02 DIFFERENCES 0.21 TOTAL LENGTH OF CALVERTS-MAC AS NOW CARRECTED USING COURSE 9 AT 70.8 PERCHES AND COURSE II AT 346 PERCHES 15 1802.27 PERCHES THE RELATIVE PRECISION WILL THEN BE

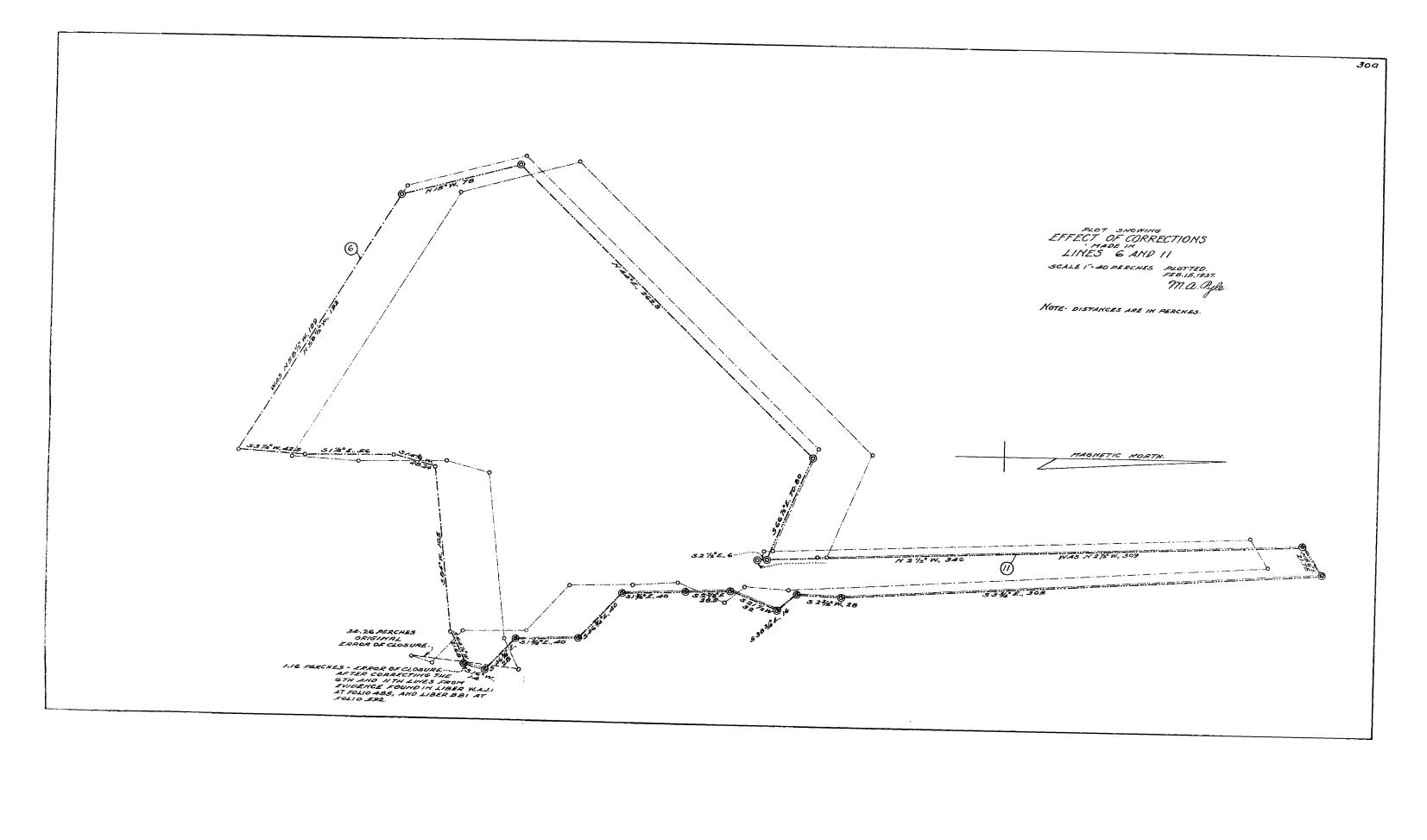
SITY OF MARYLAND SHAVENING SHOW IN THE SOUTH OF COMPUTATION OF COORDINATES OF REEL.

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calls in earlier and later descriptions, I find that the error of closure has been reduced to a line running N 47 $1/4^{\circ}$ W, 1.16 perches. The relative precision, on this basis, will then be 1.16 in 1802.27 or about 1 in 1550. This is probably as good as can be obtained with the data at hand. Therefore, on page 30a, will be found a map showing the lines of the Calverts-M. A. C. description as they have been corrected through these findings. No adjustment has been made to dispose of the error of closure because of the desire to maintain the original directions as far as possible. The coordinates for this plotting have been assumed at N 1000.00 E 1000.00, the point of beginning of the original plotting of Calverts-M. A. C. This map represents, as close as can reasonably be ascertained, the probable intentions of the deed description of Calverts-M. A. C., Liber C.S.M. 2, Folio 294.

From most of the studies made on the Calverts-M. A. C. description and adjoining tracts I have found that the only corner in doubt is that one at the end of the 10th course. This corner was intended to be "a corner of Jackson's Necessity". Several positions can be obtained for this corner. These positions are rather far apart as can be seen by following their locations on the maps. As yet, I am not convinced that the map showing the "Effect of Corrections in lines 6 and 11" shows the correct position of this corner. Further investigation will be necessary to see if this corner can be confined to a much smaller



area than it is now wandering around over.

I now have confidence, as the result of study and field knowledge, that lines 1 through 8 and lines 12 to 22 represent very closely the lines followed by the original surveyor. The errors in the original description, other than line 6 which has been corrected, I now suspect were made in lines 9, 10 and 11 due to the fact that "a corner of Jackson's Necessity" had been lost.

To substantiate further my claim that "the 15th line of Jackson's Necessity" was 346 perches long, I shall introduce a duplicate of an old map belonging to Mrs. Lillie Eversfield, wife of Dr. W. O. Eversfield, a large holder of property adjacent to the Maryland Agricultural College in the 1870's. A duplicate of this old map is found on page 31a. The map was made April 20, 1870, by John P. Edmonston, the then County Surveyor for Prince George's County. While this map shows all of the Eversfield holdings, only a portion of it will be used here to bring out the fact that since there is doubt even at this date in lines 9, 10 and 11 of Calverts-M. A. C., the legitimate place to put any existing error of closure will be in these lines.

