

5655

5655

| | |
|--|------------------|
| Form 504 Rev. Dec. 1933 | |
| DEPARTMENT OF COMMERCE U.S. COAST AND GEODETIC SURVEY R. S. PATTON, DIRECTOR | |
| DESCRIPTIVE REPORT | |
| AIR PHOTOGRAPHIC SURVEY | |
| For use by the | Sheet No. T-5655 |
| | |
| State MARYLAND | |
| LOCALITY | |
| CHESAPEAKE BAY (Northern Part) | |
| BOHEMIA RIVER AND VICINITY | |
| Photographs taken Apr. 1937 | |
| 1938 | |
| CHIEF OF PARTY | |
| L. W. Swanson | |

77-3

Partially applied to Chs. 570 by N. R. Ed. in 1938
(see B.R.)

Applied to Chs. 570 May 7/41 B.R.

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

REG. NO.

TOPOGRAPHIC TITLE SHEET

The Topographic Sheet should be accompanied by this form, filled in as completely as possible, when the sheet is forwarded to the Office.

Field No. 5655

REGISTER NO. 5655 **T5655**

State MARYLAND

General locality CHESAPEAKE BAY (Northern Part)

Locality BOHEMIA RIVER & Vicinity

Scale 1:10,000 Photographs Apr 30
Date of survey May 1, 1937

Vessel Air Photographic Survey Party

Chief of party L. W. Swanson

Field Inspection J.C. Partington, E.L. Jones,
Surveyed by Compilation D.A. Jones, W.C. Russell

Inked by W. C. Russell

Heights in feet above to ground to tops of trees

Contour, Approximate contour, Form line interval feet

Instructions dated March 14 May 13, 1938

Remarks:

STATISTICS

MAP DRAWING SHEET NO. 5655

STATE OF MARYLAND

CHESAPEAKE BAY, BOHEMIA RIVER

AIR PHOTOGRAPHS:

| | | | |
|------|------|------|------|
| 1213 | 1215 | 1197 | 1199 |
| 1214 | 1216 | 1198 | |

DATE OF PHOTOGRAPHS: --- *See below.*

~~May 1, 1937~~

TIME ---

~~Unknown~~

SCALE FACTOR

1:9,650

J. C. Partington

PROJECTION Ruling machine (1:9,650)

No date

PROJECTION CHECKED

Washington Office

No date

CONTROL PLOTTED

S. B. Grenell

No date available

CONTROL CHECKED

J. P. Lushene

" " "

RADIAL LINE PLOT

S. B. Grenell, J. P. Lushene

No date available

RADIAL LINE PLOT CHECKED

Washington Office

" " "

PRELIMINARY REVIEW

L. W. Swanson

AREA (land)

Square Statute Miles

24.

AREA (shoals)

Square Statute Miles

0.0

SHORELINE (More than 200 m. from opposite shore) Stat. Miles 23.3

SHORELINE (Creeks)

Statute Miles

7.0

DATUM

NORTH AMERICAN 1927

REFERENCE STATION

COURT 2 (U.S.E.) 1937

Lat. 39 - 30 - 47.930 1478.2 meters

Long. 75 - 53 - 06.437 ~~1478.2~~ meters

(field computations) 153.8

Maryland System of Plane Coordinates

| <i>Photo</i> | <i>Date</i> | <i>Time</i> |
|----------------|----------------|--------------------|
| <i>1213-16</i> | <i>4-30-37</i> | <i>11:48-11:51</i> |
| <i>1192-99</i> | <i>"</i> | <i>11:36-11:38</i> |

REPORT

AIR PHOTOGRAPHIC SURVEY SHEET(Register) NO. 5655

GENERAL INFORMATION.

The shoreline field inspection for this area was made during August and October 1937. The detail field inspection back from the shoreline was made during June 1938. All the field inspection was done by Air Photographic Survey Party # 25 of Baltimore, Md. *

The photographs were taken by the U. S. Coast and Geodetic Survey Nine Lens Aerial Camera by the U. S. Army Corp.

CONTROL

The following triangulation stations fall within the tracing limits of this sheet and were used in controlling the plot.

| | |
|----------------------|-----------------------|
| Court2 (U.S.E.) 1937 | 3 (U.S.E.) 1937 |
| C (U.S.E.) 1937 | 4 (U.S.E.) 1937 |
| D-2 (U.S.E.) 1937 | 5-2 (U.S.E.) 1937 |
| E (U.S.E.) 1937 | Haley R. M. # 1, 1934 |
| 2 (U.S.E.) 1937 | |

The following five triangulation stations fall outside the tracing limits but within the outside limits of the sheet and were used in controlling the plot.

| | |
|---------------------|-------------------|
| Cayots, 1934 | B (U.S.E.) 1937 |
| Creek (U.S.E.) 1937 | 6-2 (U.S.E.) 1937 |
| A2 (U.S.E.) 1937 | |

RADIAL PLOT

The radial plot was carried through from sheet # 5654 to sheet # 5655 to about one mile east of the junction by the template method as described in Descriptive Report for sheet number 5654. The sheet was then sent, along with several others from Baltimore to the party of S. B. Grennell in Norfolk, Va. The plot was then completed by his party, presumably by the use of photos alone. The map drawing, with shoreline inked, was then sent to the Washington Office and the plot was checked.

