

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.

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
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.

April 19, 1937.

UMI Number: DP70179

All rights reserved

INFORMATION TO ALL USERS

The quality of this reproduction is dependent upon the quality of the copy submitted.

In the unlikely event that the author did not send a complete manuscript and there are missing pages, these will be noted. Also, if material had to be removed, a note will indicate the deletion.



UMI DP70179

Published by ProQuest LLC (2015). Copyright in the Dissertation held by the Author.

Microform Edition © ProQuest LLC.

All rights reserved. This work is protected against unauthorized copying under Title 17, United States Code



ProQuest LLC.
789 East Eisenhower Parkway
P.O. Box 1346
Ann Arbor, MI 48106 - 1346

CONTENTS

	Page
Introduction	1
The Original Conveyance of 1858	7
The Conveyances of 1865 and 1867	10
The Berry Tract	12
The Dr. Johns Tract	15
The Christian Engle Tract	18
Fitting the Conveyances of 1865 and 1867 into the Existing Closure of the Whole Tract	32
Fitting the Dr. Johns Tract	33
Fitting the Berry Tract	33
Fitting the Engle Tract	36
Final Placement of the Berry Tract	40
Final Placement of the Engle Tract	41
Discussions of Closures and Placements	41
Tying the Old Description up to Existing Old Landmarks	43
Discussions and Conclusions	49

*Also map placed in map collection with
the following map no:
College Park (oversize)
8*

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 too heavy 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

different directions and often-times different distances 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 Kelly 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 $64\frac{1}{2}^{\circ}$ W, 21 $\frac{17}{25}$ perches; (2) S 84° W, 105 perches to a stone on the East side of the Washington-Baltimore Turnpike Road; (3) then S $14\frac{3}{4}^{\circ}$ W, 28 $\frac{6}{25}$ perches to a stone on the West side of said Turnpike Road; (4) then S $1\frac{1}{4}^{\circ}$ E, 56 perches to a stone on the East side of said Road; (5) then S $3\frac{1}{4}^{\circ}$ W, 42 $\frac{1}{2}$ perches; (6) then N $58\frac{1}{2}^{\circ}$ W, 199 perches; (7) then N 15° W, 78 perches; (8) then N 44° E, 262 $\frac{20}{25}$ perches to a Pin Oak; (9) then S $66\frac{1}{2}^{\circ}$ E, 70 $\frac{20}{25}$ perches to a corner of "Jackson's Necessity"; (10) then S $2\frac{1}{2}^{\circ}$ E, 6 perches; (11) then N $2\frac{1}{2}^{\circ}$ W, 309 perches; (12) then N 56° E, 21 $\frac{3}{4}$ perches; (13) then S $3\frac{3}{4}^{\circ}$ 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 $2\frac{3}{4}^{\circ}$ W, 28 perches to the end of the 2nd line of "Red House"; (15) then S $38\frac{3}{4}^{\circ}$ E, 16 perches; (16) then S $21\frac{1}{2}^{\circ}$ W, 32 perches; (17) then S $2\frac{7}{8}^{\circ}$ E, 28 $\frac{1}{2}$ perches; (18) then S $1\frac{3}{4}^{\circ}$ E, 40 perches; (19) then S $46\frac{3}{4}^{\circ}$ E, 40 perches; (20) then S $1\frac{3}{4}^{\circ}$ E, 40 perches; (21) then S $46\frac{3}{4}^{\circ}$ 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 $\frac{1}{4}^{\circ}$, 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

UNIVERSITY OF MARYLAND
COLLEGE OF ENGINEERING

SUBMITTING

PAGE 1 OF 3

FILE NO.

Computation of coordinates or area

Traverse or boundary of THE ORIGINAL CALVERTS-M.A.C. DESCRIPTION, LIB. CSM. 2-FOL. 290

Computation by M.A.P. Date _____ Checked by M.A.P. Date _____

L I N E	AZIMUTH OR BEARING	DIST ANCE	LOG LAT LOG COS AZ LOG DIST LOG SIN A2 LOG DEP	LATITUDE		DEPARTURE		DMD	COORDINATES				F C I N T
				N+	S-	E+	W-		N+	S-	E+	W-	
		<u>PERCHES</u>		<u>BY COMPUTING MACHINE</u>					<u>ADJUSTED</u>				
								<u>ASSUMED</u>	<u>AREA</u>				
									<u>+ FORWARD</u>				
			0.43051		9.33				1000.00	1000.00			
1	56 1/2° W	21.68							9.33	-	19.57		
			0.90259				19.57		990.67		980.43		
			0.10453		10.98				-	10.98	-	104.42	
2	58 1/2° W	105							979.69		876.01		
			0.99452				104.42						
			0.96705		27.31				-	27.31	-	7.19	
3	51 1/2° W	28.24							952.38		868.82		
			0.25460				7.19						
			0.99976		55.99				-	55.99	+	1.22	
4	5 1/4° E	56							896.39		870.04		
			0.02181				1.22						
			0.99839		42.43				-	42.43	-	2.41	
5	5 3/4° W	42.5							853.96		867.63		
			0.05669				2.41						
			0.52250		103.98				+	103.98	-	109.68	
6	N 58 1/2° W	199							957.94		697.95		
			0.85264				169.68						
			0.96593		75.34				+	75.34	-	20.19	
7	N 15° W	78							1033.28		677.76		
			0.25882				20.19						
			0.71934		189.04				+	189.04	+	182.56	
8	N 44° E	262.8							1222.32		860.32		
			0.69466				182.56						
			0.39875		28.23				-	28.23	+	64.93	
9	56 1/2° E	70.8							1194.09		925.25		
			0.91706				64.93						
			0.99905		5.99				-	5.99	+	0.26	
10	5 3/2° E	6							1188.10		925.51		
			0.04362				0.26						
			<u>SUMS FORWARD</u>	368.36	180.26	248.97	323.46						

UNIVERSITY OF MARYLAND
COLLEGE OF ENGINEERING

SURVEYING

SHEET 2 OF 3
FILE NO.

Computation of coordinates or area.

Reverse or boundary of THE ORIGINAL CALVERTS - MAC. DESCRIPTION, LIB. C.S.M. 2-FOL. 29A.

Computation by MAP Date _____ Checked by MAP Date _____

L I N E	AZIMUTH OR BEARING	DIST ANCE	LOG LAT	LOG COS AZ	LATITUDE		DEPARTURE		DMD	COORDINATES				F O I N T
			LOG DIST	LOG SIN AZ	N+	S-	E+	W-		N+	S-	E+	W-	
			LOG DEP		BY COMPUTING MACHINE.					UNADJUSTED				
		PERMITS			BROUGHT FORWARD					+ FORWARD				
					368.36	180.26	248.97	323.46		1188.10		925.51		
			0.99905		308.71					+ 308.71	-	13.48		
11	N 2 1/2° W	309	0.04362					13.48		1496.81		912.03		
										+ 12.16	+ 18.03			
			0.55919		12.16					1508.97		930.06		
12	N 56° E	2175	0.82904				1803							
										- 304.35	+ 12.95			
			0.99786		304.35					1204.62		950.01		
			0.06540				19.95							
										- 27.97	- 1.34			
			0.99885		27.97					1176.65		948.67		
			0.04798					134						
										- 12.48	+ 10.01			
			0.77988		12.48					1164.17		958.68		
			0.62592				10.01							
										- 29.77	- 11.73			
			0.93042		29.77					1134.40		946.95		
			0.36650					11.73						
										- 28.46	+ 1.43			
			0.99874		28.46					1105.94		948.38		
			0.05015				1.43							
										- 39.98	+ 1.22			
			0.99953		39.98					1065.96		949.60		
			0.03054				1.22							
										- 27.41	+ 29.13			
			0.68518		27.41					1038.55		978.73		
			0.72837				29.13							
										- 39.98	+ 1.22			
			0.99953		39.98					998.57		979.95		
			0.03054				1.22							
			SUMS FORWARD		689.23	690.66	329.96	350.01						

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

UNIVERSITY OF MARYLAND
COLLEGE OF ENGINEERING

ENGINEERING

DATE

FILE

Computation of coordinates of area

Traverse or boundary of THE ORIGINAL CALVERTS - MAC. DESCRIPTION LIB. CSM. 2-FOL. 29A

Computation by M.A.P. Date _____ Checked by M.A.P. Date _____

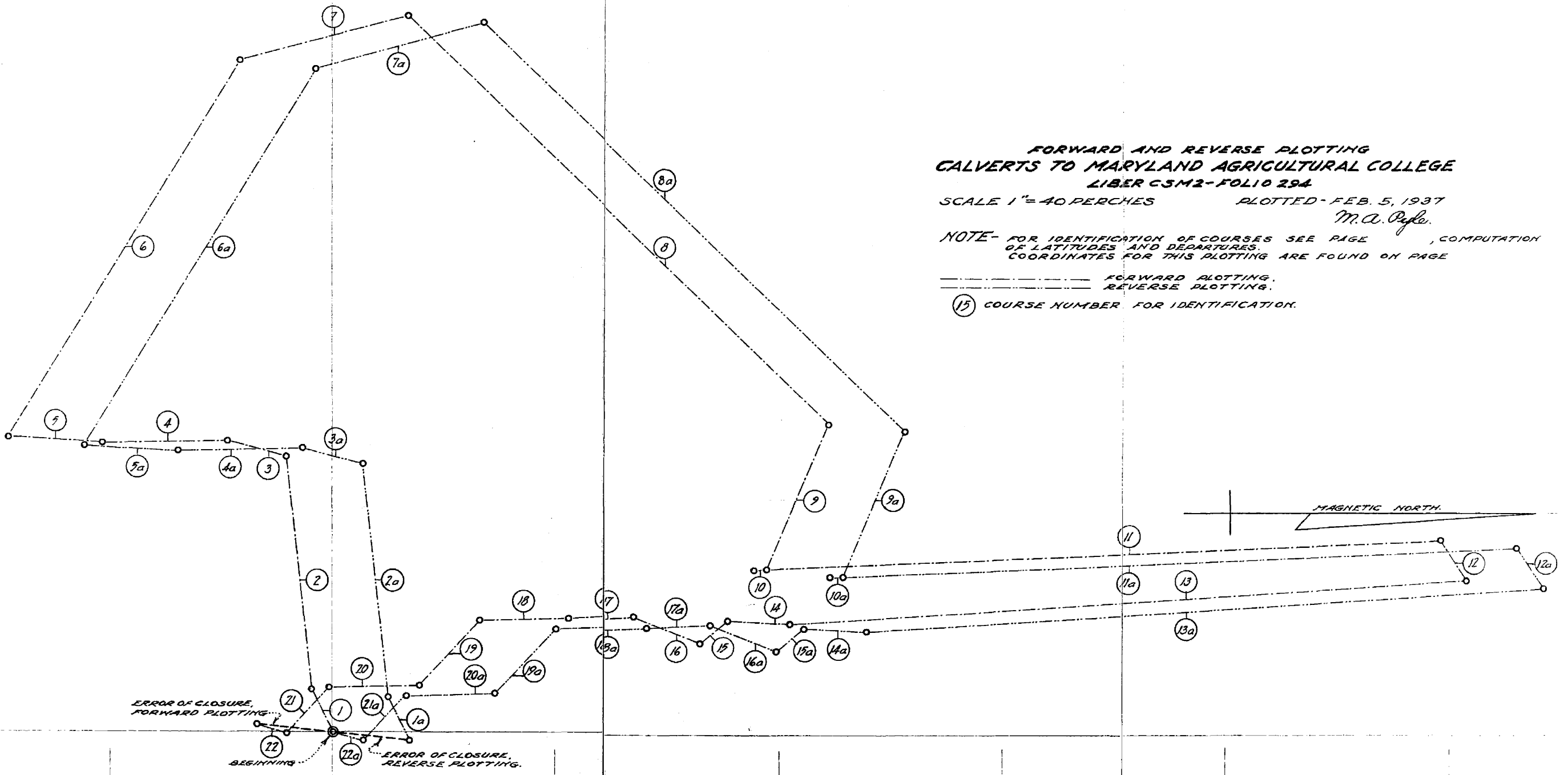
LINE	AZIMUTH OR BEARING	DISTANCE	LOG LAT	LOG COS AZ	LATITUDE N+ S-	DEPARTURE	DMD	COORDINATES			
			LOG DIST	N+ W-		N+ S-		E+ W-	N+ S-	E+ W-	
			LOG SIN AZ			UNADJUSTED					
			LOG DEP			ADJUSTED					
								REVERSE			
FOR LAT. & DEP. COMPUTATION. SEE SHEETS 1, 2 & 3.											
							ASSUMED	1000.00	1000.00		
22								+ 13.46	+ 3.86		
								1013.46	1003.86		
21								+ 19.19	- 20.39		
								1032.65	983.47		
20								+ 39.98	- 1.22		
								1072.63	982.25		
19								+ 27.41	- 29.13		
								1100.04	953.12		
18								+ 39.98	- 1.22		
								1140.02	951.90		
17								+ 28.46	- 1.43		
								1168.48	950.47		
16								+ 29.77	+ 11.73		
								1198.25	962.20		
15								+ 12.48	- 10.01		
								1210.73	952.19		
14								+ 27.97	+ 1.34		
								1238.70	953.53		
13								+ 304.35	- 19.95		
								1543.05	933.58		
12								- 12.16	- 18.03		
								1530.89	915.55		
11								- 308.71	+ 13.48		
								1222.18	929.03		
10								+ 5.99	- 0.76		
								1228.17	928.77		
9								+ 28.23	- 64.93		
								1256.40	863.84		
8								- 189.04	- 182.56		
								1067.36	681.28		
7								- 75.34	+ 20.19		
								992.02	701.47		
6								- 103.98	+ 169.68		
								888.04	871.15		
5								+ 42.43	+ 2.41		
								930.47	873.56		
4								+ 55.99	- 1.22		
								986.46	872.34		
3								+ 27.31	+ 7.19		
								1013.77	879.53		
2								+ 10.98	+ 104.42		
								1024.75	983.95		
1								+ 9.33	+ 19.57		
								1034.08	1003.52		

FORWARD AND REVERSE PLOTTING
CALVERTS TO MARYLAND AGRICULTURAL COLLEGE
LIBER CSM2-FOLIO 294

SCALE 1"=40 PERCHES PLOTTED-FEB. 5, 1937
M.A. Peck.

NOTE- FOR IDENTIFICATION OF COURSES SEE PAGE , COMPUTATION
OF LATITUDES AND DEPARTURES.
COORDINATES FOR THIS PLOTTING ARE FOUND ON PAGE

----- FORWARD PLOTTING.
----- REVERSE PLOTTING.
⑮ COURSE NUMBER FOR IDENTIFICATION.



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

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."

UNIVERSITY OF MARYLAND
COLLEGE OF ENGINEERING

SURVEYING

SHEET 1 OF 1
FILE NO.

Computation of coordinates or area.

Traverse or boundary of M.A.C. - JOHN BERRY, LIBER F.52 - FOLIO 568.

Computation by Date Checked by Date

LINE	AZIMUTH OR BEARING	DISTANCE	LOG LAT	LATITUDE		DEPARTURE		DMD	COORDINATES	
			LOG COS AZ LOG DIST LOG SIN AZ LOG DEP	N+	S-	E+	W-		N+, S- E+, W-	OF AREA
		PERCHES		BY COMPUTING MACHINE					+	-
1	N 1° W	334 5511.00	0.99985 0.01745	333.95			5.93			
2	N 56° E	17 280.50	0.55919 0.82904	9.51		14.09				
3	S 1 1/2° E	333 5494.50	0.99966 0.02618	332.89		8.72				
4	S 38 1/2° E	18 297.00	0.78261 0.62251	14.09		11.21				
5	S 24° W	8 132.00	0.91355 0.40674	7.31		3.25				
6	N 70° W	29.0 478.50	0.34202 0.93969	9.92		27.25				
TOTALS				353.38	354.79	34.02	36.33			
				353.38			34.02			
DIFFERENCES					0.91		2.31			

LENGTH OF ERROR OF CLOSURE = $\sqrt{(0.91)^2 + (2.31)^2} = 2.48$ PERCHES

TANGENT OF BEARING ANGLE OF ERROR OF CLOSURE = $2.31 \div 0.91 = 2.54$

" " " " " " = $68 1/2^\circ$

" " " " " " = N $68 1/2^\circ$ E

TOTAL LENGTH OF BOUNDARY = 739 PERCHES

RELATIVE PRECISION = $2.48 \div 739 = 1 \div 336$

UNIVERSITY OF MARYLAND
COLLEGE OF ENGINEERING

SURVEYING

SHEET 1 OF 1
FILE NO.

Computation of coordinates or area.