From the Eversfield map no difficulty is encountered in identifying the lines 9 and 11. Line 10, as far as this map is concerned, has apparently gone out of existence. The line identified as Calverts-M. A. C. #9 shows a change in direction of 1/2° and a change in length of 2.80 perches, while line #11 shows a change in direction of 2°. The

MERIDIAN LINE

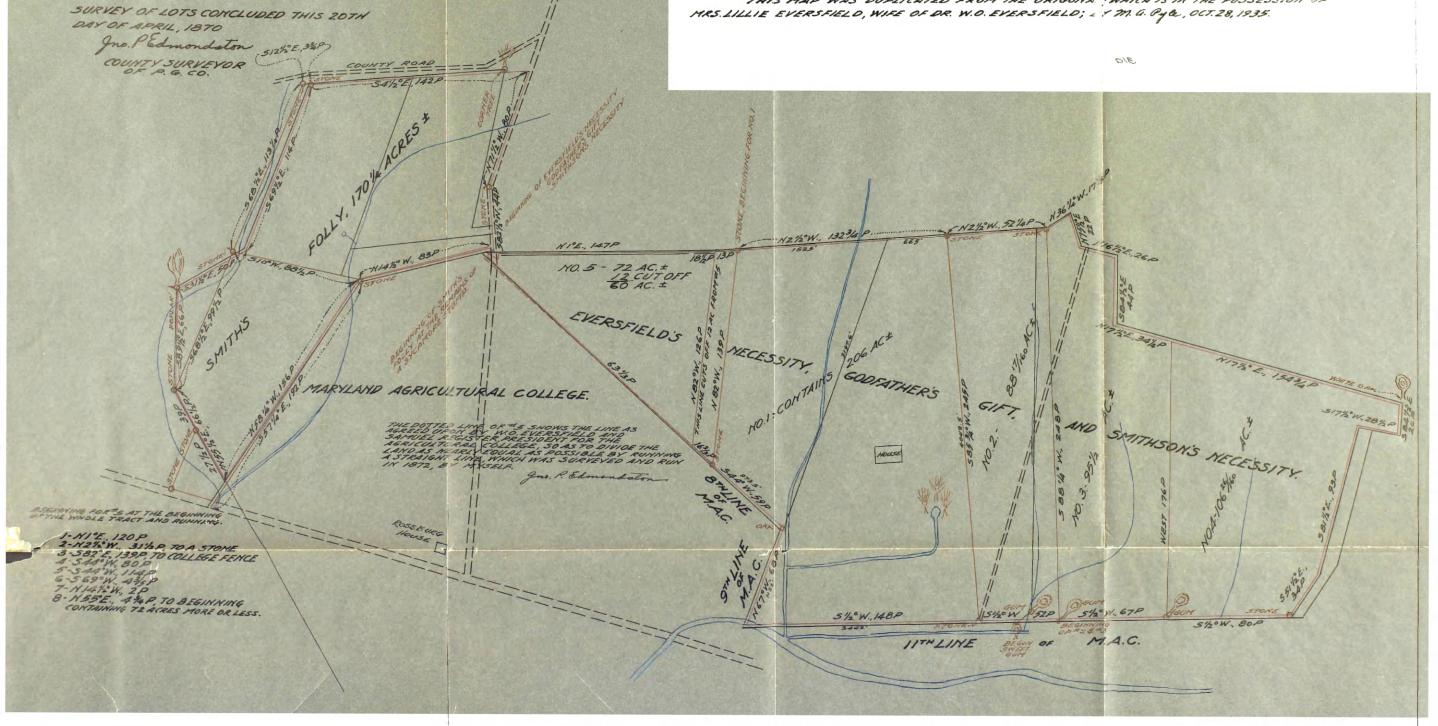
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THE REFERENCE TO LOCATION WAS OBLITERATED BEYOND READING OCT. 28, 1935. M.A.P.

BEGINNING FOR THE OUTLINE EVERSFIELD'S NECESSITY, CODFATHER'S GIFT AND SMITHSON'S NECESSITY STAKE DRIVEN ON THE WEST SIDE OF ROAD AND AT THE END ON THE FIRST LINE OF THAT PART CALLED SMITH'S FOLLY AND RUNNING WITH AN ALLOWANCE OF 1/2 FOR VARIATION NIE. 120 PCS; N 21/2 W., 226 PCS. TO A STONE; N 36 1/2 W., 17/5 PCS. TO A STONE; N 75/2 22 PCS. N 16/2 2 26 PCS; 384/2E, 44 PCS; N17/2E, 189 PCS. TO A BOUNDED WHITE OAK TREE; 584/2E, 20 PCS; 517/2W, 28/2 PCS; 581/2E, 93 PCS; S511/2E., 34 PCS. TO A STONE; 51/2W., 347 PCS; N67°W., 68 PCS. TO AN OAK TREE BY THE SIDE OF A BRANCH; SAAW, 138 PES; SAGW, 11A PES. TO A STAKE NEAR THE COLLEGE GATE; SEPW, 4/2 PES; NIAKW, 2PES; NGO'E, GPCS; TO THE BEGINNING OF SMITH'S FOLLY; THEN WITH THE FIRST LINE OF SAID TRACT 3 821 W. 11/2 EGS TO THE BEGINNING, CONTAINING 567 123/16 ACRES OF LAND MORE OR LESS.

BEGINNING FOR THAT LOT CALLED SMITH'S FOLLY, AT THE REMAINS OF A SYCAMORE STUMP WHERE NOW STANDS A SCION FROM SAID STUMP AND ON THE NORTH SIDE OF THE ROAD LEADING TO THE COLLEGE AND RUNNING, WITH ATT ALLOWANCE OF 1/2" FOR VARIATION 5 821/2" W., 44 PCS. TO A STONE ON THE NORTH SIDE OF THE ROAD AND AT THE ROOT OF A BLACK JACK OAK; N 7/1/2 W. BOPCS: SAILE, 142 PCS; S6912 E, 114 PCS., S 311/2E, SO PCS. TO A POPLOR TREE ON THE EDGE OF A BRANCH; S891/E., 66PCS., N 551/2E., 661/2PCS., TO A STONE (A WHITE CAR. ED STONE) STANDING IN ALINE OF DR JOHNS, THEN N581/2 W., 156 PCS., TO A STONE; N141/2 W., 85PCS; N60°E., 6 °CS., TO THE BEGINNING, CONTRACTOR 170 ACRES OF LAND MORE OR LESS.

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following distances are recorded on line #11: 148, 52, 67, 80 perches. The total of these distances indicates a total length for this line of 347 perches or one more perch (16.5 feet) than was indicated by Jackson to John Eversfield in 1748. This line may then be somewhere between 346 and 347 perches long. My previous computation of 346.48 perches is probably as good as any value that can be obtained for this line.

From the evidence I can gather so far it would seem that the "corner of Jackson's Necessity" depended upon the particular surveyor doing the work since 1840. That particular corner, while important, has not been satisfactorily relocated on the ground.

On page 32a will be found a computation of the effect of the computed values of sides 9 and 11 of Calverts-M. A. C. description. It will be noticed here that the latitudes and departures are still out of balance. I think that most of this error of closure is due to not carrying the direction work and angles involved any closer than the nearest quarter of a degree. On page 32b will be found "My Conception of Intentions of Calverts-M. A. C. Description".

FITTING THE CONVEYANCES OF 1865 and 1867 INTO THE EXISTING CLOSURE OF THE WHOLE TRACT.

Having investigated the outlines of the whole of the Calverts-M. A. C. description and arrived at a satisfactory closure, for the time being, I shall next try to fit the conveyances of 1865 and 1867 into the outline of the whole

IVERSITY OF MARYLAND SURVEYERS

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tract as it now stands corrected. This will be done in order to find out where the M. A. C. boundary lines were after making the three conveyances out of M. A. C.

FITTING DR. JOHNS DESCRIPTION TO CALVERTS-M.A.C. DESCRIPTION AS CORRECTED.

On page 33a will be found a computation for checking the parting lines of Dr. Johns tract of land. Since there is some indifiniteness in this tract, as has been pointed out in the original review of it, I have used the courses of Calverts-M. A. C., corrected coordinates, and the distances as called for in Dr. Johns description on the 3rd and 7th courses of Calverts-M. A. C. I find that the computation produces a distance that is 0.38 perch (2.97 feet) longer than is called for in the deed description. This would tend to indicate that the point "C" as shown on the sketch, page 33a, is too far west by about 0.38 perch. If this be true, then the 7th course of Calverts-M. A. C. is still about 0.38 perch (2.97 feet) too far west. In view of measurements taken in 1865 I would say this was close. It indicates a ratio of precision in the two lines investigated of 0.38 in (97.8 + 75.92) or about 1 in 460. This difference will be remembered when obtaining the final closure. Thus, for the time being the Dr. Johns tract will be assumed closed.