Sufficient radial points had been established for detailing. A few additional radial points were added where necessary in elevated country. In detailing it was found that only a few radial points had to be replotted, as in some cases the transferring of radial points to overlapping photos were incorrect. The scale factor of the map drawing and the photos was very close, as observed when detailing.

METHOD OF DETAIL

It was recommended by the Washington Office that this party experiment with one map drawing in a method which might save time and also make for more uniform map drawing, in point of detailing. The necessary information to be placed on the map drawing, in the field, and the complete detailing be done in Washington Office, without the aid of the photographs.

* Field mapmaker added no details subsequent to the date of the photography. Shoreline and other details are essentially the same date as the photography except for additional details which may be located by the hydrography. This will be listed here on upon receipt of the hydrographic survey 8/5/38.

The reasoning back of this experiment is, that since detailing of a map drawing takes considerable experience and time, and since the field officer and temporary draftsmen in the Air Photographic parties have only limited opportunities in drafting experience, especially in detailing of map drawings, they would naturally take more time than an experienced draftsman, under the standards required. The time ordinarily consumed by a field personal in detailing, could then be used to better advantage in other important phases of the work, and the detailing left to an experienced draftsman.

With these thoughts in mind, several ideas were outlined and put into practice on Map Drawing Sheet # 5655.

The following are general notes which were adhered to in carrying out the detailing of this sheet.

At no time should accuracy be sacrificed for speed.

Ink in centerline only of all roads (label type and width of roads.)

Ink in houses, buildings, etc.

Outline all wooded areas, swamps, cultivation, etc., and label.

No refinement as to drafting is necessary, as long as information is shown accurately.

Ink in shoreline, all docks, wharves, etc., and disregard different weights of lines as required in a finished map drawing.

Ink in scattered trees, all hedges, and any other detail which cannot be outlined.

Ink in all curves at intersections of roads that might not be plainly shown by the centerline intersections.

Ink in fencelines and ditches in solid lines and label.

Where there is any indefinite shoreline along swamp, ink in detail complete.

Label all detail, geographic names, and any other information on the map drawing.

All information to be inked in freehand. Acid or Weber ink preferred.

The above suggestions were carried out, and in the opinion of the compiler, they were very satisfactory, and with considerable saving of time in the field office.

It is believed this method has a decided advantage over the method of complete detailing by the field compiler, for the following reasons:

It is much faster, since it is necessary only to outline and label certain areas such as trees, swamps, orchards, etc., and not complete detail.

The centerline only of roads with appropriate labels of width and type, are necessary. For the average draftsman, this is a decided advantage, in that it is rather hard to maintain uniform and accurate widths of roads, especially around curves of varying radii.

By drawing fences in full lines and labeling, time is saved in that they do not have to be scratched to make uniform dashes.

As expert drafting is not essential, no effort need be made to make uniform widths of lines or character of trees, as long as all information is shown accurately and labeled.

There is a psychological effect, the compiler believes, back of this method, that is one of the greatest aids in saving time when adopted by the draftsman. Knowing that the sheet upon which he is working is not the final map drawing; that finished drafting is not essential; that corrections can be made easily without marring the map drawing; that information can be put on in freehand; he will tend to speed up the detailing by banishing the fear of marring or spoiling the finished map drawing.

The actual time, by this method, in completing the map drawing, excluding the main shoreline, was twelve working days. It is conservatively estimated that the shoreline, which was put on by another party, could be traced and inked in one and one half days, making a total of thirteen and one half days (working days) by this method. From past experience, it is conservatively estimated that a draftsman of average speed could completely detail this map drawing in about thirty five working days. It is believed that a saving in time of about three weeks work in the field can be accomplished by this method, on a sheet of this area and type of country.

DETAIL

Refer to review for summary of time and comparison with usual method of complete drawing in the field.

There was very little adjustment of the photos to the map drawing.

The labeled double full line has been used to show paved and well maintained roads (either gravel or concrete); the double dash lines to show roads not maintained, and also private roads; and the single dash lines to show trails or field roads.

An attempt was made to show all buildings on the sheet except small sheds and out buildings.

The field inspection notes were very complete. Except for the control, all names and information was taken from the field inspection notes and the photographs.

All fencelines are shown in violet ink. All roads, regardless of type, have been shown by centerline only and the type and width of road labeled.

The streams as shown on the sheet, are for the most part drainage streams, in wooded ravines, and flow only during rainy seasons. Their location in some places are somewhat doubtful but are assumed to follow the main axis of the ravine.

In areas where it might be misleading to the office draftsman, the trees were filled in. Others area were outlined and labeled. All cultivation areas were labeled with a capital C.

All geographic names, and any information which would ordinarily go on the overlay sheet, was inked on the map drawing and the overlay sheet was eliminated.

RECOVERABLE TOPOGRAPHIC STATIONS.

There were no recoverable topographic stations on this sheet.