Traverse or boundary of M.A.C.-DR. MONTGOMERY JOHNS, LIBER F.52-Folio 633

Computation by MAP Date _____ Checked by MAP Date _____

LINE	AZIMUTH OR BEARING	DIST ANCE	LOG LAT			LATITUDE		DEPARTURE		DMD	COORDINATES				F O I N T
			LOG COS	AZ	LOG DIST	N+	S-	E-	W-		N+, S-	E+, W-	OR AREA		
			LOG SIN AZ												
			LOG DEP												
1	NORTH	56 924.00					56.00								
2	N 15 1/2° E	10.36 170.94	0.96363			9.98									
			0.26724					2.77							
3	WEST	97.80 1613.70							97.80						
4	N 78° W	75.92 1252.68	0.20791			15.78									
			0.97815					74.26							
5	S 13 1/2° E	20.96 345.84	0.97237			20.38									
			0.23345					4.89							
6	S 57 1/4° E	199 3283.50	0.54097			107.65									
			0.84104					167.37							
7	N 3° E	42.5 701.25	0.99863			42.44									
			0.05234					2.22							
TOTALS						124.70	128.03	177.75	172.06						
							174.20	172.06							
DIFFERENCES							3.83	5.19							

LENGTH OF ERROR OF CLOSURE = $\sqrt{(3.83)^2 + (5.19)^2} = 6.44$ PERCHES
TANGENT OF BEARING AT TAIL OF ERROR OF CLOSURE = $5.19 \div 3.83 = 1.355$
" " " " " " = 57° (NEAREST $0^\circ 14'$)
" " " " " " = N 57° W.
TOTAL LENGTH OF BOUNDARY = 502.54 PERCHES
RELATIVE PRECISION = $6.44 \div 502 = 1 \div 78$

UNIVERSITY OF MARYLAND
COLLEGE OF ENGINEERING

SURVEYING

SHEET 1 OF 1
FILE NO. _____

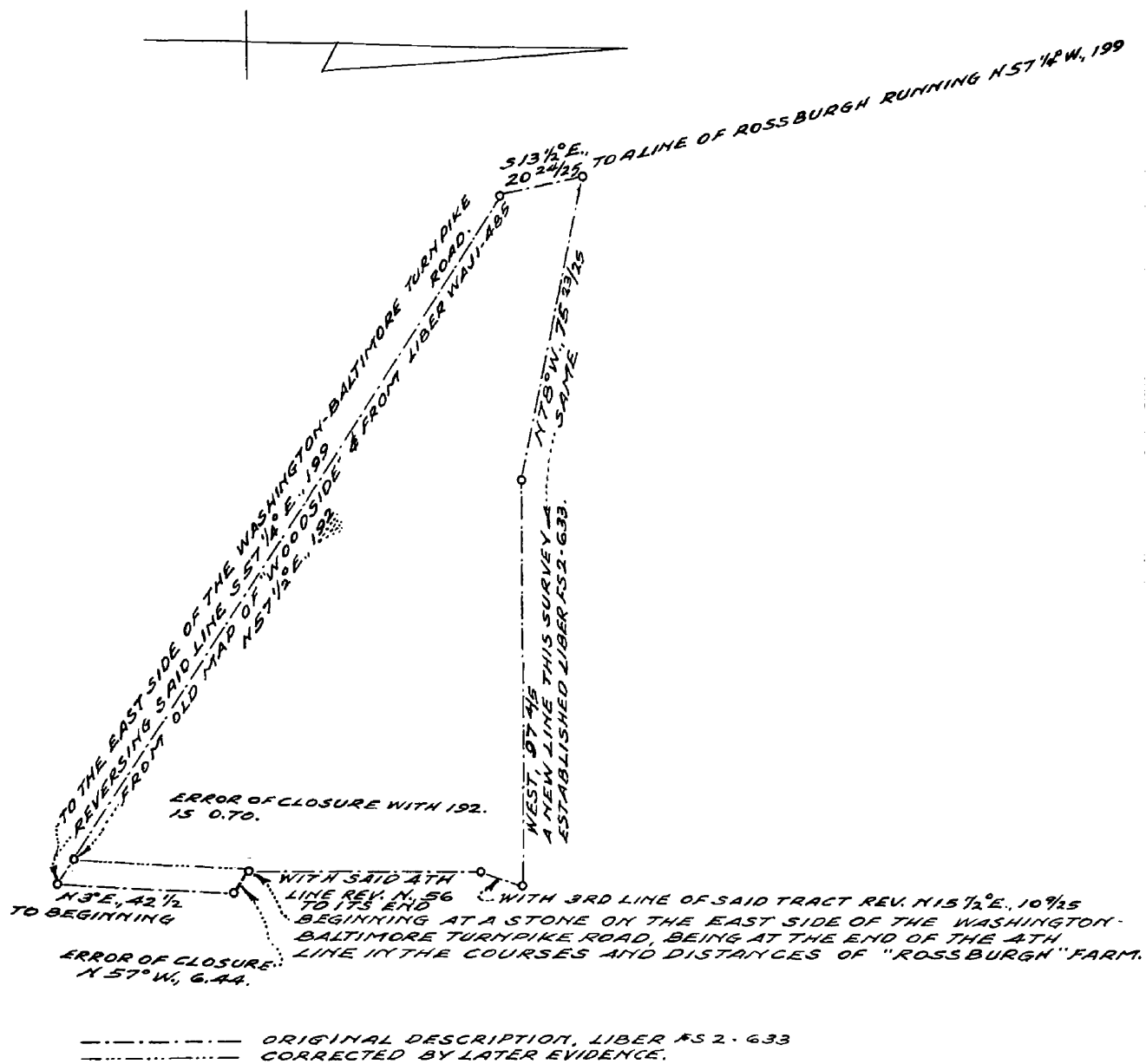
Computation of coordinates of area.

Traverse or boundary of M.A.C-CHRISTIAN EGGLE, LIBERTY ST-FOLIO 20.

Computation by _____ Date _____ Checked by _____ Date _____

LINE	AZIMUTH OR BEARING	DISTANCE	LOG LAT			LATITUDE		DEPARTURE		DMD	COORDINATES N+, S-, E+, W- OF AREA	POINT
			LOG COS AZ	LOG DIST	LOG SIN AZ	N+	S-	E+	W-			
1	N 44° E	58.5	0.71934			42.08						
		965.25	0.69466					146.4				
2	S 66 1/2° E	74.8	0.39575				29.83					
		1234.20	0.91706					68.60				
3	N 5 1/2° E	8.1	0.99540			8.06						
		133.65	0.09585					0.78				
4	S 71° E	20.75	0.32557				6.76					
		342.38	0.94552					19.62				
5	S 23° W	76.6	0.92050				70.51					
		1263.90	0.39073					299.3				
			TOTALS									
6	TO BEGINNING											
			TOTALS			50.14	102.10	1296.4	299.3			
							50.14	29.93				
			DIFFERENCES				56.96	99.71				

LENGTH OF CLOSING LINE = $\sqrt{(56.96)^2 + (99.71)^2}$ = 114.83 PERCHES.
TANGENT OF BEARING ANGLE OF CLOSING LINE = $99.71 \div 56.96 = 1.75053$
" " " " = $60^\circ 14'$ (NEAREST $0^\circ 14'$)
" " " " = N 60 1/2° W.



PLOTTING OF
MARYLAND AGRICULTURAL COLLEGE TO
DR. MONTGOMERY JOHNS

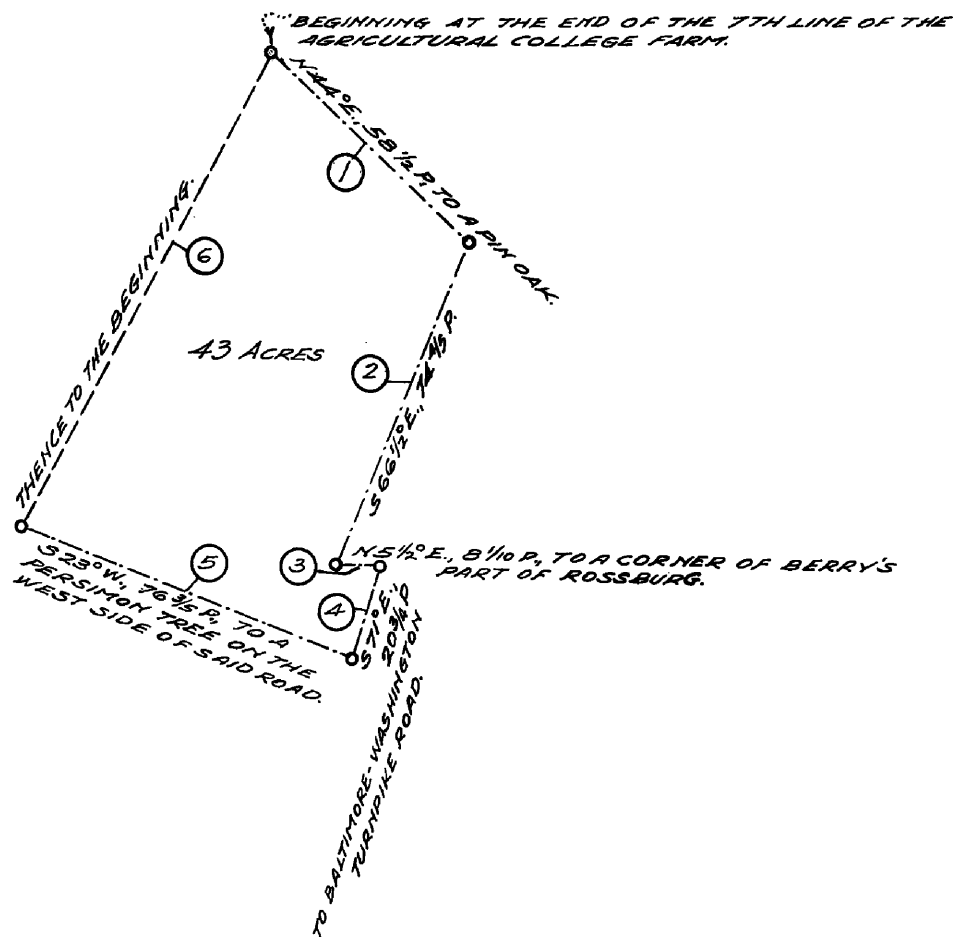
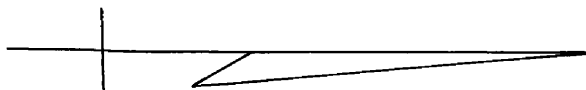
LIBER FS 2-633

WAI-485

SCALE 1" = 40 PERCHES

PLOTTED BY M. A. Ryfe

JAN. 22, 1937.



PLOTTING OF
MARYLAND AGRICULTURAL COLLEGE TO
CHRISTIAN ENGLE
LIBER F.S.S. - FOLIO 20

SCALE 1" = 40 P.

PLOTTED - FEB. 6, 1937

M.A. Pyle

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 11a, 11b and 11c. The plotting of this data will be found on pages 11d, 11e and 11f.

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 10th 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 11d. 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 $1\frac{1}{2}^{\circ}$ 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 $1\frac{1}{2}^{\circ}$ 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 $21\frac{3}{4}$ perches, an adjustment in length of $4\frac{3}{4}$ 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 $2\frac{1}{4}^{\circ}$ 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 $0\frac{1}{4}^{\circ}$ 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 $2\frac{1}{2}^{\circ}$ 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	Direction Berry	Direction Change from MAC	Length, Perches MAC Berry Diff.		
1	11	N $2\frac{1}{2}^{\circ}$ W	N 1° W	$1\frac{1}{2}^{\circ}$ clockwise	309	334	+25
2	12	N 56° E	N 56° E	0	21.75	17	-4.75
3	13 & 14	S $3\frac{3}{4}^{\circ}$ E	S $1\frac{1}{2}^{\circ}$ E	$2\frac{1}{4}^{\circ}$ clockwise	305+28	333	0
4	15	S $38\frac{3}{4}^{\circ}$ E	S $38\frac{1}{2}^{\circ}$ E	$0\frac{1}{4}^{\circ}$ clockwise	16	18	+2
5	16	S $21\frac{1}{2}^{\circ}$ W	S 24° W	$2\frac{1}{2}^{\circ}$ 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.

Certainly a radical change has occurred during the 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 11e. Evidence as to

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.

1 - 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 0 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	Direction MAC	Direction Dr. Johns	Direction Change from MAC	Length, Perches MAC	Perches Johns	Dif.
1	4	S 1 1/4°E	North	1 1/4° clockwise	56	56	0
2	Part of 3	N 15 1/2°E	S 14 3/4°W	1 1/4° clockwise	=	=	
3	New line this description						
4	New line this description						
5	Part of 7	N 15°W	S 13 1/2°E	1 1/2° clockwise	=	=	
6	6	S 58 1/4°W	S 57 1/4°E	1° clock- wise	199	199	0
7	5	S 3 1/4°W	N 3°E	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 1/4°.

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:

1 - 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 11a (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 Calverts-M.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.

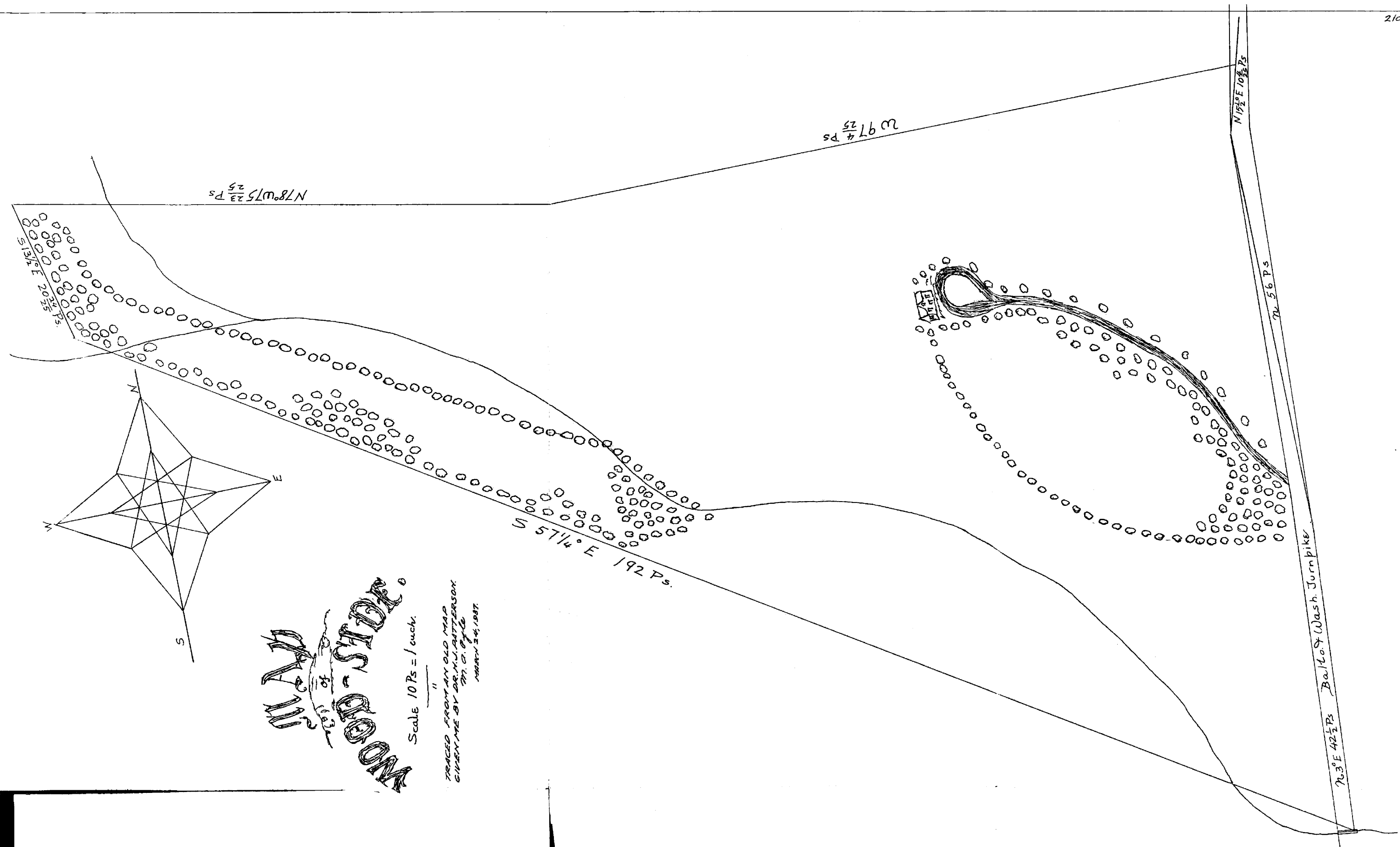
To investigate the Dr. Johns tract further, in an endeavor to find where the mistake causing the error of

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. $57-1/4^{\circ}$ 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 Liber 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. $15-1/2^{\circ}$ E., $10-9/25$ perches; thence (3) West, $97-4/25$ perches; thence (4) N. 78° W., $75-2/3$ perches; thence (5) S. $13-1/2^{\circ}$ E., $20-24/25$ perches to a line of the aforesaid 'Rossburg' running N. $57-1/4^{\circ}$ W., 199 perches (note, added by writer, that the Rossburg course was N. $58-1/2^{\circ}$ W., 199 perches, not N. $57-1/4^{\circ}$ W.); thence (6) reversing said line S. $57-1/4^{\circ}$ 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."



WOLF CREEK
OLD STORE
Scale 10 Ps = 1 inch.

TRACED FROM AN OLD MAP
GIVEN ME BY DR. H. J. PATTERSON
M. C. G. C.
MAY 24, 1937.

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

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

UNIVERSITY OF MARYLAND
COLLEGE OF ENGINEERING

SUBMITTING

SHEET NO. 1 OF 1
FILE NO.

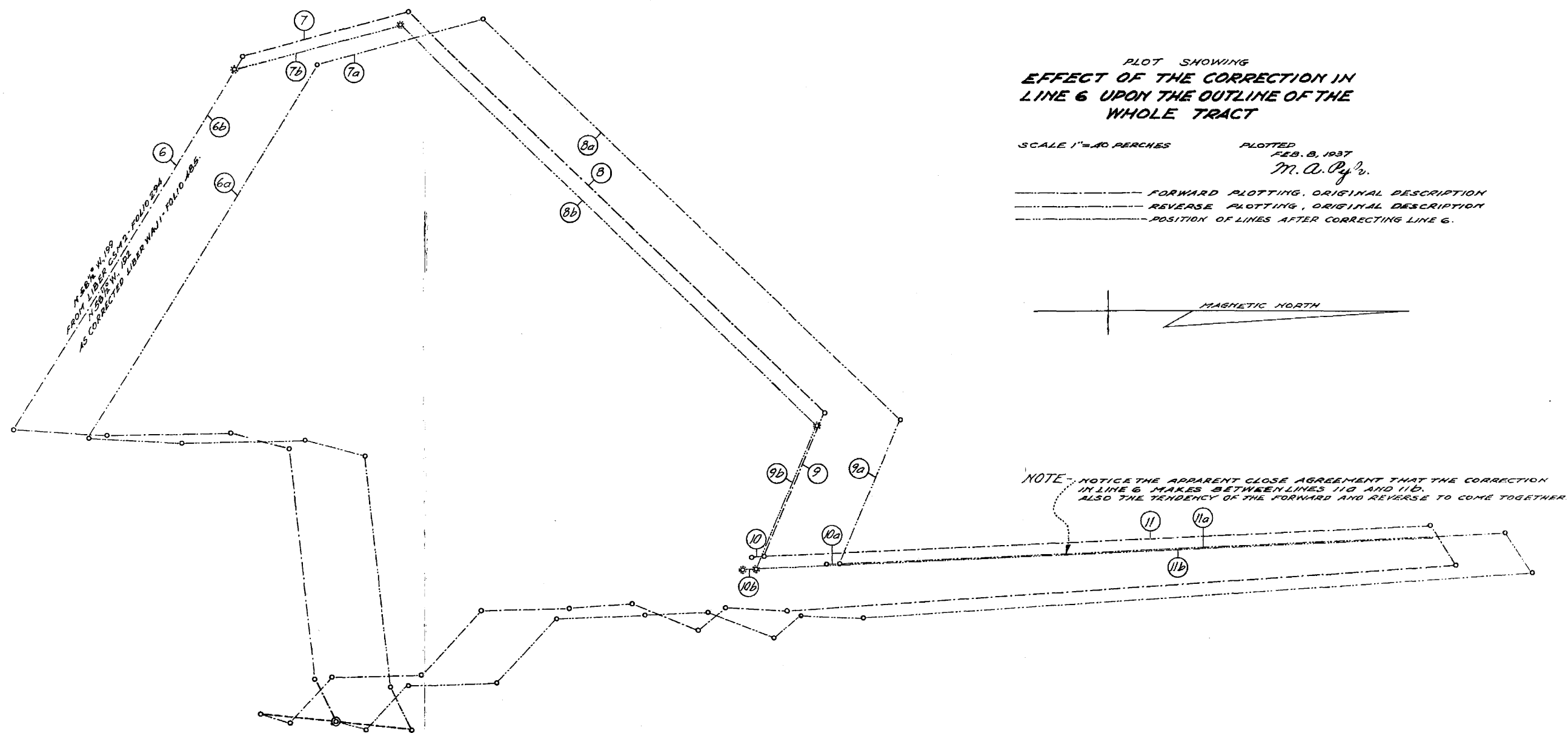
Computation of coordinates or area.