FITTING THE BERRY DESCRIPTION TO CALVERTS-M.A.C. DESCRIPTION AS CORRECTED.

The principal question to be answered in fitting the Berry tract to the Calverts-M. A. C. description is, which line of Calverts-M. A. C. must be used to place the Berry

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tract? In my mind, due to the fact that Calverts-M. A. C. line 12a has the same bearing as Berry's line 2, and since it is the only line of the two descriptions that does have the same bearing, I would say that this is the line. My one objection to this line is that it is short; a slight error in its direction will cause a large displacement in the south ends of the two long lines that run off its ends. On page 34a will be found the computation that will tie the Berry tract into each end of Calverts-M. A. C. line 12a. The necessity of using both ends of line 12a is due to the shortening of this line from 21.75 perches to 17 perches. The results of these two computations are plotted on page 34b. From this plotting it can be seen that these two positions certainly were not intended to have been conveyed to Berry.

Since there seems to be some evidence that the 3rd line of Berry may be a combination of the 13a and 14a lines of Calverts-M. A. C., I will next try to fit the Berry tract on a line between the south end of line 14a and the north end of line 13a and note this effect. This computation, on page 34c, plotted on page 34b, looks most favorable of any so far tried. However, I am not satisfied, as yet, that this tract of land is properly placed.

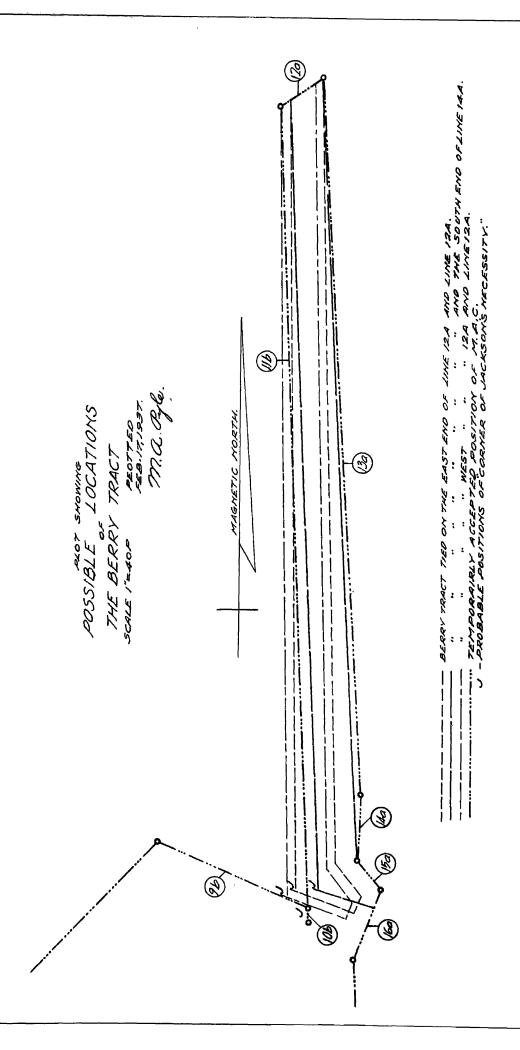
From the three plottings of this Berry tract, each on a logical basis, it will be seen that the Southwest corner is wandering around over quite an area. That one location seems to check very near to Calverts-M. A. C. line 9b may be of some significance. However, this location would seriously disturb the length of course 9b. From these

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plottings it can be seen that the "corner of Jackson's Necessity" and the "15th line of Jackson's Necessity were not permanent as late as 1865.

In the original description, on page 7 of Calverts-M. A. C., March 22, 1858, Liber C.S.M. 2 at Folio 294, I find the 13th and 14th lines described as follows: "(13) then S 3 $3/4^{\circ}$ E, 305 perches, being at the end of 28 perches on the 3rd line of 'Red House'; (14) then with said 3rd line reversed S 2 3/4° W, 28 perches to the end of the 2nd line of 'Red House'." Comparing this description with that of the Davis-Calvert description of May 7, 1822, Liber AB 2 at Folio 211, I find the following phrase: "Beginning for said part at the end of 28 perches (marked "G" on the surveyor's plot) on the 3rd line of 'Red House' and running with said line N 3°45' W, 305 perches to There can be no doubt that these two descriptions are trying to describe the same line. The question that arises, however, is, what was the direction of the 3rd line of 'Red House' -- (1) S 2 3/4°W, or (2) N 3 3/4° W? The description of tract called "Red House" could not be located. It would appear from both these descriptions that this 3rd line of Berry was intended to have been S 3 $3/4^{\circ}$ E, that the change in direction at the end of 28 perches, line 14, as shown in Calverts-M. A. C. was probably someone's mistake in trying to relocate the south 28 perches of this line. Here I notice, in particular, that the bearing of the 3rd line of Red House from 1822 to 1858 shows no change in declination. This seems to confirm my suspicion that Calverts-M. A. C.

description was originally made up from a number of different surveys, which were originally on different magnetic meridians. Since no mention is made of this feature, and if it be true, then the placement of this tract in its old position is impossible.

On page 36a, I will show a computation using the 3rd line of Berry at N 3 3/4° W out of the north end of the line 15a of Calverts-M. A. C. The angles of the description of the Berry tract, as conveyed out of M. A. C., Liber F.S. 2 at Folio 569, will be used to obtain other bearings from the N 3 3/4° W line. The values of these angles are shown on page 36b.

Since no satisfaction can be had from the Berry description, I shall leave it, temporarily, and investigate placing the Engle tract.

FITTING THE ENGLE DESCRIPTION TO CALVERTS-M.A.C. DESCRIPTION AS CORRECTED.

After having exhausted the best possibilities that the Berry description offers I have decided to try to fit the original description of the Engle tract, Liber F.S. 5 at Folio 20, to the corrected Calverts-M. A. C. description. The Engle tract if placed satisfactorily will give one more opportunity to relocate the Berry tract.

The Engle description contains the following call "to a corner of Berry's part of Rossburg". This corner has been identified, in Liber C.S.M. 2 at Folio 294, as "A corner of Jackson's Necessity" and is the point of beginning of the Berry tract in Liber F.S. 2 at Folio 569. The Engle description is apparently on the same control

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MAGNETIC MERIDIAN

DIRECTIONS OF
BERRY TRACT
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RUNNING N.S.M.
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as the original and corrected Calverts-M. A. C. description, because the first line calls "N 44° E, 58 1/2 perches to a Pin Oak; thence S 66 1/2° E,", the same as Calverts-M. A. C. The distance on the S 66 1/2° E course, however, is different, calling for 70 4/5 perches in Calverts-M. A. C. and for 74 4/5 perches in M. A. C. to Engle. This tract has no closing side definitely mentioned.

The difference between 70 4/5 (70.8) perches in Calverts-M. A. C. line 9 and 74 4/5 perches on the Engle line 2 can be accounted for in one of two ways: (1) the effect of narrowing of the north end of the Berry tract from 21 3/4 perches to 17 perches, or (2) a very logical mistake in transcription. Again the 4th line of Engle, which is the 6th line of Berry, ealls for only 20 3/4 perches. Evidently this is another mistake, because when Engle conveys to Eisenlohr, Liber H.B. 2 at Folio 168, this same course calls for "28 3/4 perches to the Baltimore-Washington Turnpike". The call on this line in the Berry description was for 29 perches. This difference of only 1/4 perch might easily be explained by the difference between two surveyors picking up the center line of the turnpike, which at this time was a dirt road and probably subject to shifting location.

The map, on page 37a, shows the original description of the Engle tract and also the corrected description plotted in reference to the lines of Calverts-M. A. C. as corrected.

and 4th lines of the Engle tract will form a closure between the end of the 9b line of Calverts-M. A. C. and a point on the 15a line of the same description. Since there is some doubt relative to the length of Calverts-M. A. C. line 9b and also the 4th line of Engle, I should be able, through computation, on page 38a, to find out which of the two existing values on each of these lines will effect the better closure. That value will be assumed to be correct that will provide the better closure since the differences in each of the two lines are of different values.

From the computation, on page 38a, I find that the error in latitude is 1.68 perches and in departure is only 0.08 perch. This departure error being so small indicates to me that the two lines having questionable distances, namely the 9th line of Calverts-M. A. C. and the 4th line of Engle, are just about correct as used in this computation. If the 4th line of Engle was 29 perches, as called for in the Berry description the closure would be, in departure, about 0.16 perch in favor of the eastings. Thus it will be seen that this closure east and west is nearly perfect. The error north and south of 1.68 perches must be in a line that runs very close to north and south.

Furthermore, since the closure obtained in the last computation is so good, the position of the "corner of Berry's part of Rossburg" and "a corner of Jackson's Necessity" as established by this computation must be very

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close to its proper position. It is at least very close to the position of this corner as recognized by the surveyors of the Berry tract and the Engle tract.

On studying the error of closure in the computation on page 38a, I find that its length is 1.68 perches and that its bearing is N 2°45' E. The only line that runs anywhere near this direction, that now has any doubt in, is the N 5 1/2°E, 8.1 perches line that runs to that very indefinite thing "a corner of Jackson's Necessity". I will therefore adjust this line by putting all of the error of closure in it. The computation for the adjusted direction and length of this line will be found on page 39a. The adjusted direction is found to be N 5° E, it was N 5 1/2° E, thus the change in direction is only 1/2°. The adjusted length is 9.78 perches; it was 8.10 perches; thus the change in length has been 1.68 perches.

The adjustment of this much of the original description of Calverts-M. A. C. (exclusive of the Berry tract) has been accomplished by the correction of only 2 lines, (1) the 6th line of Calverts-M. A. C. has been shortened 7 perches, by an authorized correction in a later deed description; and (2) the actual adjustment of Engle's course 3 by inserting the full error of closure, which is small considering the total length of boundary line, of the whole tract in this line. The reason for placing the error of closure here is because, there can be no doubt that the corner at the north end of Engle's course 3 was a very doubtful and roving corner. In my opinion this gives the best possible closure that can be obtained

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i					ADJUSTED C	WASE,	SEE P	AGE	÷ ه.ٍ«٠				
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for this part of the original tract. It not only holds to all original directions, except that of one short line, but only requires changes in the length of 2 lines, one authorized, the other studied out, to bring a tract of this size into adjustment. This closure also indicates that the great majority of the error of closure in the whole of the original Calverts-M. A. C. tract is located in the 11th line. This line is involved in the Berry transaction.

FINAL PLACEMENT OF THE BERRY TRACT

After having fixed the larger portion of the Calverts-M. A. C. description by the closure effected above, I am now in a better position to place the Berry tract. This tract will now be tied on to the Engle 3rd line, as noted in the adjustment on page 39b.

On page 36b will be found a print of the original Berry tract upon which the angles at the corners have been determined for purpose of holding these angles fixed, while adjusting this tract to the 3rd line of Engle. These angles were then used with the direction of the 3rd line of Engle, N 71° W, and the bearings of the Berry tract computed. From these bearings and the distances as given in the Berry description, computation of the latitudes and departures of the lines of this tract was made. See computations on page 40a. This computation shows an error of closure of 2.29 perches and the bearing of it is N 63 1/8°E. The line closest to this direction, that can take an adjustment, is the N 55° E, 17 perches line. This line.

UNIVERSITY 198 W. . STATUTELLA COLLEGE OF ENGINEERING Computation of coordinates or area. Traverse or boundary of ADMSTMENT OF BERRY TRACT TO ENGLE LINE 3. Computation by map Date Date Date COCCHDINATES IL AZIMUTH DIST LOG COS AZ No. See 180, W. LATITUDE FORFACTURE DND MI OR LANGE LOG DEST N+ 5 5 25 25 EFREARING ARSA LOG SIN AZ TEXAS LOG DET V.52347 9.99973 2,52374 8,54282 1.06656 0.98904 9.75 9.25859 _____ 1.23045 9.91336 13.93 1.14381 2.52202 332,67 9.99958 3 5213°E 333 2.52244 8.63968 1.16712 1.14262 13.89 9.88740 1.25527 9.80351 1.05878 0.86711 9.96402 5523°W 8 0.90309 9.59188 352.9/ 39.91 1.01 LENGTH OF ERROR OF CLOSURE - V (00) + (2.06) = 2.29 PERCHES. TANGENT OF BEARING ANGLE : 2.06 - 1.01 = 2.03960 BEARING = N 63/18°E (NEAREST 18°) and the second s

it is remembered, changed length from 21.75 perches to 17 perches between Calverts-M. A. C. description and M. A. C.-Berry description. The total error of closure will, therefore, be put into this line. See computation on page 41a. This then closes up and fastens the Berry tract to the other part of the Calverts-M. A. C. description. Page 41b shows the computation for the final adjusted position of the Berry tract.

FINAL PLACEMENT OF THE ENGLE TRACT

On page 41c will be found a computation of the Engle description. The second line is used at 70 4/5 perches, the value found more nearly correct in closing Calverts-M. A. C. The 3rd line of Engle will be used at its original called value, of 8.1 perches, in order that the closing side may be found and placed according to the original deed description. The closing line of this description is then computed to be N 60 3/4° W, 118.71 perches.

DISCUSSION OF CLOSURES AND PLACEMENTS

From the descriptions and computations that have preceded, the proceedure of effecting closures and placement of the Dr. Johns tract and the Engle tract have been very simple. It was not so simple to place the Berry tract.

In handling the whole of Calverts-M. A. C. description, with its large error of closure and as has been indicated, the indefiniteness of the Berry tract, a great amount of time was spent in trying to get a satisfactory location for the point of beginning of the Berry tract. This point

SURVEYURA , SHE E ____ GF COELEGE OF THE TRING FILE HO. Computation of coordinates or area Traverse or boundary of Disposition of Steply Entor of Clasure, Jet Page. Computation by man Date thacked by man . K+ S- E+ K-AZIMUTH DIST LOG COS AZ LATITUDE DEFAUTURE IMI N+ S -ANCE LOG DIST OP AREA E BEARING LOG SIN AZ LOG DEP 1.01 2.06 1(10.76) -+ (15.98)2 TRN GENT OF BEARING ANGLE - 15.98 -10.76

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Traverse or boundary of Funt Assusted Position of Beery Tract.