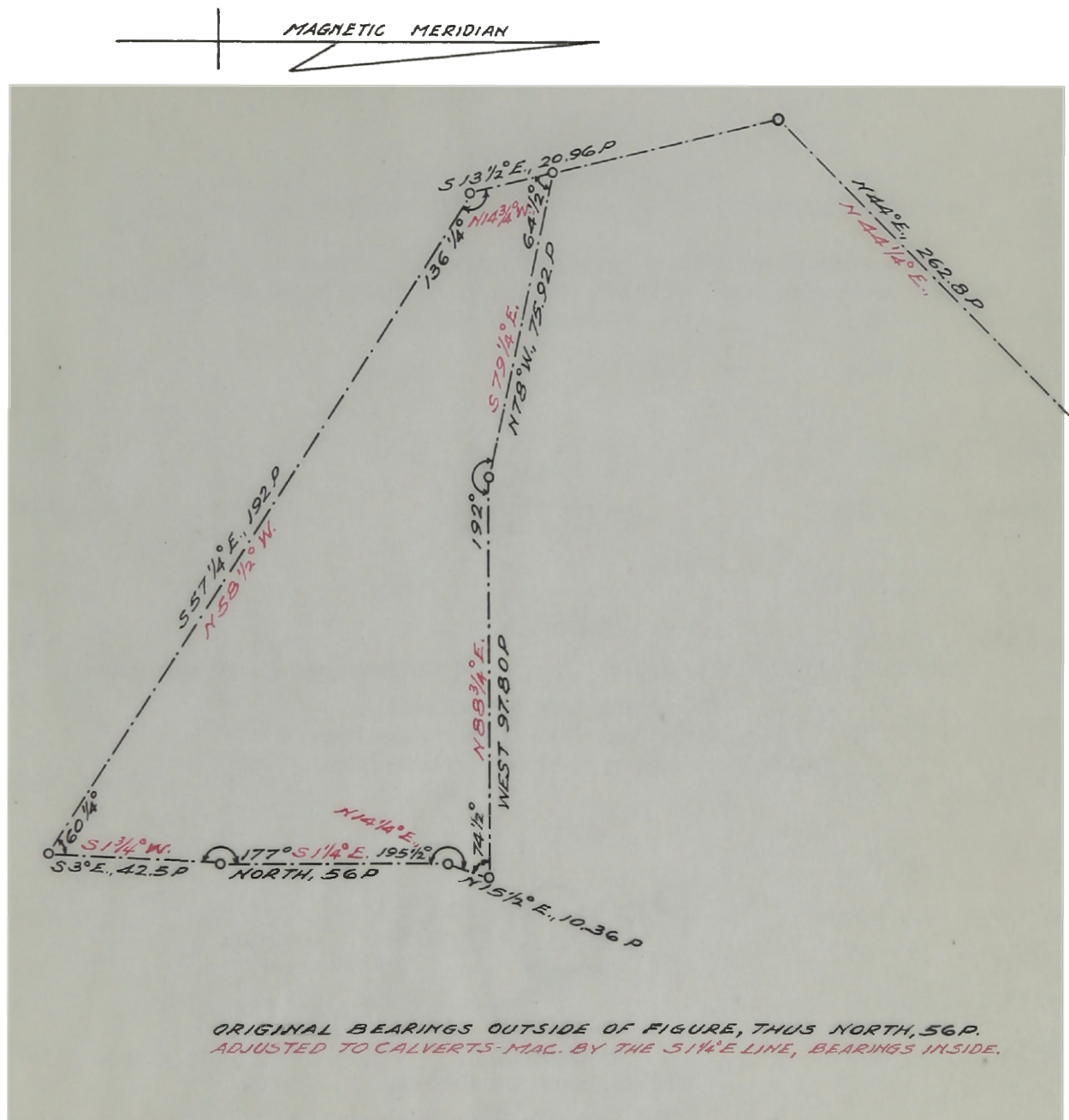
Traverse or boundary of *REVISION OF CALVERTS-MAG. DUE TO CORRECTION IN DR. JONAH'S TRACT.*

Computation by MAF Date 10/10/54 Checked by MAF Date 10/10/54

BASED ON ASSUMPTION #1, PAGE 18

AZIMUTH OR BEARING		DISTANCE	LOG COS AZ	LOG SIN AZ	LOG DEP	LATITUDE N+ S-	DEPARTURE E- W-	DMD	COORDINATES N+, S- E+, W- OR AREA	
PARCES										
COORDINATES, SOUTH END COURSE #5 LIGHTS MARK									853.96	867.63
6	N 58 1/2° W	192				100.32	163.70		+ 100.32 - 163.70	954.28 703.93
									+ 75.34 - 20.19	
7	N 15° W	78				75.34	20.19		1029.62	683.74
									+ 189.04 + 182.56	
8	N 44° E	262.8				189.04	182.56		1218.66	866.30
									- 28.23 + 64.93	
9	S 66 1/2° E	70.8				28.23	64.93		1190.43	931.23
									+ 5.99 + 0.26	
10	S 2 1/2° E	6				5.99	0.26		1184.44	931.49
									+ 308.71 - 13.48	
11	N 2 1/2° W	309				308.71	13.48		1493.15	918.01
									CHECK BELOW	
TOTALS			673.41	34.22	247.75	197.37				
DIFFERENCES			639.19		50.38					
									853.96	867.63
									+ 639.19 + 50.38	
									1493.15	918.01
									CHECK	





EFFECT OF
ADAPTATION OF
DR. JOHN STRACT
AS CORRECTED
TO
CALVERTS-M.A.C. DESCRIPTION
SCALE 1"=40 P
APRIL 2, 1937
M. O. Pyle

UNIVERSITY OF MARYLAND
SCHOOL OF ENGINEERING

SURVEYING

DATE

TIME

Computation of coordinates or area.

Reverse or boundary of REVISION OF CALVERTS-MAC. DUE TO CORRECTION IN DR. JOHNS TRACT.Computation by MAP

Date

Checked by MAP

Date

ORDER OF ASSUMPTION: #2, PAGE 18, AND SOUTH END COURSE 4, CALVERTS-MAC.

LINE	AZIMUTH OR BEARING	DISTANCE	LOG LAT LOG COS AZ LOG DIST LOG SIN AZ LOG DEP	LATITUDE		DEPARTURE		DMD	COORDINATES	
				N+	S-	E-	W-		N+	S-
		<i>FRAMES</i>								
			1.62818		42.48				896.39	870.04
			9.99999						- 42.48	- 1.30
5	51 3/4° N	42.5	1.62839						853.91	868.74
			8.48485							
			0.11324				1.30			
									+ 100.32	- 163.70
6	N 58 1/2° W	192		100.32		163.70			954.33	705.04
			1.30683	20.27					+ 20.27	- 5.34
			9.98544							
7	N 14 3/4° W	20.96	1.82139						974.50	699.70
			9.40586							
			0.72725				5.34			
			2.27471	188.74					+ 188.74	+ 183.37
			9.85509							
8	N 44 1/4° E	262.8	2.41962						1162.74	883.07
			9.84372							
			2.26334			183.37				
			1.45506	28.51					- 28.51	+ 64.80
			9.60503							
9	S 66 1/4° E	70.8	1.85003						1134.23	947.87
			9.96157							
			1.81160			64.80				
			0.77781	5.99					- 5.99	+ 0.24
			9.99966							
10	S 2 1/2° E	6	0.77815						1128.74	948.11
			8.59395							
			9.37210			0.24				
			2.48962	308.76					+ 308.76	- 12.13
			9.99966							
11	N 2 1/2° W	309	2.48996						1437.00	935.98
			8.59395							
			1.08391				12.13			
			TOTALS	617.59	76.98	248.41	182.47		896.39	870.04
				26.98		182.47			+ 540.61	+ 65.94
				540.61		65.94			1437.00	935.98

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 11a and 11b 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 11a and 11b, 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	53	14th
(10) <u>North</u>	<u>346</u>	<u>15th</u>
(11) N 52° W	34	
(12) N 82° W	93	
(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 the beginning, containing		

UNIVERSITY OF MARYLAND
COLLEGE OF ENGINEERING

SURVEYING

SHEET 1 OF 1
FILE NO.

Computation of coordinates or area.

Traverse or boundary of PARCEL 5, JOHN DAVIS TO GEORGE CALVERT, LIB. AB 2-Fol. 211.

Computation by MAP Date _____ Checked by MAP Date _____

LINE	AZIMUTH OR BEARING	DISTANCE FATHOMS	LOG LAT			LATITUDE		DEPARTURE		DMD	COORDINATES				CUMULATIVE INTEGRATION
			LOG COS AZ	LOG DIST	LOG SIN AZ	N+	S-	E+	W-		N+, S-	E+, W-	OR AREA		
			LOG DEP	BY COMPUTING MACHINE											
1	N 3° 45' N	305	0.99786			304.35									
			0.06540						19.95						
2	S 8° W	41	0.99027			40.60									
			0.13917						5.71						
3	N 23½° W	31	0.91706			28.43									
			0.39875						12.36						
4	S 2½° E	309	0.99905			308.71									
			0.04362						13.48						
			TOTALS			332.78	349.31	13.48	38.02						
						332.78			13.48						
5	UP BY, & WITH BRANCH TO BEGINNING	DIFFS.				16.53			24.54						

LENGTH OF CLOSING SIDE = $\sqrt{(16.53)^2 + (24.54)^2} = 29.59$
 TANGENT OF BEARING ANGLE = 1.48457
 BEARING = N 56° E

UNIVERSITY OF MARYLAND
COLLEGE OF ENGINEERING

SUMMARY

SUB 7
FILE NO.

Computation of coordinates or area.

Traverse or boundary of PARCEL 4, JOHN DAVIS TO GEORGE CALVERT, LIB AB 2-FOL 211.

Computation by MAP Date _____ Checked by MAP Date _____

L I N E	AZIMUTH OR BEARING	DIST ANCE PARCES	LOG LAT	LOG COS AZ	LATITUDE N+ S-	DEPARTURE	DMD	COORDINATES N+, S-, E+, W- OF AREA
			LOG DIST	LOG SIN AZ		E+ W-		
			LOG DEP					
BY COMPUTING MACHINE								
1	S 81° 15' W	41	0.98965		40.58			
			0.14349			5.88		
2	N 23° 45' W	32.0	0.91531		29.79			
			0.40275			12.89		
TOTALS					29.79	40.58	0.00	18.77
					29.79		0.00	
3	STRAIGHT LINE TO BEGINNING	DIFFS			10.79		18.77	
<p>LENGTH OF CLOSING COURSE = $\sqrt{(10.79)^2 + (18.77)^2} = 21.40$ PARCES.</p> <p>TANGENT OF BEARING OF CLOSING COURSE = $18.77 \div 10.79 = 1.87410$</p> <p>BEARING = " " = N 60° 15' E</p>								

STRAIGHT LINE TO BEGINNING.

BEGINNING.
STONE NEAR PAINT BRANCH

JOHN DAVIS TO RICHARD ROSS
OCT. 22, 1814, 1RM 16-230
2 ACRES, 26 PERCHES
SCALE 1" = 40 PERCHES

3RD. DESCRIPTION
L. 1RM 16-F, 230
SAME AS
3RD. DESCRIPTION
L. AB 11-F, 211.

4TH DESCRIPTION
AB 2-211.

32°30'E, 309 WITH 15TH, "U.N." TO PAINT BRANCH.

N 32°15'W, 305 WITH 3RD LINE "RED HOUSE" TO END OF T9 ON 6TH "GODFATHERS GIFT."

DR. BY 5 WITH
BRANCH TO
BEGINNING
N 56°00'E
29.50

BEGIN AT END OF 28 A ON
3RD LINE OF "RED HOUSE"

300 acres."

The tract of "Jackson's Necessity" antedates 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 $N 2 1/2^\circ$ 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 $S 66 1/2^\circ E$, 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,

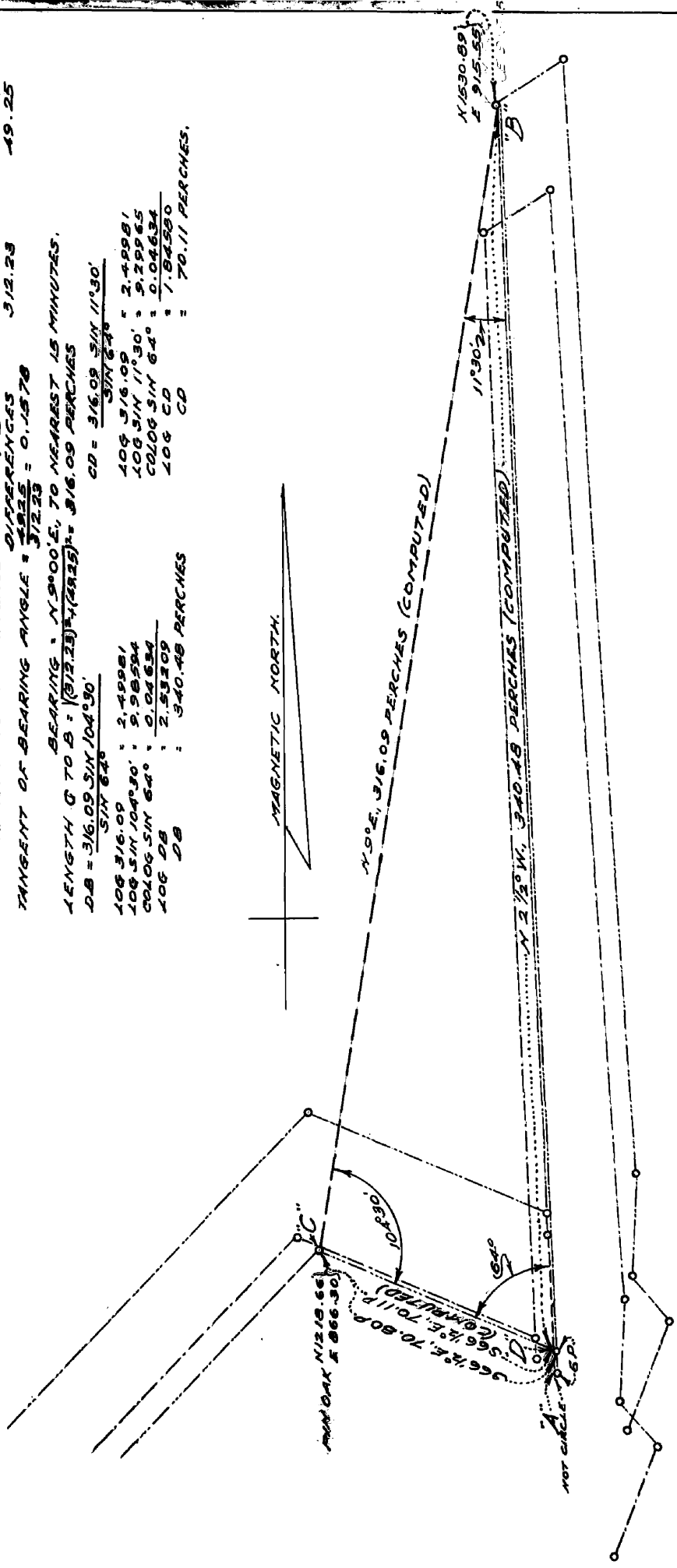
PIN OAK (CORRECTED FORWARD POSITION) C
 W. END LINE IS A (C-MAG. REVERSE POSITION) B
 DIFFERENCES
 TANGENT OF BEARING ANGLE = $\frac{316.09}{312.23} = 0.1578$

BEARING = N. 9° 00' E. TO NEAREST 15 MINUTES.
 LENGTH C TO B = $(312.23) \tan(15.78^\circ) = 816.09$ PERCHES

DB = $\frac{316.09 \sin 104^\circ 30'}{\sin 64^\circ}$

$\frac{106 \sin 104^\circ 30'}{\sin 64^\circ} = 2.49981$
 $\frac{106 \sin 104^\circ 30'}{\sin 64^\circ} = 9.98594$
 $\frac{106 \sin 104^\circ 30'}{\sin 64^\circ} = 0.04634$
 $\frac{106 \sin 104^\circ 30'}{\sin 64^\circ} = 2.53209$
 DB = 340.48 PERCHES

CD = $\frac{316.09 \sin 11^\circ 30'}{\sin 64^\circ}$
 $\frac{106 \sin 11^\circ 30'}{\sin 64^\circ} = 2.49981$
 $\frac{106 \sin 11^\circ 30'}{\sin 64^\circ} = 9.98594$
 $\frac{106 \sin 11^\circ 30'}{\sin 64^\circ} = 0.04634$
 $\frac{106 \sin 11^\circ 30'}{\sin 64^\circ} = 2.53209$
 CD = 70.11 PERCHES



D IS AT THE INTERSECTION OF AND THE PROLONGATION OF THROUGH "B", NOT THE CIRCLE.
 A IS 6 PERCHES EAST D ON THE PROLONGATION OF THROUGH "B", NOT THE CIRCLE.
 A TO B 340.48 ± 6 = 346.48 PERCHES.
 THE "15TH LINE OF JACKSON'S NECESSITY" WAS, ACCORDING TO LIBER BB 1-FOLIO 592, 346 PERCHES

MAP SHOWING
 ELEMENTS USED
 TO
 COMPUTE A CHECK ON
 THE 15TH LINE OF JACKSON'S NECESSITY
 SCALE 1" = 40 PERCHES PLOTTED - FEB. 12, 1937
 M.A. Pyle.