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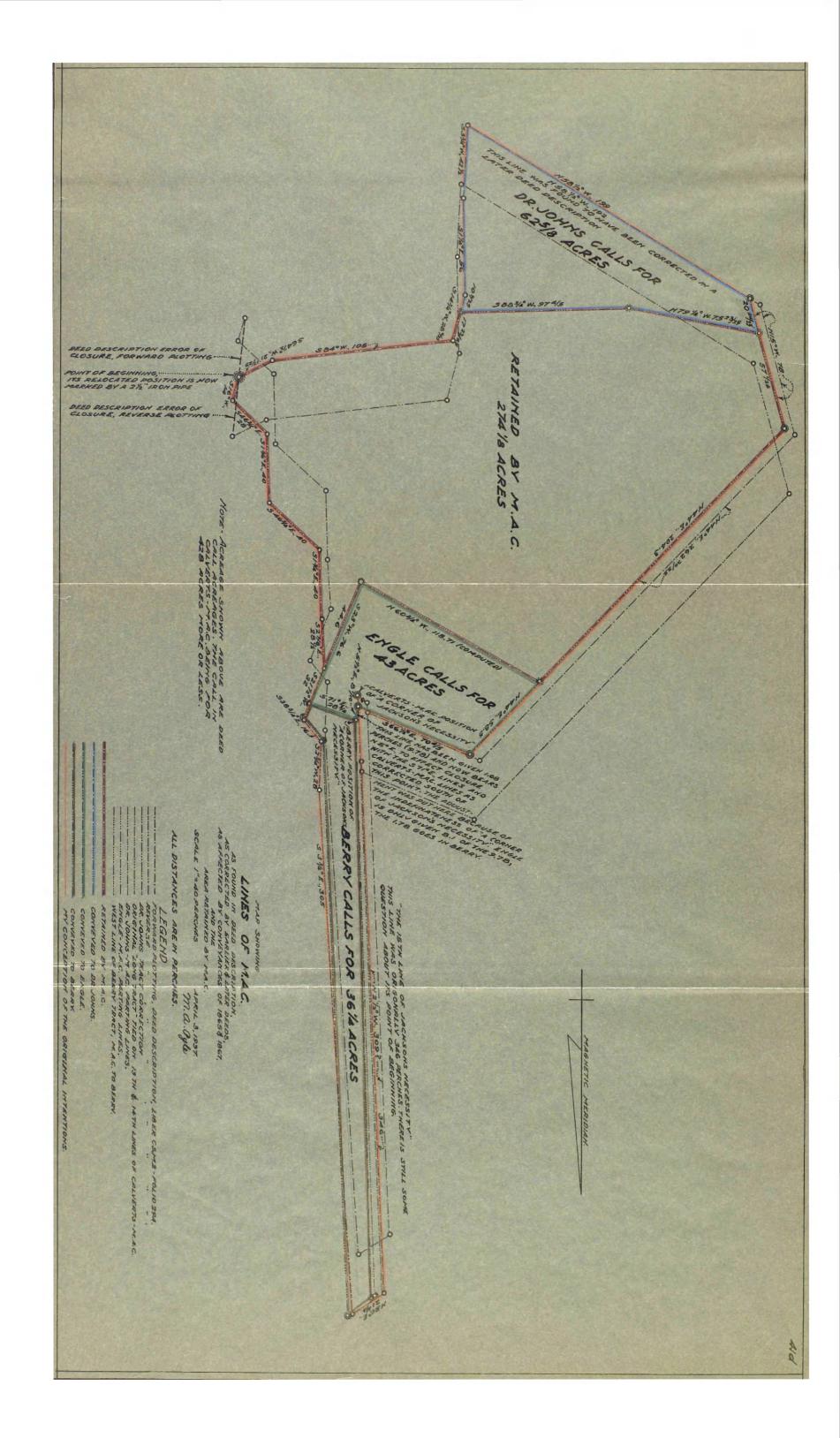
COMPUTATION FOR THE CLOSING LINE OF THE ENGLE TRACT. map

	AZIMUTE OR BEARING		LOG LAT LOG COS AZ LOG DIST LOG SIN AZ LOG DEP	3/4			Was	DMD		
									11 76.58	825.66
/	N44°E	58,5		42.08		40.64				
2	5 66 1/2 E	0-0	-		2022	64.93			1218.66	866.30
1	0 00,77	10.0	The contract of the state of the contract of t	Date of the Secretary and the	20.25	04.93		S COLONO CONTRACTOR CONTRACTOR	1190.43	931.23
3	N 51/2 F	8.14	NOT ADJUSTED YET	8.0%		0.78			77 70.75	131.23
				0.08		10			1198.49	932.01
4	5 710 E	28.75	IN THIS TRACT.		9.36	27.18		ACTION OF THE PERSON NAMED IN COLUMN		
									1189.13	959.19
5	5 23° W	76.6	-		70.51		29.93			
									1118.62	929.26
6	N 603/4°W	118.71					103.60			
				50.14		133.53			1176.58	825.66
	-					29.93				
					57.96	103.60				
	1.	-	1 7	-()-()	()	2 -	110 -			
			re 6 = 1/57.							
	TANGEN	TOF 2	BEARING ANG	FF 111	VF 6 =	103.60	0 - 57.	96 = 1.7	88	

map

BEARING, LINE 6 = N 60° 45'W (NEAREST 1/4°)

* THIS COURSE WILL NOT BE ADJUSTED HERE TO THE VALUE IT HAS IN THE ADJUSTMENT OF CALVERTS - MAG. QUE TO THE FACT THAT THERE EXISTS OIT THE GROUND A COURSE OF THE SAME LENGTH AS THIS



was supposedly the "corner of Jackson's Necessity". After making numerous computations for the position of this corner and arriving at as many different positions that it could occupy, I finally decided to try the lines that now effect the closure I have. There is no doubt, in my mind. that the corner lies somewhere near and very close to one or the other of the two positions as indicated on the map of page 41d. The present positions of this point are as follows: (1) from the closure of Calverts-M. A. C., exclusive of the Berry tract, N 1200.17 -E 932.09; (2) from the closure of the Engle tract, N 1198.49 -E 932.01. The average of these two positions would be N 1199.33 - E 932.05. The average position, from the numerous other computations mentioned above. including data from adjacent property, was determined to be N 1199.03 - E 931.50. These coordinates are in perches. I am inclined to favor the positions of this point as shown in (1) and (2). They did not require the volume of computation and have been deduced from perfectly logical findings. They confine the corner now to a very small area, and use distances and directions as originally implied, in so doing.

From the map shown, on page 42a, there will be noticed an apparent vacancy between the 3rd line of Engle and the 6th line of Berry. This apparent vacancy is due to adjusting the 1.68 perches out of the Calverts-M. A. C. description, exclusive of Berry. In all other respects the lines follow the descriptions as found in the deeds

ENGLE TRACT 4582.8.1 (1156.9.78 AS ADVISTED

.....VACAKKY DUE TO AOJUSTNENT BELONGS TO BERRY TRACT

BERRY TRACT

MAGNETIC MERIDIAN.

FFFECT OF ADJUSTMENT
CALVERTS-MAC. EXCLUSIVE OF BERRY
SCALE 1"=400
APRIL 5.1937.

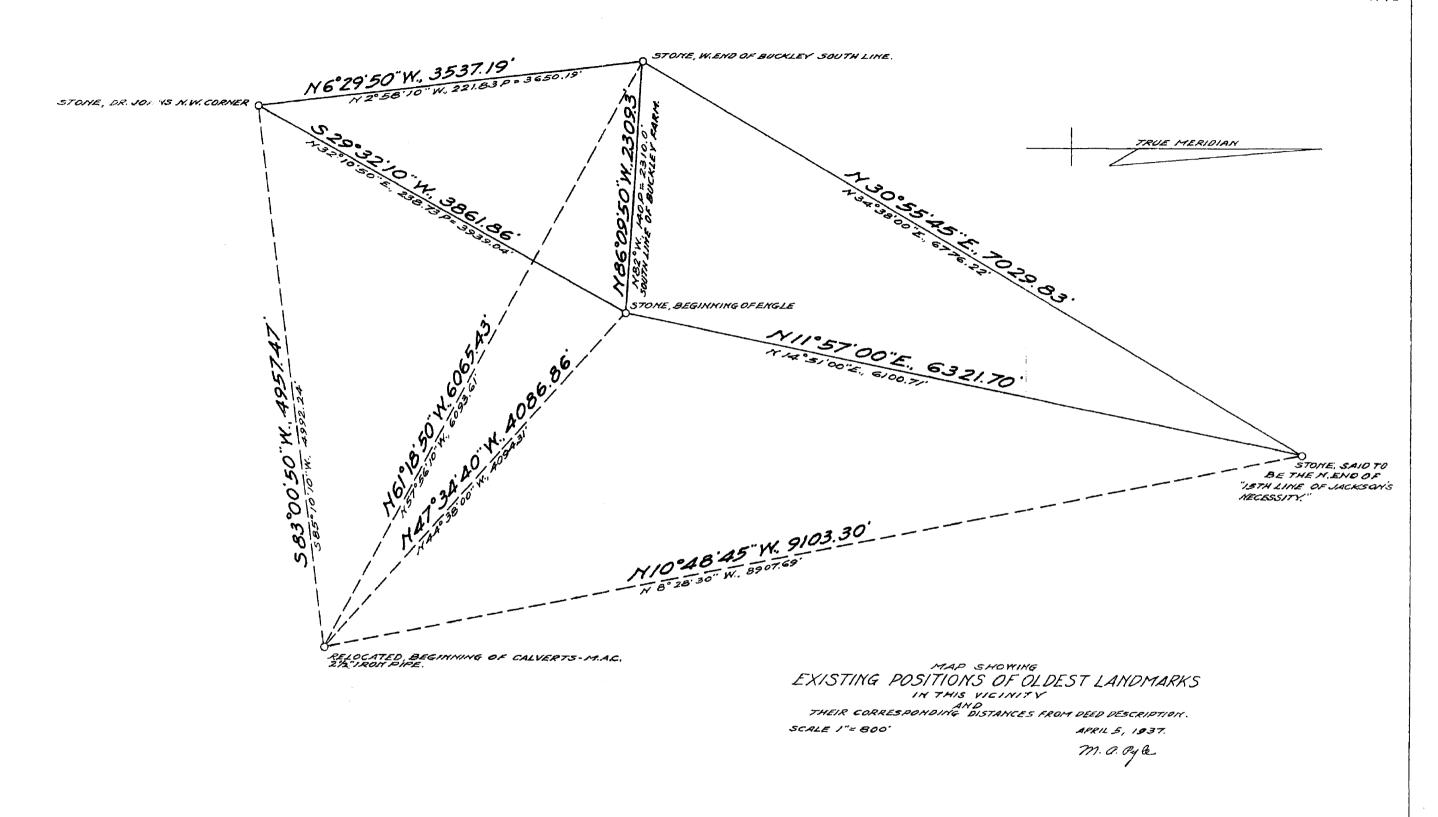
MOTE-THAT DLACING THE ADJUSTMENT IN THIS LINE, WHUN WAS TO A VERY INDEPHATE CORNER, ALOWS ALL AINES SOUTH OF THIS LOCATION TO REMAIN AT THEIR ORIGINAL OR CORRECTED DEED CALLS. or as determined from corrections in later deeds. No vacancy was intended at this place. The Engle tract as it exists, on the ground today, has 8.1 perches in line 3. This would indicate that the vacancy belongs in the Berry tract.

A great amount of study has been done relative to adjoining properties. In most cases this work was done to confirm distances and directions of lines represented in this description. No further use was made of this information, however, because of complications and difficulties arising in other parts of adjacent tracts that adversely affected their errors of closure. Practically all of these properties would require as much investigation as this one together with a lot of actual work on the ground to make them all fit together harmoniously.

Due to the fact that I have brought the two original plottings of the Calverts-M. A. C. description practically into coincidence and that at most have now an apparent vacancy of only 1.68 perches, I feel that I have obtained, as close as possible, the original intentions of the deed and the original path of the surveyor who first ran these lines.

TYING THE OLD DESCRIPTION UP TO EXISTING OLD LANDMARKS

At the beginning of this thesis I remarked about there being few, if any, old land marks in this vicinity that date back as far as the Calverts-M. A. C. deed description. Even the oldest land marks, that are recognized and can be



COMPUTATION OF LINES BETWEEN OLD LANDMARKS.

innutation of coordinates or ares.