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

From the above computation, I can now see the reason 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

UNIVERSITY OF MARYLAND
COLLEGE OF ENGINEERING

SURVEYING

SHEET 1 OF 1
FILE NO.

Computation of coordinates or area.

Traverse on boundary of LINE DIFFERENCES REDUCED TO LATITUDE & DEPARTURE SEE PAGE 23

Computation by MAP Date _____ Checked by MAP Date _____

L I N E	AZIMUTH OR BEARING	DIST ANCE PERCHES	LOG LAT	LATITUDE	DEPARTURE	DMD	COORDINATES N+ S- E+ W- OF AREA
			LOG COS AZ LOG DIST LOG SIN AZ LOG DEP				
			9.43955	0.27			
			9.60070				
1	56 1/2° E	0.69	9.83885				
			9.96240				
			9.80125		0.63		
			9.68072	0.48			
			9.99958				
2	N 2 1/2° W	0.48	9.68124				
			8.63968				
			8.32092		0.02		
			TOTALS	0.48	0.27	0.63	0.02
				0.27	0.02		
			DIFFERENCES	0.21	0.61		

TOTAL LENGTH OF CALVERTS-M.A.C. AS NOW CORRECTED USING
COURSE 9 AT 70.8 PERCHES AND COURSE 11 AT 34.6 PERCHES
IS 1802.27 PERCHES

LENGTH OF THIS ERROR OF CLOSURE = $\sqrt{(0.21)^2 + (0.61)^2} = 0.64$ PERCHES
THE RELATIVE PRECISION WILL THEN BE

$$\frac{0.64}{1802.27} = \frac{1}{2800}$$

UNIVERSITY OF MARYLAND
COLLEGE OF ENGINEERING

SURVEYING

SHEET 1 OF 1
FILE NO.

Computation of coordinates or area.

Traverse or boundary of GILBERTS TO MAC, LIB. CSM. 2-FOL. 294, AS NOW CORRECTED.Computation by MAR Date _____ Checked by MAR Date _____

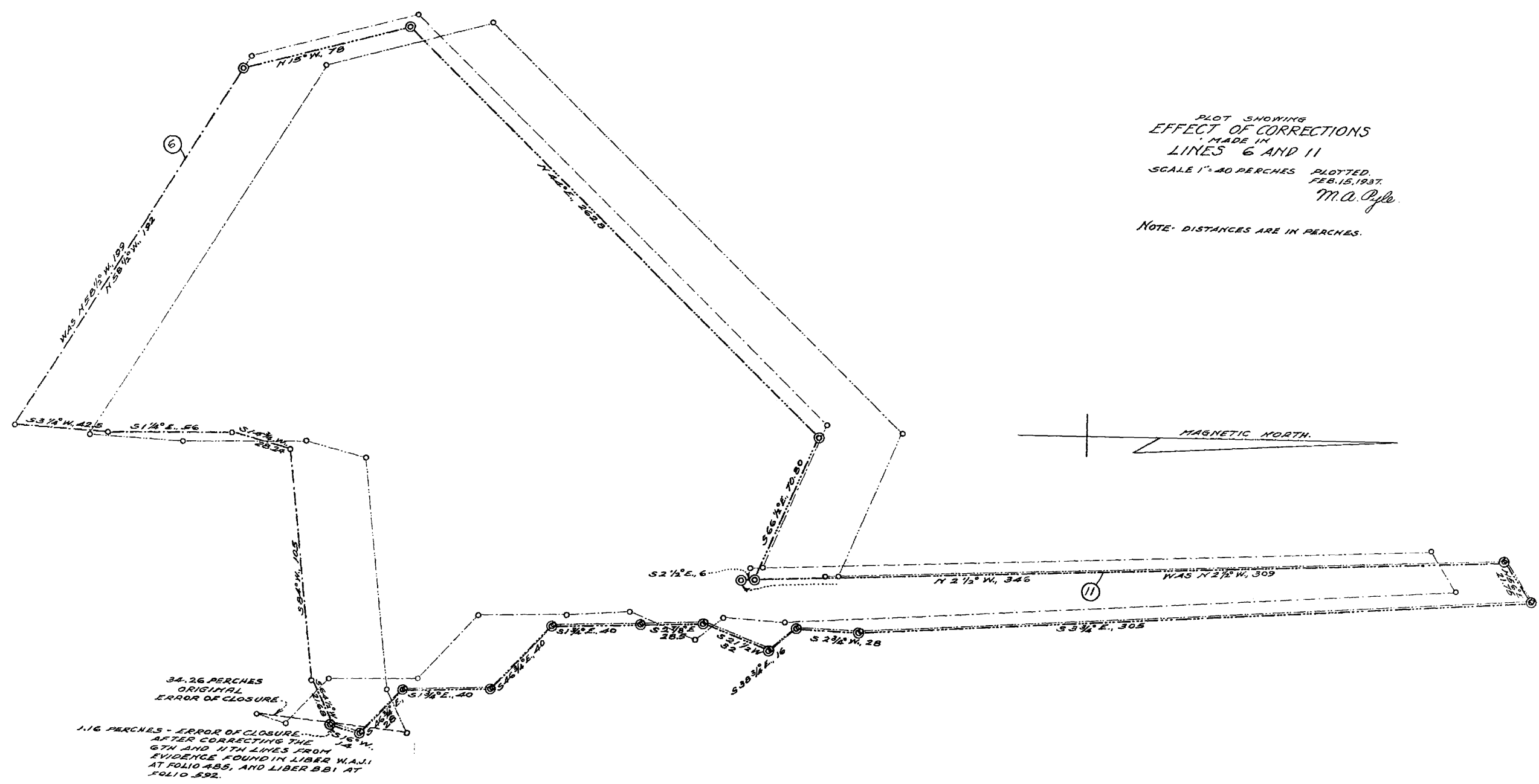
L I N E	AZIMUTH OR BEARING	DIST ANCE	LOG LAT			LATITUDE		DEPARTURE		DMD	COORDINATES		C L S
			LOG COS AZ	LOG DIST	LOG SIN AZ	N+	S-	E+	W-		N+, S-	E+, W-	
PERCHES			LOG DEP										
1	56 1/2° W.	21.68				9.33		19.57		PT. OF BEG	1000.00	1000.00	
											990.67	980.43	
2	58 1/4° W.	10.5				10.98		10.442			979.69	876.01	
3	5 14 3/4° W.	28.24				27.31		7.19			952.38	868.82	
4	5 14° E	56				55.99	1.22				896.39	870.04	
5	5 3 1/2° W.	42.5				42.43		2.41			853.96	867.63	
6	N 58 1/2° W.	192 *				100.32		163.70			954.28	703.93	
7	N 15° W.	78				75.34		20.19			1029.62	683.74	
8	N 44° E	262.8				189.04		182.56			1218.66	866.30	
9	5 66 1/2° E	70.8				28.23	64.93				1196.43	931.23	
10	S 2 1/2° E	6.0				5.99	0.26				1184.44	931.49	
11	N 2 1/2° W.	346 *				345.66		15.09			1530.10	916.40	
12	N 56° E	21.25				12.16		18.03			1542.26	934.43	
13	S 3 3/4° E	30.5				304.35	19.95				1237.91	954.38	
14	S 2 3/4° W.	28				27.97		1.34			1209.94	953.04	
15	S 38 3/4° E	16				12.48	10.01				1197.46	963.05	
16	S 21 1/2° W.	32				29.77		11.73			1167.69	951.32	
17	S 27 1/8° E	28.5				28.46	1.43				1139.23	952.75	
18	S 1 3/4° E	40				39.98	1.22				1099.25	953.97	
19	S 46 3/4° E	40				27.41	29.13				1071.84	983.10	
20	S 1 3/4° E	40				39.98	1.22				1031.86	984.32	
21	S 46 3/4° E	28				19.19	20.39				1012.67	1004.71	
22	S 16° W.	14				13.46		3.86			999.21	1000.85	
SUMS		1802.27				722.52	723.31	320.35	349.50		1000.00	1000.00	
							722.52	349.50			- 0.79	+ 0.85	
							0.79	0.85			999.21	1000.85	OK

LENGTH OF ERROR OF CLOSURE = $\sqrt{(0.79)^2 + (0.85)^2} = 1.16$ PERCHES.TRUNCATE OF BEARING ANGLE = $0.85 \div 0.79 = 1.077$ BEARING N 47° 15' W.

* COURSE CORRECTED BY EARLIER AND LATER EVIDENCE.

calls in earlier and later descriptions, I find that the error of closure has been reduced to a line running N 47 1/4° 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



PLOT SHOWING
 EFFECT OF CORRECTIONS
 MADE IN
 LINES 6 AND 11
 SCALE 1" = 40 PERCHES PLOTTED.
 FEB. 15, 1937.
 M.A. Pyle.

NOTE - DISTANCES ARE IN PERCHES.

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 $1/2^\circ$ and a change in length of 2.80 perches, while line #11 shows a change in direction of 2° . The

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

BEGINNING FOR THE OUTLINE EVERSFIELD'S NECESSITY, GODFATHER'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 $\frac{1}{2}$ FOR VARIATION N 1° E, 120 PCS; N $2\frac{1}{2}^{\circ}$ W, 226 PCS. TO A STONE; N $36\frac{1}{2}^{\circ}$ W, 17 $\frac{1}{2}$ PCS. TO A STONE; N $75\frac{1}{2}^{\circ}$ E, 22 PCS; N $16\frac{1}{2}^{\circ}$ E, 26 PCS; S $84\frac{1}{2}^{\circ}$ E, 44 PCS; N $17\frac{1}{2}^{\circ}$ E, 189 PCS. TO A BOUNDED WHITE OAK TREE; S $84\frac{1}{2}^{\circ}$ E, 20 PCS; S $17\frac{1}{2}^{\circ}$ W, 28 $\frac{1}{2}$ PCS; S $81\frac{1}{2}^{\circ}$ E, 93 PCS; S $51\frac{1}{2}^{\circ}$ E, 34 PCS. TO A STONE; S 1° W, 347 PCS; N 67° W, 68 PCS. TO AN OAK TREE BY THE SIDE OF A BRANCH; S 44° W, 138 PCS; S 46° W, 114 PCS. TO A STAKE NEAR THE COLLEGE GATE; S 69° W, 4 $\frac{1}{2}$ PCS; N $14\frac{1}{2}^{\circ}$ W, 2 PCS; N 60° E, 6 PCS; TO THE BEGINNING OF SMITH'S FOLLY; THEN WITH THE FIRST LINE OF SAID TRACT S $82\frac{1}{2}^{\circ}$ W, 1 $\frac{1}{2}$ PCS. TO THE BEGINNING, CONTAINING 567 $\frac{23}{160}$ 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 AN ALLOWANCE OF $\frac{1}{2}$ FOR VARIATION S $82\frac{1}{2}^{\circ}$ W, 44 PCS. TO A STONE ON THE NORTH SIDE OF THE ROAD AND AT THE ROOT OF A BLACK JACK OAK; N $71\frac{1}{2}^{\circ}$ W, 80 PCS; S $41\frac{1}{2}^{\circ}$ E, 142 PCS; S $69\frac{1}{2}^{\circ}$ E, 114 PCS; S $31\frac{1}{2}^{\circ}$ E, 50 PCS. TO A POPLAR TREE ON THE EDGE OF A BRANCH; S $89\frac{1}{2}^{\circ}$ E, 66 PCS; N $55\frac{1}{2}^{\circ}$ E, 66 $\frac{1}{2}$ PCS. TO A STONE (A WHITE CARVED STONE) STANDING IN A LINE OF DR. JOHNS. THEN N $58\frac{1}{2}^{\circ}$ W, 156 PCS. TO A STONE; N $14\frac{1}{2}^{\circ}$ W, 85 PCS; N 60° E, 6 PCS. TO THE BEGINNING, CONTAINING 170 ACRES OF LAND MORE OR LESS.

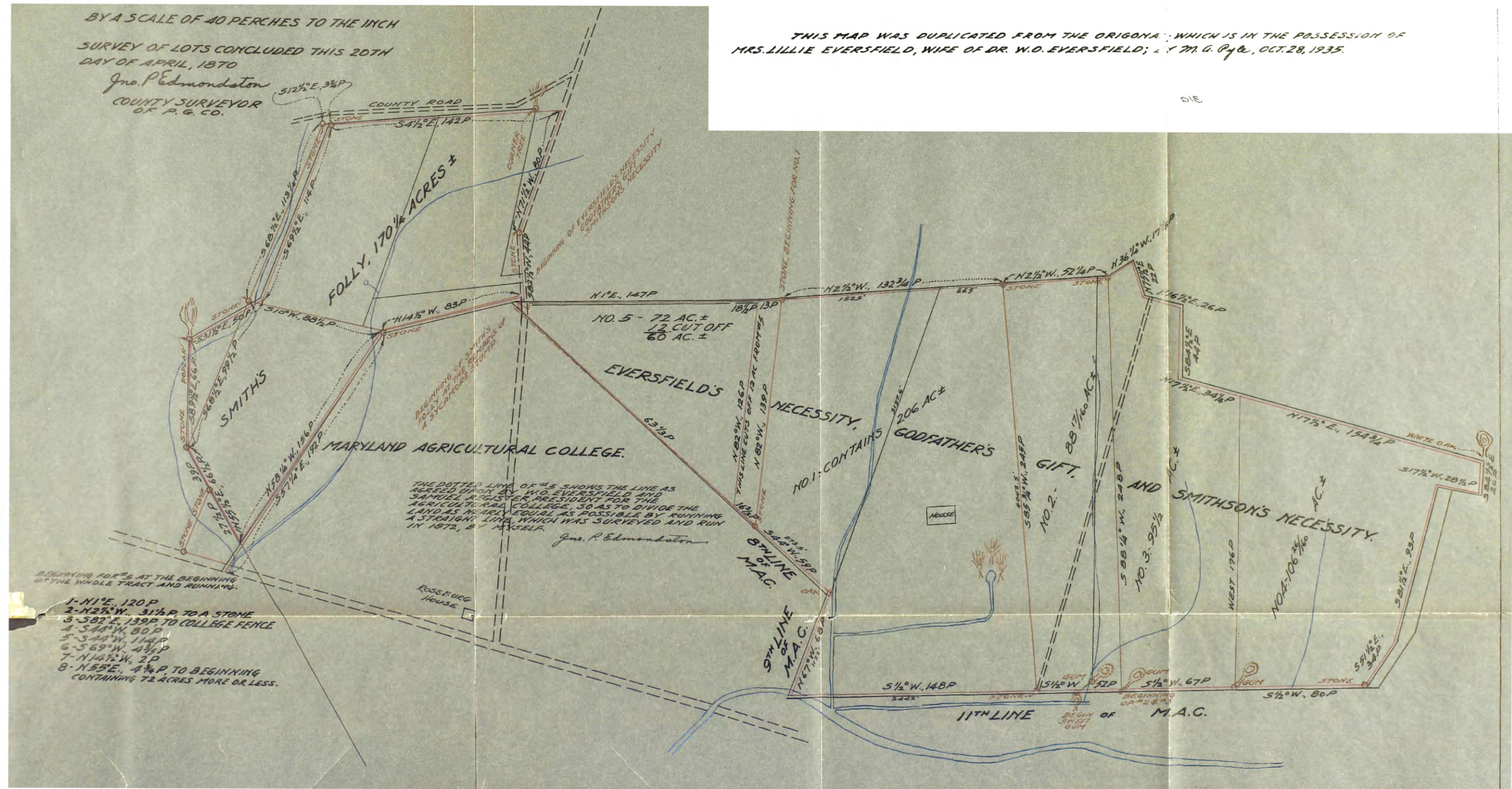
THIS MAP WAS DUPLICATED FROM THE ORIGINAL WHICH IS IN THE POSSESSION OF MRS. LILLIE EVERSFIELD, WIFE OF DR. W.D. EVERSFIELD; BY M. G. P. & Co., OCT. 28, 1935.

MERIDIAN LINE

BY A SCALE OF 40 PERCHES TO THE INCH

SURVEY OF LOTS CONCLUDED THIS 20TH DAY OF APRIL, 1870

Jno. P. Edmondston
COUNTY SURVEYOR
OF P. G. CO.



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

UNIVERSITY OF MARYLAND
COLLEGE OF ENGINEERING

SUMMARY

SHEET _____ OF _____
FILE NO. _____

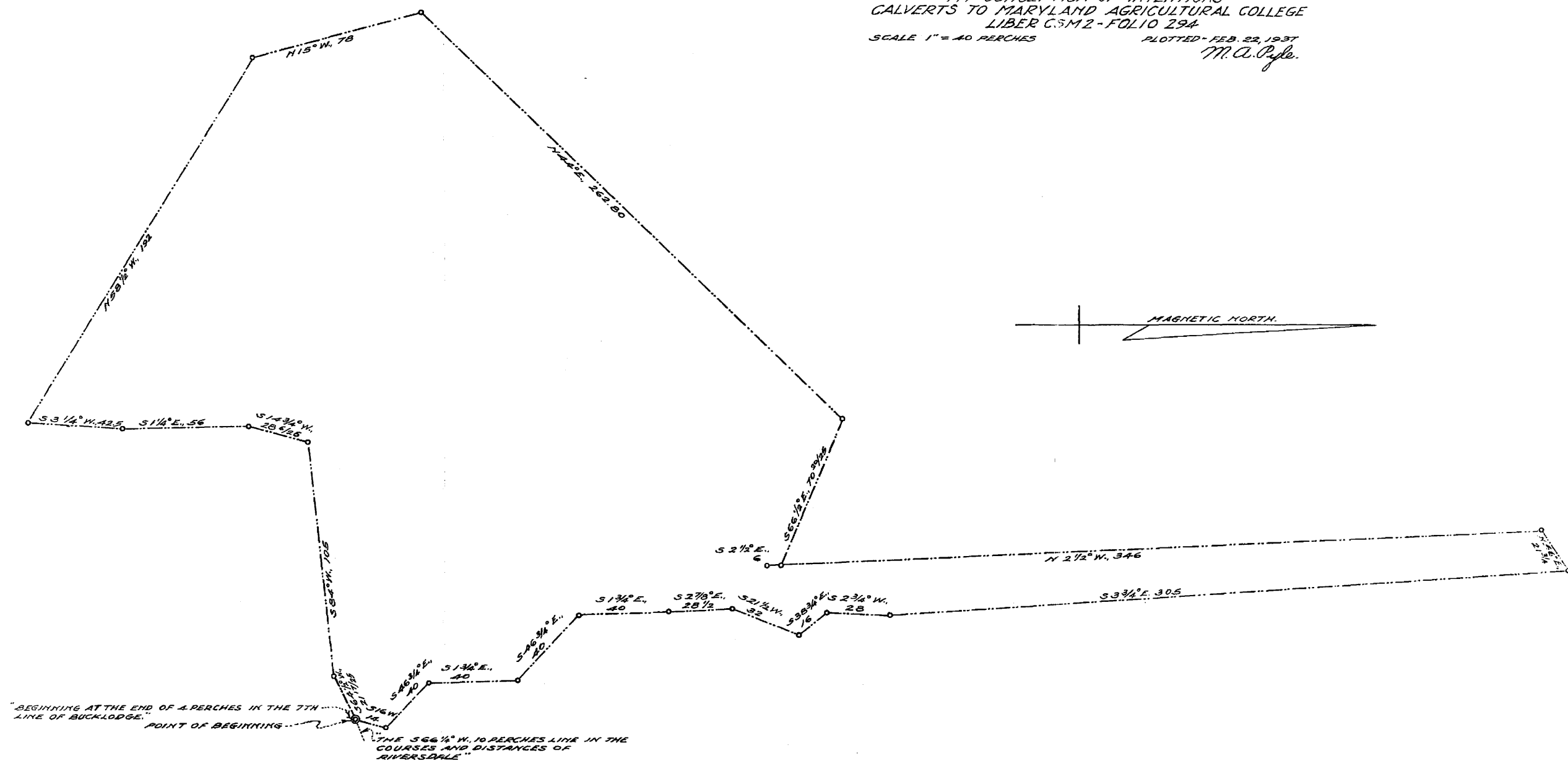
Computation of coordinates of area

Traverse or boundary of EFFECT OF COMPUTED DISTANCES ON CLOSING CALVERTS-M.A.C.