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N+, S- E+, N-
AZIMUTH DIST LOG COS AZ LATITUDE DEFARTURE DMD
                                                         1196.06
THE SOUTH LINE OF BUCKLEY FARM
                                                                  687.02
                                STONE, WEST END
                                STONE, E.END, BEG. OF ENGLE 11 76.58
                                                                  825.66
                                                                  138.64
                                       DIFFERENCES
                                                          19.48
LENGTH = 1 (19.48) =+ (138.64) ==
                               140 PERCHES = 2310.00
TANGENT, BEARING ANGLE : 138.64 - 19.48 =
                                            BEARING = N82° W
                                                        N 86°09'50"W
THE SAME LINE ON MY CONTROL
15NATH - 2309.3'
                                                        N82° W
                                                           4009'50" 5 FROM
DIRECTION: N 86009'50" W.
                                       CHANGE IN DIRECTION
                                                         ~82°W
                                                         1176.58 825.66
STONE BEGINNING OF ENGLE
STORE, N.W., CORNER, DR. JOHNS
                                                                  698.51
                                                         974.52
                                                         202.06
                                                                  127.15
                                       DIFFERENCES
LENGTH = 1(202.06) + (127.15) = 238.73 PERCHES = 3939.04'
TAMGENT, BEARING ANGLE = 127.15 : 202.06 = 0.62926, BEARING = Y32'10'50"E
                                                       N37003.14 E19318.80
STONE, BEGINNING OF ENGLE
                                                      N 33643.16 E17414.97
STOORE, N.W. CORNER, DR. JOHNS
                                                         3359.98 1903.83
                                       DIFFERENCE
LENGTH = (3359.98) + (1903.83) = 3861.86'
TAMGENT, BEARING ANGLE = 1903.83 - 3359.98 : 0.56661. BEARING = N 29°32'10"E
                                                         1196.06 687.02
STORE, W. END BUCKLEY SOUTH LINE
STONE, N.W. CORNER DR. JOHNS
                                                                  698.51
                                                         974.52
                                       DIFFERENCES
                                                         221.54
                                                                  11.49
LENGTH = 1 (221.54) + (11.49) = 221.83 PERCHES = 3650.19
TANGENT BEARING ANGLE = 11.49 - 221.54 = 0.05186, BEARING = N 2° 58'10" N
SAME LINE ON MY CONTROL
               LENGTH = 3587.19'
              BEARING . N 6º 29:50"W.
BEGINNING CALVERTS - MAC. (IRON PIPE, 21/2")
                                                         1000.00 1000.00
                                                        974.52 698.51
NW COR. DR. JOHNS
                                                          25.48 301.49
                                       DIFFERENCES
LENGTH = 1 (25.48)2+ (301.49)2 = 302.56 PERCHES = 4992.24
TAMBENT, BEARING ANGLE : 301.49 : 25.48 = 11.8324, BEARING 585010'10"W.
SAME LINE ON MY CONTROL
              LENGTH 4957.47
BEARING 5 83°00'50"W.
BEGIN CALVERTS- MAC (IRON PIPE 21/2")
                                                         1000.00 1000.00
STONE, W. END BUCKLEY SOUTH LINE
                                                        1196.06 687.02
                                       DIFFERENCES
                                                          196.06
                                                                  312.98
LENGTH = 1 (196.06) + (312.98) = 369.31 PERCHES = 6093.61'
TAMGENT, BEARING ANGLE : 312.98: 196.06 = 1.59634, BEARING N57°56'10"W.
SAMELINE ON MY CONTROL
              LENGTH = 6065.43'
```

BEARING : N61º18'50"W.

COMPUTATION OF LINES BETWEEN OLD LANDMARKS, CONTINUED.

	Mark Labor	Date	Gnacked by		
				COORDI	NATES
A OT WITHUIT OF COM	TOU DOG . NO	TAMERINA	DEPARTURE DMI		
OR ANCE		N+ So			T .
PEARING	LOG SIN AZ				E A
	LOG DEP				
BEGNETENE, CA.	LUERTS-MAC	(IPAN PIPE 2%	")	1000.00	1000.00
BEGINNING OF				1176.58	
	-114/2		2/55505-5555		174.34
		10 10-	DIFFERENCES	, , 5.00	///
			4ES = 4094.31		
		N 440 38'00	"N	and the same of th	
SAME LINE O					
	LENGTH =	4086.86			
	BEARING =	N 47°34 4	"W.		
		1 39 3 100			
BEGINNING, C	BINEOTS-ME	r (18000 8101	21/2")	1222 22	1000.00
		CLIKON PIPE	, - ' -)	1623 00	
W. END BERRY	S ZINE 2	-			920.43
	-		DIFFERENCES	333.97	79.57
			5 = 8907.69		
	BEARING =	N 8° 28'30" N	1		
SAME LINE ON	MY CONTROL				
	LENGTH =				
		N 10048'45"W			
BEGINNING OF	EENGLE			1176.58	825.66
	4				
W. END BERRY	SZIMEZ			1533.97	
			DIFFERENCES	357.39	94.77
			ES = 6100.71°		
	BEARING .	N14º 51'00"	E		
SAME LINE O	N MY CONT	ROL			
	LENGTH :				
		N 11057'00"L			
P P P	Dunes Fr. C			1101-1	10-
STONE, W. END,		TH LINE		1196.06	
W. END BERRY	SLINE 2			15 33.97	920.43
		-		337.91	233.41
			ES = 6776.22'		
	BEARING = M	1 34038'00"	E		
SAME LINE ON					
	LENGTH = 1				
		N 30°55 45"E			
and the second second second second second	DENKING,	, 00 00 70 2			

identified, give great difficulty when endeavoring to tie old work into new work. These difficulties are not all due to differences in the length of line measuring devices. If they were, perhaps little, if any trouble would be encountered in making corrections between the old measuring device and the new to obtain satisfactory checks on the work. To illustrate my point I will show on page 44a a map of the four oldest land marks in this vicinity as they now exist on the ground. This information has been collected by my survey parties, while with me, doing survey work. They represent the location of these points to a ratio of precision of at least 1 in 15,000. I have all the confidence possible in the positions of these points.

To plot the map, shown on page 44a, it was necessary to compute the direction and distance of each of these lines from the new work and from the old in order to get these figures. The computations are shown on pages 44b and 44c.

On studying the map of page 44a, noting the differences between the old work and the new, the only satisfaction I can get is that the geometric figures will look somewhat alike. When observed closely, however, grave differences will appear in the distances. The directions, of course, cannot be expected to check, but the angles involved should show a satisfactory chech. They do not. The plotting was accomplished through the use of one line on the ground that checks very close in distance with its deed description,

namely, the south line of the Buckley Farm. This line runs in a direction slightly north of west, through the point of beginning of the Engle tract. Both stones marking the ends of this line are in place, date back of 1870 and the distance of 140 perches (2310.0 feet) as called for checks my measurement of 2309.3 feet to 0.7 of a foot.

The points used in the computation, pages 44b and 44c, and as shown plotted, on page 44a, are recognized now as being the corners identified. However, (1) something very serious has occurred to dislocate these ground points or (2) they were not originally put in position as they are described in the old deed description. Comparison of the distances shows no consistency at all between measurements of these lines.

The first of the above two premises is without doubt, the logical one, for it will be noticed, on map of page 44a, that my distances are consistently short of the deed distances in the south portion. Toward the north end of this map my distances are consistently longer than the deed distances. If all these corners are in their original positions, except the Point of Beginning, it would tend to indicate that the Point of Beginning has not been relocated in its original position. This Point of Beginning was relocated by Mr. E. L. Latimer, County Surveyor for Prince George's County, in 1908. The same might pertain to the stone that now exists, supposedly, at the north end of the first line of Berry.

From the map shown on page 44a, the line joining the

existing relocated position of the Calverts-M. A. C. Point of Beginning to the stone at the Point of Beginning of Engle, seems to be the one least disturbed by the relocation of the Calverts-M. A. C. Point of Beginning. This line will therefore be used to tie the old description up to the existing land marks. In my opinion this represents the best possible information available at this time.

To make this tie-up, I will have to convert the directions of Calverts-M. A. C., as now corrected and adjusted, to the direction of my control. Thus

My control, Point of Beginning of CalvertsM.A.C. to Point of Beginning of Engle
Old control, Point of Beginning of CalvertsM.A.C. to Point of Beginning of Engle
N 44°38'00" W
Change in direction
N 44°38'00" W
2°56'40"

This change in direction will be counter-clockwise from the old control to the new. On page 46a will be found the computation for conversion to the new directions.

After making the direction conversion, to get the old survey, connected into existing ground conditions as nearly as possible with the existing data, the distances were converted from perches to feet, and the latitudes and departures computed. After a minor adjustment, which was to be expected, these latitudes and departures were balanced. This computation is found on pages 46b, 46c, 46d, and 46 e.

The question then arose as to what point to take off of to compute the coordinate positions of each of the corners. Since I have used the line from the existing position of the point of beginning of Calverts-M. A. C. to the stone at the point of beginning of Engle as the line

CHAMGING BEARINGS OF CALVERTS - MAC., AS NOW (LOSED, TO THE EXISTING U. OF M. CONTROL.

	1]	
LINE	CALVERTS - MAC.	CHANGE IN DIRECTION	DIRECTION ON
	DIRECTIONS, SEE		EXISTING CONTROL
	PAGES		,
1	5 64 1/2° W	- 2° 56' 40'	5 61° 33'20" W
٦	5 84° W	-	581° 03.20" W
.	5 143/4° W	~ ·	511° 48'20" W
4	5 1/4° E	;+	5 4° 11' 40" E
5	5 3 1/4° W		5 0° 18' 20"W
6	N 58 1/2° W	±.	N 61° 26' 40"W
7	N 15° W	+	N 17° 56 40"W
8	N 440 E	-	N 410 03'20"E
9	5 66/2° E	+	5 69° 26' 40"E
10	5 2° E	+	5 4° 56' 40"E
11	N 2° W	+	N 4° 56' 40" W
12	N 56° E	: 	N 53° 03' 20" E
13	5 21/2° E	+	5 5° 26' 40" E
14	. EL	IMINATED	en en en en en en en en en en en en en e
15	5391/2° E	+	5 42° 26' 40"E
16	521/2° W	-	5 18° 33'20"N
17	5 2/8° E	+	5 5° 49' 10"E
18	5 13/4° E	, †	S 40 41' 40" E
19	546 3/4° E	· · +	5 49° 41' 40" E
20	5 134° E	+	5 40 41 40"E
21	5 46 3/4° E	+	5 49° 41'40"E
22	5 16° W	-	5 13° 03' 20"W
E,*	N 44° E	-	N 410 03'20"E
1	N 50 E	-	N 2º 03'20"E
E4	5710 E	, +	5 73° 56' 40"E
	523° W	-	520° 03'20"N
12	5 143/1° W	-	5 11° 48' 20"N
	5 88 3/2 W	_	5 850 48' 20"W
	N 79 14° W	+	N 820 11' 40"W
15	N 150 W	+	N 17°56' 40"W
*	N 15° W Sume AS 8	í	,
_	SAME AS 16		
×	SAME AS 3		
Þ	SAME AS 7		

Set 7 / 66 2

* madi Du (e por	indary of G	ALVERTS	-MAC.	, FROM	MAGE	CON	YERTED	70 M	W LONTRO	74.
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		LOG COS A2				F FURE:	DND	li+,	100	那种, 为	;
OR	ANCE	Log Dist	N+	5		W-= (,	0	**	
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UNIVERSE OF ENGINEERING
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UNIVERSITY OF MARYLAND CHAVE

COLLEGE OF ENGINEERING

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of conversion, and since this line varies 6± feet in length from the old control to the new control, I decided to use each of these points and compute separately a set of final coordinates based on each point. The results of these computations are shown on pages 46f, 46g, 46h, and 46i.

On page 47a will be found a map showing the location of all the various monuments that exist on the ground that I have been able to find. Where practical, the existing ground direction and distance has been determined on these lines. The positions of all monuments shown on this map are good to at least 1 in 15,000. I am confident that these point positions are good as they now exist. Superimposed upon these positions is the information contained on pages 46b, 46c, 46d, 46e as reduced for plotting purposes on pages 46f, 46g, 46h, 46i. From this plotting the relation existing between the original deed description, as now corrected can be visualized. This plotting is shown in Blue.

After plotting the Blue location of the boundary lines, on the map of page 47a, I find that while they fit the positions of the two points used to locate them, as well as can be expected, that there still seems to be an angular displacement toward the South as the lines go away from the point of beginning. This effect can be observed very easily in the Dr. Johns tract, in which the blue position of Dr. Johns parting lines fall south of the existing positions of these lines, which are shown in black.

Also in the north, I find that the west line of Berry, as shown in blue, falls west of the existing position of this line, which is shown in black. Apparently if the whole description is turned a small amount about the existing position of the point of beginning, in a clockwise direction, the lines in the description can be brought into closer coincidence.

Following the idea that the blue location is turned too far south about the point of beginning, I then took the coordinate positions (1) of the point of beginning, (2) of the Blue position of the N.W. corner of Dr. Johns and (3) of the existing position of the stone marking Dr. Johns N.W. corner and computed the bearing of points (2) and (3) from (1). This should produce the amount by which the tract shown in Blue has been turned. If each of the bearings of the Blue location are then changed by this correction angle coincidence should be obtained between the description lines and the ground lines. See page 48a.

A recomputation was then made to establish the coordinate positions of the corners on the basis of the
changed directions. This computation is shown in detail
on pages 48a, 48b, etc. This position has been plotted
in Brown.

Several other assumptions of this kind were made to try to fit the description to the existing ground lines. Each time I found that I could get some parts in agreement but that the majority of the lines still showed serious

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disagreement. I do not feel that complete satisfaction can ever be obtained.

DISCUSSIONS AND CONCLUSIONS

Some discussion of the blue location of the deed description lines shown on page 47a, has already been made. In reference to the Brown location of these deed description lines I find that this does not give a satisfactory solution to the problem. When observation is made of the west lines, of the Brown location, it is found that they are too far west of the ground positions. The point of Beginning of Engle has moved, with this Brown location, to a point considerably north and east of its actual location on the ground. The line upon which this point was supposed to have been located, however, seems to go through or at least pass close to the ground position of this corner. On observing the position of the west line of the Berry tract it is found that the Brown location has moved too far East to satisfy the present location of the line as now recognized on the ground. The Brown location seems to fit the East boundary, as it was rerun Mr. E. L. Latimer in 1908, perfectly. Due to the agreement here, the small disagreement in the south (Dr. Johns) and the larger apparent disagreement in the north (Berry) it would seem that these three variations would again bear out the suspicion that there are at least three separate surveys thrown into one to form the Calverts-M. A. C. description.

From studies of the Blue and Brown locations, on map

assumption certain parts of the description can be placed in agreement with the ground lines, but that the lines in other locations will not be in agreement. Several other possibilities besides the Blue and Brown have been tried, in this work, with no more satisfaction than these locations give. In my opinion it is impossible to get a close co-ordination between the points on the ground and the points obtained from the deed description.

Of the two possible positions of the Calverts-M. A. C. deed description, as shown in Blue and in Brown on page 47a, I am partial to the Blue as giving the best possible location for the lines. because

- 1 It passes through the relocated position of the point of beginning of this tract.
- 2 It passes closer to the stone that marks the point of beginning of the Engle tract than any other position investigated.
- 3 It checks better, than any other position investigated, the position of the iron pipe that now is
 supposed to mark the former position of the Pin Oak tree
 at the end of the first line of Engle, which is also the
 end of the original 8th line of Calverts-M. A. C.
- 4 It gives the best check that has been obtained, up to this time, on the position of the "corner of Jackson's Necessity" as that corner would be relocated if the black line on the map of page 47a really represents the "15th line of Jackson's Necessity".

After exhausting the possibilities of coordinating the present ground points to the deed description, I recognize that there is the possibility that the point of beginning of Calverts-M. A. C. description may not have been relocated in its original position of the ground. This question came up when trying to fit the corrected, adjusted and closed description to the ground lines. Some time was spent upon this feature of the problem to investigate its feasability. Studies made here lead to my conclusion that there is a grave possiblity, but conclusive evidence could not be established at this time due to lack of positions of old land marks to give sufficient checks on the work. This point cannot be permanently and conclusively proven until a survey is run east of College Park to pick up some of the old Calvert land marks that exist there.

If the resurvey of Mr. Latimer is disregarded and the original lines in the west part of Calverts-M. A. C. are made to agree with the ground positions the point of beginning will then move away from its relocated position toward the northeast. The distance of this movement would be in the neighborhood of 40' from the present relocated position.

The difficulties entailed in endeavoring to place this piece of property from the deed description are typical for most of the descriptions I have worked on in Prince George's County and Howard County of Maryland. The same difficulties no doubt exist in other places too. That

such is the case certainly reflects adversely upon the work of previous surveyors in their running and rerunning of these lines.

I have been told that such resurveys can only be satisfactorily rerun by finding the actual point of beginning of the original tract from which the Calverts.

M. A. C. tract was parted. The original point of beginning for the Calverts' holdings was down in Riverdale. In view of the information contained in this study I think I have conclusively proved, that it would be futile for any surveyor to even attempt to retrace the path of the older surveyor of this tract. I made some studies on this old Calvert tract and while the first two or three lots closed satisfactorily, by the time that the description got up to College Park, there is an error of closure in it that amounts to about 20 perches (330 feet). In my opinion it would be impossible to retrace the older surveyor's work with any satisfaction.

After all, the lines of the University of Maryland have for the most part been established on the ground for much more than 20 years. The only satisfactory way of determining where they are is to make a modern survey of these ground lines, monumenting their existing positions thoroughly and frequently and preparing a map that will be representative of these lines. This map should contain all information necessary to repeat and duplicate the lines at any time.

The results of this study and all similar studies will show that we need:

- (1) A licensing law for Land Surveyors
- (2) A permanent State Land Survey Control
- (3) A Land Court or similar body to administer and review all land transactions before they go on record.