Computation by map Date _____ Checked by map Date _____

[illegible]

PLOT SHOWING
 MY CONCEPTION OF INTENTIONS
 CALVERTS TO MARYLAND AGRICULTURAL COLLEGE
 LIBER C.5M2 - FOLIO 294
 SCALE 1" = 40 PERCHES
 PLOTTED - FEB. 22, 1937
 M.A. Pyle.



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 indefiniteness 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

UNIVERSITY OF MARYLAND
COLLEGE OF ENGINEERING

Computation of coordinates or area

Traverse or boundary of CHECK ON PARTING LINES OF DR. JOHNS TRACT.

Computation by

Date

Checked by

Date

THESE LINES ARE SUPPOSEDLY THE EXISTING SOUTH BOUNDARY OF U.D.E.M.

L I N E	AZIMUTH OR BEARING	DIST ANCE PERCHES	LOG LAT LOG COS AZ LOG SIN AZ LOG DEP	COORDINATES			
				LATITUDE		DEPARTURE	
				N+	S-	E+	W-
				or AREA			

COMPUTATION FOR POSITION OF DR. JOHNS CORNERS LYING ON CALVERTS-MAC. COURSE 3 AND ON COURSE 7.

ON COURSE 3	1.00080	10.02	SEND COURSE 3	952.38	868.82
N 14 3/4° E 10.36	9.98544		+ 10.02 + 2.64		
	1.01536		DR. JOHNS PT. ON LINE	962.40	871.46
	9.40586				
	0.42122		2.64		
ON COURSE 7	1.30633	20.24	SEND COURSE 7	954.28	703.93
N 15° W 20.96	9.98494		+ 20.24 - 5.42		
	1.32139		DR. JOHNS PT. ON LINE	974.52	698.51
	9.41299				
	0.73438		5.42		

THE PARTING LINES OF DR. JOHNS TRACT SHOULD RUN BETWEEN THESE POINTS.
THE CLOSING LINE BETWEEN THESE POINTS IS AS FOLLOWS

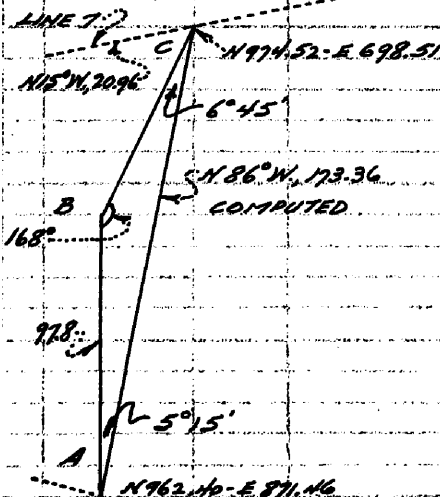
POINT OF LINE 3	962.40	871.46
" " " 7	974.52	698.51
DIFFERENCE	12.12	172.94

THE LENGTH WILL BE = $\sqrt{(12.12)^2 + (172.94)^2} = 173.36$ PERCHES

TANGENT OF BEARING ANGLE = $172.94 \div 12.12 = 14.27$

BEARING (NEAREST 1/4) = N 86° W.

CALVERTS-MAC.



DEED DIRECTION AB = WEST

" " BC = N 78° W.

DEFLECTION ANGLE = 12° R, $180^\circ - 12^\circ = 168^\circ = \angle ABC$.

ASSUMPTION WILL BE MADE THAT 97.8 IS CORRECT AS GIVEN IN DEED.

FIND $\angle ACB$

$$\frac{\sin ACB}{97.8} = \frac{\sin 168^\circ}{173.36}$$

$$\log \sin 168^\circ = 9.31788$$

$$\log 97.8 = 1.99034$$

$$\log 173.36 = 2.23895$$

$$\log \sin ACB = 9.06927$$

$$ACB = 6^\circ 45' \text{ TO NEAREST } 1/4$$

$$\angle ABC = +168^\circ 00'$$

$$174^\circ 45', 180 - 174^\circ 45' = 5^\circ 15' = \angle BAC.$$

FIND SIDE BC

$$\frac{BC}{\sin 5^\circ 15'} = \frac{173.36}{\sin 168^\circ}$$

$$\log 173.36 = 2.23895$$

$$\log \sin 5^\circ 15' = 8.96143$$

$$\log \sin 168^\circ = 0.68212$$

$$\log BC = 1.88250$$

$$BC = 76.30$$

$$\frac{BC}{\sin 5^\circ 15'} = \frac{97.8}{\sin 6^\circ 45'}$$

$$\log 97.8 = 1.99034$$

$$\log \sin 5^\circ 15' = 8.96143$$

$$\log \sin 6^\circ 45' = 0.93073$$

$$\log BC = 1.88250$$

$$BC = 76.30$$

BC AS GIVEN IN DEED DESCRIPTION IS 75.92, THE DIFFERENCE IS 0.38 PERCH (2.97'), WHICH IS PROBABLY AS CLOSE AS THE POINTS WERE ORIGINALLY SET.

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

UNIVERSITY OF MARYLAND

SCHOOL OF ENGINEERING

Computation of coordinates of area

Traverse or boundary of BERRY TRACT FITTED TO COMBINED 130 & 140 LINES, CALVERTS-MAL.Computation by MAP Date _____ Checked by MAP Date _____THE DIRECTION OF LINE MENTIONED ABOVE IS FOUND TO BE $53\frac{1}{4}^{\circ}$ E. BERRY ANGLES CONSTANT.

L I N E	AZIMUTH OR BEARING	DIST ANCE	LOG LAT		LOG COS AZ		LATITUDE		LONGITUDE		COORDINATES	
			LOG COS AZ	LOG DIST	LOG SIN AZ	LOG DEP	N+	S-	E+	W-	N+	S-
1	N $23\frac{1}{2}^{\circ}$ W	334					333.62		16.02		1200.55	934.09
											+ 333.62	- 16.02
											1534.17	918.07
											+ 993	+ 13.80
2	N $54\frac{1}{4}^{\circ}$ E	17					9.92		13.80		1544.10	931.87
											- 332.46	+ 18.88
										END	1211.64	950.75
3	S $53\frac{1}{4}^{\circ}$ E	333					332.46	18.88		BEGIN	1210.73	952.19
											- 13.83	- 11.87
4	S $41\frac{1}{4}^{\circ}$ E	18					13.53	11.87			1197.70	964.06
											- 7.40	- 3.03
5	S $22\frac{1}{4}^{\circ}$ W	8					7.40		3.03		1189.80	961.03
											+ 10.75	- 26.94
6	N $68\frac{1}{4}^{\circ}$ W	29					10.75		26.94		1200.55	934.09
TOTALS							354.30	353.39	44.55	45.99		
							253.39			44.55		
							0.91			1.44		

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 $3\frac{3}{4}^{\circ}$ 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 $2\frac{3}{4}^{\circ}$ 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 $3^{\circ}45'$ 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 $2\frac{3}{4}^{\circ}$ W, or (2) N $3\frac{3}{4}^{\circ}$ 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 $3\frac{3}{4}^{\circ}$ 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

UNIVERSITY OF MARYLAND
COLLEGE OF ENGINEERING

CLASS NO.

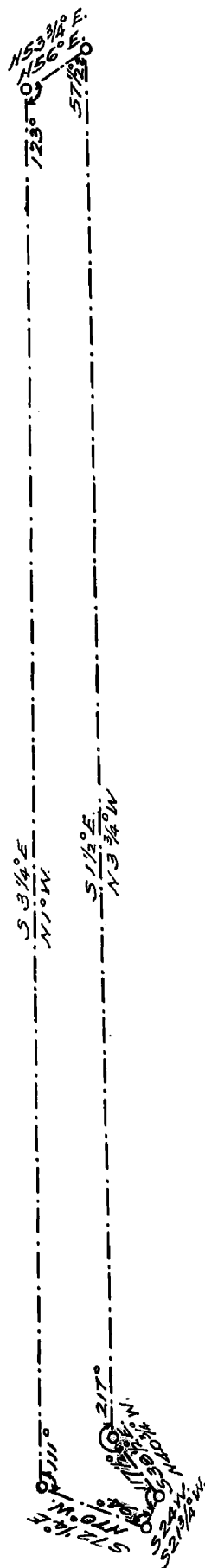
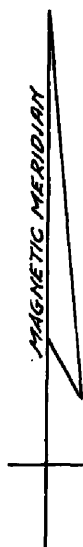
SUBJECT OF
FILE NO.

Computation of coordinates or area

Traverse or boundary of Perry Tract Based on His 3rd Line Running N 33 1/2° W (53 3/4° E)

Computation by map Date _____ Checked by map Date _____

LINE	AZIMUTH OR BEARING	DISTANCE PERCHES	LOG LAT	LATITUDE		DEPARTURE		DMD	COORDINATES		CONTINENT
			LOG COS AZ	N+	S-	E+	W-		N+, S- E+, W- OR AREA		
			7.57304	333.44					1194.54	935.63	
1	N 31 1/4° W	334	9.99930						+ 333.44	- 18.93	
			2.52374						1532.98	916.70	
			8.75353					18.93			
			1.77727								
			1.00226	10.05					+ 10.05	+ 13.71	
			9.72181								
2	N 53 3/4° E	17	1.23045						1543.03	930.41	
			9.90657								
			1.13707			1371					
			7.57151	332.30					+ 332.30	- 18.93	
			7.99907								
3	S 33 1/4° E	333	2.52244						1210.23	952.19	
			8.81560								
			1.33804			21.78					
			1.73469	1364					- 13.64	+ 11.75	
			9.87942								
4	S 40 3/4° E	18	1.25527						1497.99	963.94	
			9.81475								
			1.07007			11.75					
			0.87101	743					- 7.43	- 2.96	
			9.96792								
5	S 21 3/4° W	8	0.90309						1189.66	960.98	
			9.56885								
			0.47194			2.96					
			0.94650	884					+ 8.84	- 22.62	
			9.48410								
6	N 72 1/4° W	79	1.46240						1198.50	933.36	
			9.97881								
			1.44121			27.62					
				352.33	353.37	47.24	49.51		1198.50	933.36	
					352.33		47.24		1198.54	935.63	
				1.04		22.7			1.04	2.27	

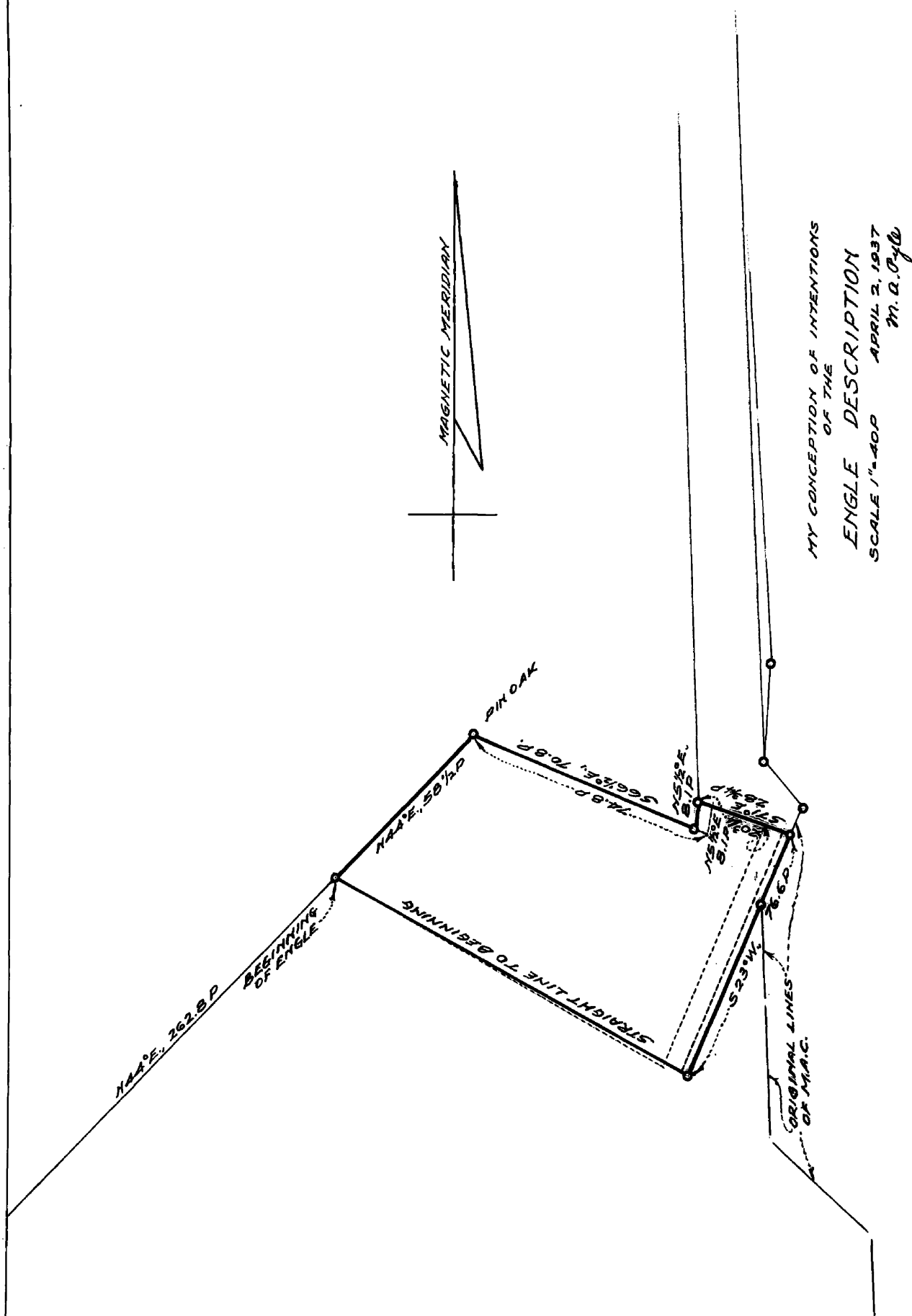


DIRECTIONS OF
BERRY TRACT
ADJUSTED TO 3RD LINE
RUNNING N 3 3/4° W.
SCALE 1"=400' APRIL 2, 1937.
M. O. Fox

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, calls 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.



Before proceeding further I recognize that the 3rd 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

UNIVERSITY OF MARYLAND
COLLEGE OF ENGINEERING

SUBMITTING

SHEET NO. 1
FILE NO.

Computation of coordinates or area.

Traverse or boundary of EFFECT OF ENIGLES 3RD & 4TH LINES ON CALVERTS-M.A.C. CLOSURE.

Computation by MAP Date _____ Checked by MAP Date _____

THIS IS CALVERTS-M.A.C. EXCLUSIVE OF THE BERRY TRACT.

LINE	AZIMUTH OR BEARING	DISTANCE	LOG LAT LOG COS AZ LOG DIST LOG SIN AZ LOG DEP	LATITUDE		DEPARTURE		DMD	COORDINATES		AREA
				N+	S-	E+	W-		N+, S-	E+, W-	
1	56 1/2° N	21.68		9.33		19.57					
2	38 1/4° N	10.5		10.98		104.42					
3	5 1/2° N	28.24		27.31		7.19					
4	S 11 1/4° E	56		55.99		1.22					
5	S 3 1/4° N	12.5		12.43		2.41					
6	N 58 1/2° W	19.2		100.32		163.70					
7	N 15° W	78		75.34		20.19					
8	N 44° E	262.8		189.04		182.56					
9	S 66 1/2° E	70.8		28.23		64.93					
10	N 5 1/2° E	8.1		8.06		0.78					
11	S 71° E	28.75		9.36		27.18					
12	S 21 1/2° W	24	PART OF LINE 16	22.33		8.80	8.80				
13	S 27 3/8° E	28.5		28.46		1.43					
14	S 13 1/4° E	40		39.98		1.22					
15	S 46 3/4° E	40		27.41		29.13					
16	S 13 1/4° E	40		39.98		1.22					
17	S 46 3/4° E	28		19.19		20.39					
18	S 16° W	14		13.46		3.86					
TOTALS				372.76	374.44	330.06	330.14				
				372.76			330.06				
				1.68			0.08				

$$\text{LENGTH OF ERROR OF CLOSURE} = \sqrt{(1.68)^2 + (0.08)^2} = 1.68 +$$

$$\text{TRUNCATE OF BEARING ANGLE} = 0.08 \div 1.68 = 0.0477$$

$$\text{BEARING (NEAREST 1/4°)} = N 2° 45' E$$

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

UNIVERSITY OF MARYLAND
COLLEGE OF ENGINEERING

SURVEYING

DATE 11/11/11
FILE NO.

Computation of coordinates or area.

Traverse or boundary of *DISPOSITION OF ERROR OF CLOSURE, SEE PAGE*

Computation by *MAP* Date _____ Checked by *MAP* Date _____

L I N E B E A R I N G	D I S T A N C E P E R C H E S	L O G C O S A Z L O G D I S T L O G S I N A Z L O G D E P	L A T I T U D E		D E P A T U R E		C O O R D I N A T E S N + S - E + W -
			N	S	N	W	
E3 N 5 1/2° E	8.1		8.06		0.78		
ERROR OF CLOSURE			+ 1.68		+ 0.08		
LAT. & DEP. OF CORRECTED LINE			9.74		0.86		
LENGTH OF CORRECTED LINE $\sqrt{(9.74)^2 + (0.86)^2} = 9.78$ PERCHES							
TANGENT OF BEARING ANGLE = $0.86 \div 9.74 = 0.08829$							
BEARING N 5° E (TO NEAREST 1/4°)							
THE CORRECTED LINE IS THEN							
E3 N 5° E	9.78		9.74		0.86		

UNIVERSITY OF MARYLAND
COLLEGE OF ENGINEERING

SURVEYING

SHEET 1 OF 1
FILE NO. _____

Computation of coordinates or area.

Traverse or boundary of *FINAL CORRECTED & ADJUSTED COURSES & DISTANCES**

Computation by *MAP* Date _____ Checked by *MAP* Date _____

* EXCLUSIVE OF THE BERRY TRACT.

LINE	AZIMUTH OR BEARING	DISTANCE	LOG LAT		LOG COS AZ		LATITUDE		DEPARTURE		LMD	COORDINATES	
			LOG DIST	LOG SIN AZ	LOG DEP	N+	S-	E+	W-	N+	S-	E+	W-
1	S 84 1/2° W	21.68					9.33		19.57			1000.00	1000.00
2	S 84° W	105					10.98		104.42			990.67	980.43
3	S 14 3/4° W	28.24					27.31		7.19			929.69	876.01
4	S 1 1/8° E	56					55.99	1.22				952.38	868.82
5	S 3 1/4° W	42.5					42.43		2.41			896.39	870.04
6	N 58 1/2° W	192	0			100.32			163.70			853.96	867.63
7	N 15° W	78				75.34			20.19			954.28	703.93
8	N 44° E	262.8				189.04		182.56				1029.62	683.74
9	S 66 1/2° E	70.8					28.23	64.93				1218.66	866.30
E3	N 5° E	9.78	* ANGLE LINE 3			9.74		0.86				1190.43	931.23
E4	S 71° E	28.75	* ANGLE LINE 4				9.36	27.18				1200.17	932.09
16P	S 21 1/2° W	24	PART OF LINE 16 CAL. MAG.			22.33		8.80				1190.81	959.27
17	S 27 1/8° E	28.5					28.46	1.43				1168.48	950.47
18	S 13 1/4° E	40					39.98	1.22				1140.02	951.90
19	S 46 3/4° E	40					27.41	29.13				1100.04	953.12
20	S 1 3/4° E	40					39.98	1.22				1072.63	982.25
21	S 46 3/4° E	28					19.19	20.39				1032.65	983.47
22	S 16° W	14					13.46		3.86			1013.46	1003.86
						374.44	374.44	330.14	330.14			1000.00	1000.00
						374.44			330.14				
						0.00			0.00				

* CORRECTED COURSE, SEE LIBER W.A.J. 1 - FOLIO 485, PAGE

* ADJUSTED COURSE, SEE PAGE 360

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 OF MARYLAND
COLLEGE OF ENGINEERING

SURVEILLING

FILE NO. 115

Computation of coordinates or area.

Traverse or boundary of ADJUSTMENT OF BERRY TRACT TO ENGLE LINE 3.

Computation by M.P. Date _____ Checked by M.P. Page _____

LINE	AZIMUTH OR BEARING	DISTANCE PERCHES	LOG LAT	LATITUDE		DEPARTURE		COORDINATES N+, S-, E+, W- OR AREA	
			LOG COS AZ	N+	S-	E+	W-		
			LOG DIST						
			LOG SIN AZ						
			LOG DEF						
			7.52347	333.80					
			9.99973						
1	N 2° W	334	2.52374						
			8.54282						
			1.06656			11.66			
			0.98904	9.75					
			9.75859						
2	N 55° E	17	1.23045						
			9.91336						
			1.14381			13.93			
			7.52202	332.67					
			9.99958						
3	S 2 1/2° E	333	2.52244						
			8.63968						
			1.16712			14.53			
			1.14267	13.89					
			9.88740						
4	S 39 1/2° E	18	1.25527						
			9.80351						
			1.05878			11.45			
			0.86211	7.36					
			9.96402						
5	S 23° W	8	0.90309						
			9.59188						
			0.49497			3.13			
6	N 71° W	28.75		9.36		27.18			
TOTALS			352.91	353.92	39.91	41.97			
				352.91		39.91			
DIFFERENCES				1.01		2.06			

LENGTH OF ERROR OF CLOSURE = $\sqrt{(1.01)^2 + (2.06)^2} = 2.29$ PERCHES.

TANGENT OF BEARING ANGLE = $2.06 \div 1.01 = 2.03960$

BEARING = N 63 1/8° E (NEAREST 1/8°)

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 $70 \frac{4}{5}$ 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 $60 \frac{3}{4}^{\circ}$ W, 118.71 perches.

DISCUSSION OF CLOSURES AND PLACEMENTS

From the descriptions and computations that have preceded, the procedure 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

UNIVERSITY OF MARYLAND

SURVEYING

SHEET NO. 10

COLLEGE OF ENGINEERING

FILE NO.

Computation of coordinates or area.

Traverse or boundary of DISPOSITION OF BERRY ERROR OF CLOSURE, 5th PAGE.

Computation by THAP Date Checked by THAP Date

L	1	AZIMUTH OR BEARING	DIST ANCE	LOG LAT LOG COS AZ LOG DIST LOG SIN AZ LOG DEP	LATITUDE		DEPARTURE		LMD	COORDINATES N+ S- E+ W- OR AREA				F C L N T
					N+	S-	E+	W-						
	2	N 55° E	17		9.75		13.93							
		ERROR OF CLOSURE			1.01		2.06							
		LAT. & DEP. OF CORRECTED LINE			10.76		15.98							
		LENGTH OF CORRECTED LINE = $\sqrt{(10.76)^2 + (15.98)^2} = 19.26$ PERCHES												
		TANGENT OF BEARING ANGLE = $15.98 \div 10.76 = 1.48513$												
		BEARING OF CORRECTED LINE = N 56° E (NEAREST 1/2°)												
		THE CORRECTED LINE IS THEN												
	2	N 56° E	19.26		10.76		15.98							

13416
10

UNIVERSITY OF MARYLAND
COLLEGE OF ENGINEERING

SURVEYING

DATE OF SURVEY
FILE NO.

Computation of coordinates or area,

Traverse or boundary of FINAL ADJUSTED POSITION OF BERRY TRAIL

Computation by MAP Date _____ Checked by MAP Date _____

LINE	AZIMUTH N OR S BEARING	DIST ANCE	LOG LAT	LATITUDE		DEPARTURE		DMD	COORDINATES		
			LOG COS AZ	N+	S-	N+	W-		N+	S-	E+
			LOG DIST								
			LOG SIN AZ								
			LOG DEP								
				N. END		ANGLE		3RD LINE, PAGE		1200.17	932.09
1	N 2° N	334		333.80		11.66			1533.97	920.43	
2	N 56° E	19.26		10.76		15.98			1544.73	936.42	
3	S 2 1/2° E	333		332.67		14.53			1212.06	950.95	
4	S 39 1/2° E	18		13.89		11.45			1198.17	962.40	
5	S 23° N	8		7.36		3.13			1190.81	959.77	
6	N 71° N	28.75		9.36		27.18			1200.17	932.09	OK
				353.92	353.92	41.97	41.97				
				353.92		41.97					
				0.00		0.00					

UNIVERSITY OF MARYLAND
COLLEGE OF ENGINEERING

SURVEYING

SHEET 1 OF 1
FILE NO.

Computation of coordinates or area.

Traverse or boundary of COMPUTATION FOR THE CLOSING LINE OF THE ENGLE TRACT.Computation by MAP Date _____ Checked by MAP Date _____

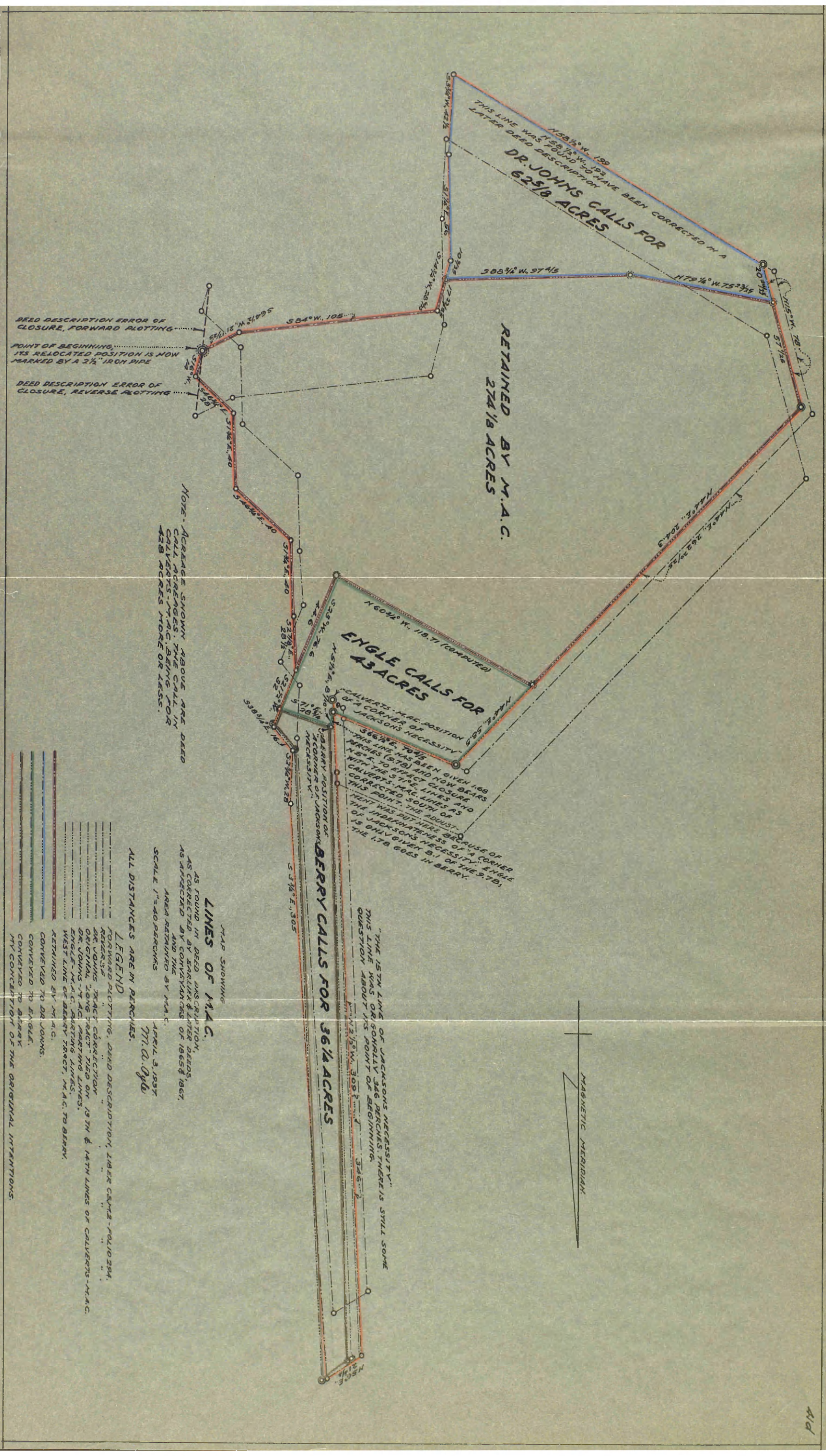
L	AZIMUTH N OR E BEARING	DIST ANCE	LOG LAT LOG COS AZ LOG SIN AZ LOG DEP	LATITUDE		DEPARTURE		DMD	COORDINATES	
				N+	S-	E+	W-		N+, S- E+, W-	OR AREA
1	N 44° E	58.5		42.08		40.64			1176.58	825.66
2	S 66½° E	70.8			28.23	64.93			1218.66	866.30
3	N 5½° E	8.1	* NOT ADJUSTED YET IN THIS TRACT.	8.06		0.78			1190.43	931.23
4	S 71° E	28.75			9.36	27.18			1198.43	932.01
5	S 23° W	76.6			70.51	29.93			1189.13	959.19
6	N 60¾° W	118.71		57.96		103.60			1118.62	929.26
				50.14	108.10	133.53	29.93		1176.58	825.66
					50.14	29.93				
				57.96		103.60				

$$\text{LENGTH OF LINE 6} = \sqrt{(57.96)^2 + (103.60)^2} = 118.71 \text{ PERCHES}$$

$$\text{TANGENT OF BEARING ANGLE, LINE 6} = 103.60 \div 57.96 = 1.788$$

$$\text{BEARING, LINE 6} = N 60^\circ 45' W \text{ (NEAREST } 14^\circ)$$

* THIS COURSE WILL NOT BE ADJUSTED HERE TO THE VALUE IT HAS IN THE
ADJUSTMENT OF CALVERTS - M.P.C. DUE TO THE FACT THAT THERE EXISTS
ON THE GROUND A COURSE OF THE SAME LENGTH AS THIS



THIS LINE WAS FOUND TO HAVE BEEN CORRECTED IN A LATER DEED DESCRIPTION
DR JOHNS CALLS FOR 62 5/8 ACRES

RETAINED BY M.A.C. 274 1/8 ACRES

ENGLE CALLS FOR 43 ACRES

BERRY CALLS FOR 36 1/4 ACRES

LINES OF M.A.C.

AS FOUND IN DEED DESCRIPTION, AS CORRECTED BY EARLIER & LATER DEEDS, AS ADJUSTED BY CONVEYANCES OF 1865 & 1867, AND THE AREA RETAINED BY M.A.C.
APRIL 3, 1897
M.A.C. Ogden

LEGEND

- FORWARD PLOTTING, DEED DESCRIPTION, LIBER 52, P. 284.
- REVERSE
- DR JOHNS TRACT CORRECTION
- ORIGINAL LONG TRACT, TIED ON 13TH & 14TH LINES OF CALVERTS-M.A.C.
- DR. JOHNS-T.A.C. TRACTING LINES.
- DR. JOHNS-T.A.C. TRACTING LINES.
- WEST LINE OF BERRY TRACT, M.A.C. TO BERRY.
- RETAINED BY M.A.C.
- CONVEYED TO DR. JOHNS.
- CONVEYED TO ENGLE.
- CONVEYED TO BERRY.
- MY CONCEPTION OF THE ORIGINAL INTENTIONS.

MAGNETIC MERIDIAN

"THE 15TH LINE OF JACKSONS NECESSITY" THIS LINE WAS ORIGINALLY 346 PERCHES. THERE IS STILL SOME QUESTION ABOUT ITS POINT OF BEGINNING.

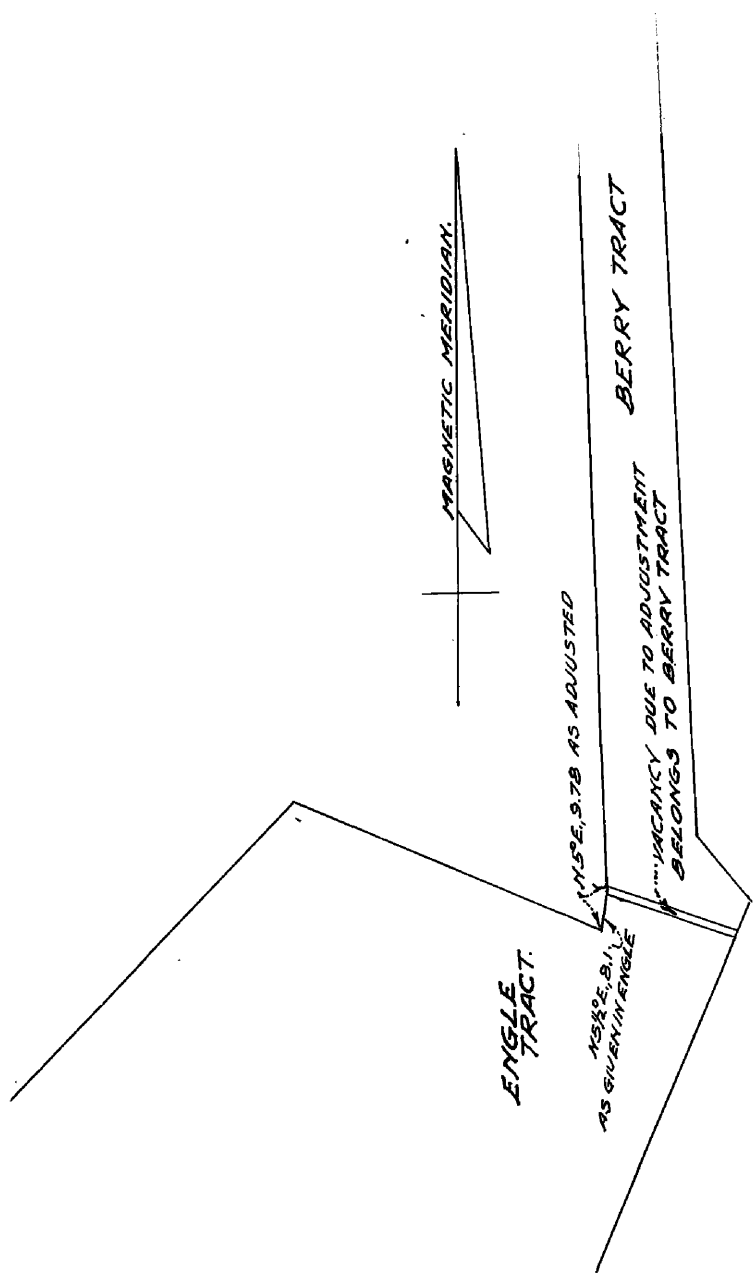
"CALVERTS-M.A.C. POSITION OF A CORNER OF JACKSONS NECESSITY" THIS LINE HAS BEEN GIVEN 168 PERCHES (S. 78) AND NOW BEARS N. 60° E. TO EFFECT CLOSURE WITH THE S. 78. LINES AND CORRECTED SOUTH AS THIS POINT. THE ADJUSTMENT WAS PUT HERE BECAUSE OF THE INDETERMINATE NECESSITY. ENGLE IS ONLY GIVEN 8.1 OF THE S. 78, THE 1.78 GOES IN BERRY.

DEED DESCRIPTION ERROR OF CLOSURE, FORWARD PLOTTING
POINT OF BEGINNING, ITS RELOCATED POSITION IS NOW MARKED BY A 2 1/2" IRON PIPE
DEED DESCRIPTION ERROR OF CLOSURE, REVERSE PLOTTING

NOTE-ACREAGE SHOWN ABOVE ARE DEED CALL ACREAGES. THE CALL IN CALVERTS-M.A.C. BEING FOR 428 ACRES MORE OR LESS.

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



MAP SHOWING
EFFECT OF ADJUSTMENT
IN
CALVERTS-MAC. EXCLUSIVE OF BERRY
SCALE 1"=400
APRIL 5, 1937
T.M. G. Dyck.

NOTE- THAT PLACING THE ADJUSTMENT IN THIS LINE, WHICH
WAS TO A VERY INDETERMINATE CORNER, ALLOWS ALL
LINES SOUTH OF THIS LOCATION TO REMAIN AT
THEIR ORIGINAL OR CORRECTED DEED CALLS.

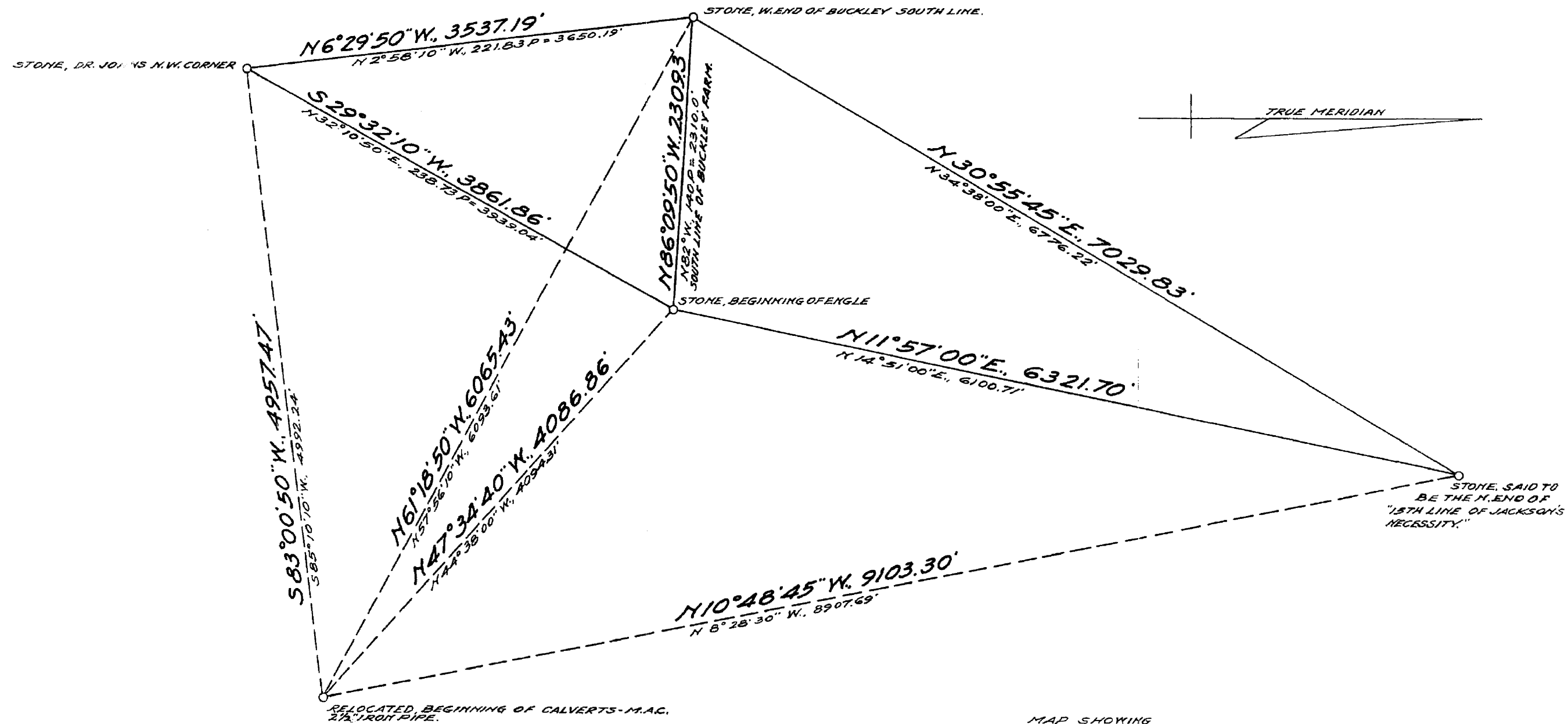
or as determined from corrections in later deeds. No vacancy was intended at this place. The Engle tract as it exists, on the ground today, has 8.1 perches in line 3. This would indicate that the vacancy belongs in the Berry tract.

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



MAP SHOWING
EXISTING POSITIONS OF OLDEST LANDMARKS
IN THIS VICINITY
AND
THEIR CORRESPONDING DISTANCES FROM DEED DESCRIPTION.
SCALE 1" = 800'

APRIL 5, 1937.
M. O. Pye

Computation of coordinates or area.

Traverse or boundary of COMPUTATION OF LINES BETWEEN OLD LANDMARKS.

Computation by _____ Date _____ Checked by _____ Date _____

		LOG LAT					COORDINATES	
1	AZIMUTH	DIST	LOG COS AZ	LATITUDE	DEPARTURE	DMD	N+, S-	E+, W-
N	OR	ANCE	LOG DIST	N+ S-	E+ W-			
E	BEARING		LOG SIN AZ				O F	A R E A
			LOG DEP				+	
THE SOUTH LINE OF BUCKLEY FARM							1196.06	687.02
STONE, WEST END							1176.58	825.66
STONE, E. END, BEG. OF ENGLE							19.48	138.64
DIFFERENCES								
LENGTH = $\sqrt{(19.48)^2 + (138.64)^2} = 140 \text{ PERCHES} = 2310.00'$								
TANGENT, BEARING ANGLE = $138.64 \div 19.48 =$								
BEARING = <u>N 82° W</u>								
THE SAME LINE ON MY CONTROL							N 86° 09' 50" W	
LENGTH = <u>2309.3'</u>							N 82°	W
DIRECTION = <u>N 86° 09' 50" W.</u>							CHANGE IN DIRECTION	4° 09' 50" \curvearrowright FROM
							N 82° W	
STONE, BEGINNING OF ENGLE							1176.58	825.66
STONE, N.W. CORNER, DR. JOHNS							974.52	698.51
DIFFERENCES							202.06	127.15
LENGTH = $\sqrt{(202.06)^2 + (127.15)^2} = 238.73 \text{ PERCHES} = 3939.04'$								
TANGENT, BEARING ANGLE = $127.15 \div 202.06 = 0.62926$, BEARING = <u>N 32° 10' 50" E</u>								
STONE, BEGINNING OF ENGLE							N 37° 03' 14" E	19318.80
STONE, N.W. CORNER, DR. JOHNS							N 33° 43' 16" E	17414.97
DIFFERENCE							3359.98	1903.83
LENGTH = $\sqrt{(3359.98)^2 + (1903.83)^2} = 3861.86'$								
TANGENT, BEARING ANGLE = $1903.83 \div 3359.98 = 0.56661$, BEARING = <u>N 29° 32' 10" E</u>								
STONE, W. END BUCKLEY SOUTH LINE							1196.06	687.02
STONE, N.W. CORNER DR. JOHNS							974.52	698.51
DIFFERENCES							221.54	11.49
LENGTH = $\sqrt{(221.54)^2 + (11.49)^2} = 221.83 \text{ PERCHES} = 3650.19'$								
TANGENT BEARING ANGLE = $11.49 \div 221.54 = 0.05186$, BEARING = <u>N 2° 58' 10" W</u>								
SAME LINE ON MY CONTROL								
LENGTH = <u>3587.19'</u>								
BEARING = <u>N 6° 29' 50" W.</u>								
BEGINNING CALVERTS - MAC. (IRON PIPE, 2 1/2")							1000.00	1000.00
NW COR. DR. JOHNS							974.52	698.51
DIFFERENCES							25.48	301.49
LENGTH = $\sqrt{(25.48)^2 + (301.49)^2} = 302.56 \text{ PERCHES} = 4992.24'$								
TANGENT, BEARING ANGLE = $301.49 \div 25.48 = 11.8324$, BEARING = <u>S 85° 10' 10" W.</u>								
SAME LINE ON MY CONTROL								
LENGTH <u>4957.47</u>								
BEARING <u>S 83° 00' 50" W.</u>								
BEGIN CALVERTS - MAC (IRON PIPE, 2 1/2")							1000.00	1000.00
STONE, W. END BUCKLEY SOUTH LINE							1196.06	687.02
DIFFERENCES							196.06	312.98
LENGTH = $\sqrt{(196.06)^2 + (312.98)^2} = 369.31 \text{ PERCHES} = 6093.61'$								
TANGENT, BEARING ANGLE = $312.98 \div 196.06 = 1.59634$, BEARING = <u>N 57° 56' 10" W.</u>								
SAME LINE ON MY CONTROL								
LENGTH = <u>6065.43'</u>								
BEARING = <u>N 61° 18' 50" W.</u>								

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 check. 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 Calverts-M.A.C. to Point of Beginning of Engle	N 47°34'40" W
Old control, Point of Beginning of Calverts-M.A.C. to Point of Beginning of Engle	N 44°38'00" W
Change in direction	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

CHANGING BEARINGS OF CALVERTS-M.A.C., AS NOW CLOSED, TO THE
EXISTING U. OF M. CONTROL.

LINE	CALVERTS-M.A.C. DIRECTIONS, SEE PAGES	CHANGE IN DIRECTION	DIRECTION ON EXISTING CONTROL
1	S 64 1/2° W	- 2° 56' 40"	S 61° 33' 20" W
2	S 84° W	-	S 81° 03' 20" W
3	S 14 3/4° W	-	S 11° 48' 20" W
4	S 1 1/4° E	+	S 4° 11' 40" E
5	S 3 1/4° W	-	S 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 44° E	-	N 41° 03' 20" E
9	S 66 1/2° E	+	S 69° 26' 40" E
10	S 2° E	+	S 4° 56' 40" E
11	N 2° W	+	N 4° 56' 40" W
12	N 56° E	-	N 53° 03' 20" E
13	S 2 1/2° E	+	S 5° 26' 40" E
14	ELIMINATED		
15	S 39 1/2° E	+	S 42° 26' 40" E
16	S 51 1/2° W	-	S 18° 33' 20" W
17	S 2 7/8° E	+	S 5° 49' 10" E
18	S 1 3/4° E	+	S 4° 41' 40" E
19	S 46 3/4° E	+	S 49° 41' 40" E
20	S 1 3/4° E	+	S 4° 41' 40" E
21	S 46 3/4° E	+	S 49° 41' 40" E
22	S 16° W	-	S 13° 03' 20" W
E1*	N 44° E	-	N 41° 03' 20" E
E3	N 5° E	-	N 2° 03' 20" E
E4	S 71° E	+	S 73° 56' 40" E
E5°	S 23° W	-	S 20° 03' 20" W
J2*	S 14 3/4° W	-	S 11° 48' 20" W
J3	S 88 3/4° W	-	S 85° 48' 20" W
J4	N 79 1/4° W	+	N 82° 11' 40" W
J5*	N 15° W	+	N 17° 56' 40" W
* SAME AS 8			
° SAME AS 16			
x SAME AS 3			
x SAME AS 7			

UNIVERSITY OF MARYLAND
COLLEGE OF ENGINEERING

SURVEYING

SHEET 1 OF 2
FILE NO.

Computation of coordinates of area.

Traverse or boundary of CALVERTS-MAL, FROM PAGE CONVERTED TO NEW CONTROL

Computation by MAP Date _____ Checked by MAP Date _____

L	1	AZIMUTH	DIST	LOG LAT	LATITUDE	DEPARTURE	DMD	COORDINATES
N	OR			LOG COS AZ	N+	S-	E+	W-
E	BEARING	PERCHES	FEET	LOG SIN AZ				
				LOG DEP				
				2.23142	170.3			
		31.68		9.67788				
1	S 6° 33' 20" W	352.72		2.55354				
				9.94412				
				2.49766		314.5		
				2.43033	769.4			
		105		9.19166				
2	S 81° 03' 20" W	1732.50		3.23867				
				9.99469				
				3.23336		1711.3		
				2.65905	456.1			
		28.24		9.99071				
3	S 11° 48' 20" W	465.96		2.66834				
				9.31088				
				1.97922		95.3		
				2.96450	921.5			
		56		9.99883				
4	S 4° 11' 40" E	924.00		2.96567				
				8.86415				
				1.82982		67.6		
				2.84586	701.2			
		42.5		9.99999				
5	S 50° 18' 20" W	701.75		2.84587				
				7.72682				
				0.57269		2.7		
				3.18022	1514.3			
		192		9.67944				
6	N 61° 26' 40" W	3168.00		3.50078				
				9.94366				
				3.44444		2782.6		
				3.08792	1224.1			
		78		9.97834				
7	N 17° 56' 40" W	1287.00		3.10958				
				9.48868				
				2.59826		396.5		
				3.51452	3269.8			
		262.8		9.87741				
8	N 41° 03' 20" E	4336.20		3.63711				
				9.81743				
				3.45454		2849.8		
				2.61296	410.2			
		70.8		9.54545				
9	S 69° 26' 40" E	1168.20		3.06751				
				9.97143		10.8		
				3.03894		1093.8		
				2.20754	161.3			
		9.78		9.99972				
E3	N 2° 03' 20" E	161.37		2.20782				
				8.55471				
				0.76283		5.8		
				6169.5	2928.8	4115.0	5303.0	

UNIVERSITY OF MARYLAND
COLLEGE OF ENGINEERING

SURVEILLING

Sheet 2 of 2
Date

Computation of coordinates on area.

Traverse or boundary of CALVERTS-MAG. FROM PAGE CONVERTED TO NEW CONTROL

Computation by MAP Date 11/1/59 Checked by MAP Date 11/1/59

LINE NO.	AZIMUTH OR BEARING	DISTANCE FEET	LOG BAT	LATITUDE		DEPARTURE		COORDINATES
			LOG COS AZ LOG DIST LOG SIN AZ LOG DEP	N+ S-	E- W+	E- W+	N+ S- E- W+	
				6169.5	2928.8	4615.6	5303.9	
			2.11794		131.2			
		28.75	9.44182					
	44°57'58" E	474.27	2.67612					
			9.98272					
			2.65884			445.8		
			2.57451		375.4			
		24	9.97682					
	1°51'33"20" W	396.00	2.59769					
			9.50272					
			2.10041			126.0		
			2.67008		467.8			
		28.5	9.99776					
	7°55'49"10" E	420.25	2.67232					
			9.00601					
			1.67833			47.7		
			2.81808		657.8			
		40	9.99854					
	8°54'44"40" E	660	2.81954					
			8.91297					
			1.73251			54.0		
			2.63036		476.9			
		40	9.81082					
	9°54'44"40" E	660	2.81954					
			9.88230					
			2.70184			503.3		
			2.81808		657.8			
		40	9.99854					
	0°54'44"40" E	660	2.81954					
			8.91297					
			1.73251			54.0		
			2.47546		298.9			
		28	9.81082					
	1°54'44"40" E	462.00	2.66464					
			9.88230					
			2.54694			352.3		
			2.35223		228.0			
		14	9.98862					
	51°3'03"20" W	731.00	2.36361					
			9.25390					
			1.71251			52.2		
				6169.5	6169.5	5482.7	5482.7	

UNIVERSITY OF MARYLAND
COLLEGE OF ENGINEERING

SURVEYING

PROF. V. L. ...
FILE NO. ...

Computation of coordinates of area.

Traverse on boundary of BERRY TRACT, PAGE CONVERTED TO NEW CONTROL.

Computation by GNAP Date _____ Checked by GNAP Date _____

LINE	BEARING	DISTANCE	LOG LAT				COORDINATES			
			LOG COS AZ	LOG SIN AZ	LOG DEP		N	S	E	W
1	N 45° 40' W	334	3.73959	8.93546	549.2					
			9.99836	3.74123						
			2.67669	2.28104	191.4					
2	N 53° 03' 20" E	19.26	9.72890	2.50214						
		317.79	9.90266	2.40480	254.5					
			3.73796	9.99803	546.7					
3	S 5° 26' 46" E	333	9.99803	3.73993						
		549.6	8.97717	2.71710	521.3					
			2.34076	9.86801	219.1					
4	S 42° 26' 46" E	18	9.86801	2.47275						
		297.00	9.82921	2.30196	200.4					
			2.09341	9.97284	174.0					
5	S 20° 03' 20" W	8	9.97284	2.12057						
		132.00	9.53521	1.65578	45.2					
			2.11794	9.44182	131.2					
6	N 70° 36' 46" W	28.75	9.44182	2.67612						
		474.37	9.98272	2.65884	456.0					
					5512.8	5512.8	976.7	976.2		

UNIVERSITY OF MARYLAND
COLLEGE OF ENGINEERING

COMPUTING

COMPUTATION OF COORDINATES ON GRID

TRANSFORM OF BOUNDARY OF CONVERTING MISCELLANEOUS POINTS & LINES TO NEW CONTROL

COMPUTATION BY MAP DATE 1968 CHECKED BY MAP DATE 1968

L	AZIMUTH N OR S	DIST ANCE FEET	LOG LAT	LATITUDE N- S-	DEPARTURE E- W-	LMP	COORDINATES N, E, S, W or A, B, C, D
			LOG COS AZ LOG DIST LOG SIN AZ LOG DEP				
DR. JONES 2 - MAC 3		10.36	2.22355	167.3			
			9.99071				
N 11° 48' 20" E		170.94	2.23284				
			9.31088				
			1.54372		35.0		
DR. JONES 5 - MAC 7		20.96	2.51721	329.0			
			9.97834				
N 17° 56' 40" W		345.84	2.53887				
			9.48868				
			2.02955		106.5		
ANGLE 1		58.5	2.86204	727.9			
			9.87741				
S 41° 03' 20" W		965.25	2.98463				
			9.81743				
			2.80206		634.0		
DR. JONES 3		97.8	2.07199	118.0			
			8.86417				
S 85° 48' 20" W		1613.70	3.20782				
			9.99883				
			3.20665		1609.3		
DR. JONES 4		76.30	2.23293	171.0			
			9.13293				
N 82° 11' 40" W		1258.95	3.10000				
			9.99595				
			3.09595		1247.3		
ANGLE 5		76.6	3.07454	487.2	1187.2		
			9.97283				
S 20° 03' 20" W		1263.90	3.10171				
			9.53520				
			2.63691		433.4		

UNIVERSITY OF MARYLAND

SURVEYING

NAME

NO.

COLLEGE OF ENGINEERING

FILE NO.

Computation of coordinates on area.

Traverse or boundary of CONNECTED CORNER POSITIONS FROM RELOCATED POSITION OF POINT OF BEGINNING.Computation by MAR Date _____ Checked by MAR Date _____CALVERTS-MAC EXCLUSIVE OF BERRY.

STATION	AZIMUTH OR BEARING	DISTANCE	LOG LAT			LATITUDE		DEPARTURE		DMU	COORDINATES				CHECK
			LOG COS AZ	LOG SINE	LOG TAN AZ	N	S	E	W		N	S	E	W	
1	56°33'20"W	357.72					170.3		314.5		34246.1	22335.6			
2	58°43'20"W	1772.52					269.4		1711.3		34075.8	22021.1			✓
3	51°48'20"W	465.96					458.1		95.3		33806.4	20309.8			✓
4	54°11'40"E	924.00					921.5	67.6			33350.3	20244.5			✓
5	50°18'20"N	201.75					201.2		3.7		32428.8	20282.1			✓
6	46°24'40"W	318.00					1514.3		2782.4		31727.6	20278.4			✓
7	47°35'40"W	1282.00					1224.1		396.5		33241.9	17495.8			✓
8	44°03'20"E	4326.20					3269.8		2848.0		34466.0	17099.3			✓
9	56°24'40"E	1168.20					410.2	1096.2			37735.8	19947.1			✓
E3	42°43'20"E	161.37					161.3		5.8		37325.6	21040.9			✓
E4	57°55'40"E	494.37					131.2	458.0			37486.9	21046.7			✓
16P	518°33'20"N	396.00					275.4		176.0		37355.7	21502.5			✓
17	55°49'10"E	470.75					467.8	47.7			36980.3	21376.5			✓
18	54°41'40"E	660.00					657.8	54.0			36512.5	21424.2			✓
19	54°41'40"E	660.00					476.9	503.3			35854.7	21478.2			✓
20	54°41'40"E	660.00					657.8	54.0			35427.8	21981.5			✓
21	54°41'40"E	462.00					298.9	252.3			34770.0	22035.5			✓
22	513°03'20"N	231.40					228.0		52.2		34471.1	22387.8			✓
											34246.1	22335.6			✓
											OK	OK			

UNIVERSITY OF MARYLAND

50622-0000

COLLEGE OF ENGINEERING

Computation of coordinates or area

Traverse or boundary of *CONVERTED FORMER POSITIONS FROM RELOCATED POSITION OF POINT OF BEGINNING.*

Computation by *map* Date _____ Checked by *map* Date _____

THE BERRY TRACT

LINE	Bearing	Distance	LOG LAT		LATITUDE		Departure	TMD	COORDINATES	
			LOG COS AZ	LOG SIN AZ	N	S			E	W
NORTH WEST END OF COURSE E3 PAGE 1										
1	N 15° 56' 40" W	5510.0			5499.2		475.0		37486.9	21046.7
2	N 53° 03' 20" E	3122.9			191.4		254.5		42977.1	20571.7
3	S 5° 46' 40" E	5491.5			5469.7		521.3		43168.5	20826.2
4	S 42° 26' 40" E	2972.0			219.1		200.4		37698.8	21347.5
5	S 70° 03' 20" W	132.0			124.0		45.2		37479.7	21547.9
6	N 75° 58' 40" W	474.37			131.7		456.0		37355.7	21502.7
EAST END OF COURSE E3 - PAGE 1.									37486.9	21046.7
									CK	CK
THE PARTING LINES OF DR. JOHNS.										
SOUTH END COURSE 3, PAGE 1										
2013	N 11° 48' 20" E	170.94			167.3		35.0		33350.3	20214.5
DR. JOHNS N.E. CORNER									33517.6	20249.5
WEST END COURSE 6, PAGE 1										
2015	N 17° 56' 40" W	345.84			329.0		106.5		33241.9	17495.8
NW CORNER DR. JOHNS.									33570.9	17389.3
N END COURSE 8, PAGE 1										
E-1	S 44° 03' 20" W	965.75			727.9		634.0		37735.8	19947.1
POINT OF BEGINNING, ENGLE, OLD STONE									37007.9	19343.1
MY POSITION OF THIS POINT IS									37003.1	19318.8
									4.8	5.7
DR. JOHNS N.E. CORNER, ABOVE										
2013	S 85° 48' 20" W	1613.7			118.0		1609.3		33517.6	20249.5
BREAK IN DR. JOHNS NORTH LINE									33399.6	18640.2
DR. JOHNS N.W. CORNER, ABOVE										
2014	S 82° 11' 40" W	1258.95			124.0	121.0	1247.3	2247.3	33570.9	17389.3
BREAK IN DR. JOHNS NORTH LINE.									333.999	18636.6
EAST END ENGLE 4, PAGE 1										
E5	S 70° 03' 20" W	1263.90			1187.2		433.4		37355.7	21502.5
SOUTH END ENGLE 5									36168.5	21069.1

UNIVERSITY OF MARYLAND

SURVEY

DATE

TIME

COLLEGE OF ENGINEERING

Computation of coordinates of each

Traverse or boundary of CONVERTED CORNER POSITIONS FROM OLD STATE, POINT OF BEGINNING OF ENGINE.Computation by MAP Date Checked by MAP Date

STATION	AZIMUTH OR BEARING	DISTANCE	LOG LAT	LATITUDE	DEPARTURE	ELEVATION	COORDINATE	
			LOG COS AZ LOG DIST LOG SIN AZ LOG DEP	N+ S-	E+ W-	LMU	N+ S- E+ W-	LMU
* E1	N41°03'20"E	96.75		727.9	634.0		37003.1	19318.8
* 2	S69°26'40"E	1168.20		410.2	1093.8		37731.0	19952.8
E3	N2°03'20"E	161.37		161.3	5.8		37320.8	21046.6
E4	S73°58'40"E	474.37		131.2	455.8		37482.1	21052.4
16P	S18°33'20"W	396.00		375.4	126.0		37350.9	21508.2
17	S5°49'10"E	470.75		467.8	47.7		36975.5	21382.2
18	S4°41'40"E	660.00		657.8	54.0		36507.7	21429.9
19	S49°41'40"E	660.00		476.9	523.3		35849.9	21483.9
20	S4°41'40"E	660.00		657.8	54.0		35423.0	21987.2
21	S49°41'40"E	462.00		298.9	352.3		34765.2	22041.2
22	S13°03'20"W	231.00		225.0	52.2		34466.3	22393.5
1	S61°33'20"W	357.72		170.3	314.5		34241.3	22341.3
2	S81°03'20"W	1732.50		269.4	1711.3		34071.0	22026.8
3	S11°48'20"W	445.96		436.1	95.3		33801.6	22315.5
4	S4°11'40"E	924.00		921.5	67.6		33345.5	20220.2
5	S0°18'20"W	701.25		701.2	2.7		32424.0	20287.8
6	N61°26'40"W	2168.00		1514.3	2782.6		31722.8	20284.1
7	N17°58'40"W	1287.0		1224.1	396.5		33237.1	17501.5
* 8	N41°03'20"E	3370.95		2541.9	2213.8		34461.2	17105.0
							37003.1	19318.8

OK.

* THESE LINES FORM CALVERTS - MAP LINE 8 - 262.8 PERCHES. = 4336.20 FEET.

of conversion, and since this line varies $6\pm$ 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

CHANGING BEARINGS OF BLUE LOCATION TO GET BEARINGS FOR BROWN LOCATION

SEE MAP PAGE 44A.

CALVERTS-MAC. EXCLUSIVE OF BERRY.

LINE	BLUE BEARING	CHANGE IN BEARING	BROWN BEARING
1	S 61° 33' 20" W	+ 0° 47' 10" ↻	S 62° 20' 30" W
2	S 81° 03' 20" W	+	S 81° 50' 30" W
3	S 11° 48' 20" W	+	S 12° 35' 30" W
4	S 4° 11' 40" E	-	S 3° 24' 30" E
5	S 0° 18' 20" W	+	S 1° 05' 30" W
6	N 61° 26' 40" W	-	N 60° 39' 30" W
7	N 17° 56' 40" W	-	N 17° 09' 30" W
8	N 41° 03' 20" E	+	N 41° 50' 30" E
9	S 69° 26' 40" E	-	S 68° 39' 30" E
E8	N 2° 03' 20" E	+	N 2° 50' 30" E
EA	S 73° 56' 40" E	-	S 73° 09' 30" E
16P	S 18° 33' 20" W	+	S 19° 20' 30" W
17	S 5° 49' 10" E	-	S 5° 02' 00" E
18	S 4° 41' 40" E	-	S 3° 54' 30" E
19	S 49° 41' 40" E	-	S 48° 54' 30" E
20	S 4° 41' 40" E	-	S 3° 54' 30" E
21	S 49° 41' 40" E	-	S 48° 54' 30" E
22	S 13° 03' 20" W	+	S 13° 50' 30" W

BERRY

1	N 4° 56' 40" W	- 0° 47' 10" ↻	N 4° 09' 30" W
2	N 53° 03' 20" E	+	N 53° 50' 30" E
3	S 5° 26' 40" E	-	S 4° 39' 30" E
4	S 42° 26' 40" E	-	S 41° 39' 30" E
5	S 20° 03' 20" W	+	S 20° 50' 30" W
6-E4	N 73° 56' 40" W	-	N 73° 09' 30" W

MISCELLANEOUS

J2	N 11° 48' 20" E	+ 0° 47' 10" ↻	N 12° 35' 30" E
J5	N 17° 56' 40" W	-	N 17° 09' 30" W
E1	S 41° 03' 20" W	+	S 41° 50' 30" W
J3	S 85° 48' 20" W	+	S 86° 35' 30" W
J4	N 82° 11' 40" W	-	N 81° 24' 30" W
E5	S 20° 03' 20" W	+	S 20° 50' 30" W

UNIVERSITY OF MARYLAND
SCHOOL OF ENGINEERING

SURVEYING

SHE 7 OF
FILE NO.

Computation of coordinates or area.

Traverse or boundary of CONVERTING BLUE LOCATION TO BROWN LOCATION.Computation by MAP Date _____ Checked by MAP Date _____TRYING FOR A BETTER AGREEMENT WITH GROUND LINES

I N E	AZIMUTH OR BEARING	DIST ANCE TERMINES FEET	LOG LAT LOG COS AZ LOG DIST LOG SIN AZ LOG DEP	LATITUDE		DEPARTURE		DMD	COORDINATES	
				N+	S-	E+	W-		N+, S-	E+, W-
			2.22024		166.0	POINT OF BEGINNING			34246.1	22335.6
		31.68	9.66674						- 166.0	- 316.8
1	562°20'30"W	357.72	2.55354						34080.1	22018.8
			9.94730							
			2.50084				316.8			
			2.39068		245.9				- 245.9	- 1714.9
		105	9.15201							
2	581°46'30"W	1732.5	3.23867						33834.2	20303.9
			9.99558							
			3.23475				1714.9			
			2.65776		454.7				- 454.7	- 101.6
		28.74	9.98942							
3	512°35'30"W	465.96	3.66834						33379.5	20202.3
			9.93845							
			2.00679				101.6			
			2.96489		922.4				- 922.4	+ 54.9
		56	9.99922							
4	53°24'30"E	924	2.96567						32457.1	20757.2
			8.77416							
			1.73983				54.9			
			2.84579		701.1				- 701.1	- 13.4
		42.5	9.99992							
5	51°05'30"W	701.25	2.84587						31756.0	20243.8
			8.27993							
			1.12580					13.4		
			3.19099	1552.3					+ 1552.3	- 2761.6
		192	9.69021							
6	N 60°39'30"W	3168.0	3.50078						33308.3	17482.2
			9.94038							
			3.44116				2761.6			
			3.08980	1229.6					+ 1229.6	- 379.7
		78	9.98022							
7	N 17°09'30"W	1287.0	3.10958						34537.9	17102.5
			9.46983							
			2.57941				379.7			
			3.50927	3230.5					+ 3230.5	+ 2892.5
		262.8	9.87216							
8	N 41°50'30"E	1336.2	3.63711						37768.4	19995.0
			9.82417							
			3.46128				2892.5			
			2.62853		425.1				425.1	+ 1088.0
		70.8	9.56102							
9	568°39'30"E	1168.2	3.06751						37343.3	21083.0
			9.96914							
			3.03665				1088.0			
			2.20728	161.2					+ 161.2	+ 8.0
		9.78	9.99946							
E3	N 2°50'30"E	161.37	2.20782						37504.5	21091.0
			8.69527							
			0.90309				8.0			
				6173.6	2915.2	4043.4	5288.0			

UNIVERSITY OF MARYLAND
COLLEGE OF ENGINEERING

SURVEYING

SHEET OF
FILE NO.

Computation of coordinates of area.

Traverse or boundary of CONVERTING BLUE LOCATION TO BROWN LOCATION (CONTINUED)

Computation by MAP Date _____ Checked by MAP Date _____

LINE NO	BEARING	DISTANCE	LOG COS AZ	LOG SIN AZ	LOG DEP	LATITUDE N+ S-	DEPARTURE E+ W-	LMD	COORDINATES N+ S+ E+ W		AREA
						6173.6	7915.2	4613.4	588.0		
			2.13811				137.4			37504.5	21091.0
		78.75	9.46199							- 137.4	+ 454.1
4	S 78° 09' 30" E	474.37	2.67612							37367.1	21545.1
			9.98096								
			2.65708					454.1			
			2.57246							- 3737	- 134.1
		24	9.97477				373.7				
6	S 19° 20' 30" W	396	2.59769							36993.4	21414.0
			9.52009								
			2.11778					131.1			
			2.67064							- 468.5	+ 41.3
		28.5	9.99832								
	S 5° 02' 00" E	470.25	2.67232							36524.9	21455.3
			8.94317								
			1.61549					41.3			
			2.81853							- 658.5	+ 45.0
		40	9.99899				658.5				
18	S 53° 54' 30" E	660	2.81954							35866.4	21500.3
			8.83352								
			1.65306					45.0			
			2.63728							- 433.8	+ 497.4
		40	9.81774				433.8				
19	S 48° 54' 30" E	660	2.81954							35432.6	21997.7
			9.87717								
			2.69671					497.4			
			2.81853							- 658.5	+ 45.0
		40	9.99899				658.5				
20	S 53° 54' 30" E	660	2.81954							34774.1	22042.7
			8.83352								
			1.65306					45.0			
			2.48238							- 303.7	+ 348.2
		28	9.81774				303.7				
21	S 48° 54' 30" E	462.0	2.66464							34470.4	22390.9
			9.87717								
			2.54181					348.2			
			2.35081							- 224.3	- 55.3
		14	9.98720				224.3				
22	S 53° 50' 30" W	231	2.36361							34246.1	22335.6
			9.37882								
			1.74743					55.3			
						6173.6	6173.6	5474.4	5474.4		

UNIVERSITY OF MARYLAND
SCHOOL OF ENGINEERING

SURVEYING

DATE 2
MILE 10.

COMputation of coordinates of area.

Traverse on boundary of CONVERTING BERRY TRACT FROM BLUE LOCATION TO BROWN LOCATION.

Computation by

Date

Checked by

Date

LINE	AZIMUTH OR BEARING	DISTANCE	LOG LAT			LATITUDE		DEPARTURE		DMD	COORDINATES			
			LOG COS AZ	LOG SIN AZ	LOG DEP	N+	S-	E+	W-		N+	S-	E+	W-
			3.74009			5496.6					37504.5	21091.0		
		334	9.99886								45496.6	- 399.6		
1	N4°09'30"W	571.0	3.74123								43001.1	20691.4		
			8.86041											
			2.60164						399.6					
			2.27301			187.8					+ 187.8	+ 257.1		
		19.76	9.77087											
2	N53°50'30"E	317.79	2.50214								43188.9	20948.5		
			9.90707											
			2.40921					257.1						
			3.73850			5476.5					- 5476.5	+ 446.2		
		933	9.99857											
3	S4°39'30"E	5494.5	3.73993								37712.4	21394.7		
			8.90963											
			2.64956					446.2						
			2.34615				221.9				+ 221.9	+ 197.4		
		18	9.87340											
4	S44°39'30"E	297.0	2.47275								37490.5	21592.1		
			9.82261											
			2.29536					197.4						
			2.09118				123.4				- 123.4	- 47.0		
		8	9.97061											
5	S20°50'30"W	132	2.12057								37367.1	21545.1		
			9.55118											
			1.67175						47.0					
						127.4					+ 127.4	- 454.1		
		28.75												
6	N73°09'30"W	N74.37									37504.5	21091.0		
														ok.
								454.1						

CONVERTING MISCELLANEOUS LINES FROM BLUE LOCATION TO BROWN LOCATION

DR. JONES LINE 2	2.22227	166.8		33379.5	20202.3
10.36	9.98943			+166.8	+37.3
N17°35'30"E 170.94	2.23284			33546.3	20239.6
	9.33845				
	1.57129				
DR. JONES 5	2.51909	330.4	37.3	33308.3	17482.2
20.96	9.98022			+330.4	-102.0
N17°09'30"W 345.84	2.53887			33638.7	17380.2
	9.46984				
	2.00871				
ENGLE 1	2.85679	719.1	102.0	37768.4	19995.0
58.5	9.87216			-719.1	-643.9
S41°50'30"W 965.76	2.98463			37049.3	19351.1
	9.82417				
	2.80880				
DR. JONES 3	1.98198	95.9	643.9	33546.3	20239.6
97.8	8.77416			-95.9	-1610.8
S86°35'30"W 1613.7	3.20782			33450.4	18628.8
	9.99922				
	3.20704				
DR. JONES 4	2.27332	187.6	1610.8	NOTE → 33638.7	17380.2
76.20	9.17332			-187.6	+1244.8
N81°24'30"W 1258.95	3.10000			33457.1	18628.0
	9.99510				
	3.09510				
ENGLES	3.07232	1181.2	1244.8	NOTE → 37367.1	21545.1
76.6	9.97061			-1181.2	-449.7
S20°50'30"W 1263.90	3.10171			36185.9	21095.4
	9.55118				
	2.65289		449.7		

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 by 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

of page 47a, it can be seen that with any particular 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 feasibility. Studies made here lead to my conclusion that there is a grave possibility, 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.