COMPARISON WITH PREVIOUS SURVEYS.

In comparing the map drawing with an old topographic sheet (no title or number) scale 1:10,000, the shoreline, in general, checked very well. The direction of Morgan Creek at the mouth has changed. Since this area is made up of marshland, it is entirely possible, that through the years, this change could take place.

The bridge across the Bohemia River on U. S. highway # 213 apparently has been built and location changed since old survey. At the north end of the bridge, at the approach, the shoreline has been filled in and a change is noted at this point.

In general, the old main roads agree with the present main roads.

No comparison was made with chart 1226, as scale difference was too great for detailed comparison. *See Review*

JUNCTIONS.

Junction was made with map drawing # 5654 on the west side of this sheet. All junctions of detail was made good without adjustment.

NAMES.

Geographic names shown on this sheet are listed on form M284 in the appendix.

LANDMARKS.

There are no land marks for charts as observed from land area in making field inspection. *Landmarks to be submitted by the hydrographic party.*

RECOMMENDATION FOR FUTURE SURVEYS.

This sheet is believed to be complete in all detail of importance for charting and no additional surveys are required.

The probable error is not greater than five meters for all radial points and well defined objects along the water front and in areas well controlled. The error of other detail of importance on the sheet is probably not greater than ten meters.

Respectfully submitted,

William C. Russell

William C. Russell,
Ensign, U.S.C. & G. Survey.

Approved:

L. W. Swanson
L. W. Swanson,
Chief of Party.

*U.S.C. Bridge Feb. 1935.
Wing. Cl. 40'
M. H. H. verified. 12'
Bascule*

Remarks

Decisions

| | | | |
|----|---|--------------------|-------------------------------------|
| 1 | | T-186(1855) | |
| 2 | Augustine Herman, 1st Settler Local Sign "Port Herman" (✓) | | G.N. 69 (1935) |
| 3 | | | |
| 4 | | | |
| 5 | REFERENCES: | T-186(1855) | |
| 6 | (✓) Mr. L.T. Boulden, Post Office Empl. Elkton, Md. | T-2412 (1899) | |
| 7 | ✓ Mr. Charles W. Cooling, Chesapeake City, Md. | T-186(1855) T-2412 | |
| 8 | ✓ Mr. Andrew Leybold, Earleville, Md., R.D. #1 | T-2412 | |
| 9 | | T-2412 | |
| 10 | X ✓ Mr. Harry H. Austin, Earleville, Md., R.D. #1 | T-2412 | |
| 11 | ✓ Mr. J.G. Steele, Chesapeake City, Md. | T-2412 | |
| 12 | | T-2412 | |
| 13 | | T-2412 | |
| 14 | | T-2412 T-186(1855) | |
| 15 | | T-2412 | |
| 16 | Big Back Pt. Local usage X ✓ | T-2412 | |
| 17 | | | |
| 18 | Story Battery X ✓ | T-2412 | |
| 19 | | | |
| 20 | | | |
| 21 | | | |
| 22 | | T-2412 | Note - wrong location on overlay |
| 23 | | | |
| 24 | Doubtful on exact Pt. X ✓ | | |
| 25 | | | |
| 26 | On T-2412 but not named. | | |
| 27 | " " " " | | |
| 28 | " " " " | | |

GEOGRAPHIC NAMES

Survey No. T - 5655

Name on Survey

| | A | B | C | D | E | F | G | H | K | |
|--------------------------------|----------------------|----------------------------------|---|---------------------------|---------------|--------------------|--------------------|------------------|---|----|
| | On Chart No. 1226 | On previous survey No. T-2717 | On U. S. quadrangle Cecil, Tex., Elkhart | From local information | On local Maps | P. O. Guide or Map | Rand McNally Atlas | U. S. Light List | | |
| <u>Courthouse Pt.</u> | 77 ✓ | 2 words ✓ | ✓ | ⊙ | | ✓ | | ✓ | ✓ | 1 |
| <u>Port Herman</u> (village) | 77 ✓ | ✓ | Port Herman ✓ | ⊙ X | | Herman ✓ | | | | 2 |
| <u>Town Pt. Wharf</u> | ✓ | ✓ | ✓ | ⊙ | | | | "Old" ✓ | ✓ | 3 |
| <u>Town Pt. Neck</u> | ✓ | ✓ | ✓ | ⊙ | | | | | | 4 |
| <u>Town Pt.</u> | 77 ✓ | ✓ | ✓ | ⊙ | | ✓ | | ✓ | | 5 |
| <u>Rich Pt.</u> | ✓ | | | X ✓ | | | | | | 6 |
| <u>Stony Pt.</u> | ✓ | ✓ | | • ✓ | | | | | | 7 |
| <u>Manor Cr.</u> | ✓ | ✓ | | 7 X ✓ | | | | | | 8 |
| <u>Greenbrier Pt.</u> | ✓ | | | 7 X ✓ ⊙ | | | | | | 9 |
| <u>Great Bohemia Cr.</u> | ✓ | | ✓ | 7 X ✓ ⊙ | | ✓ | ✓ | | ✓ | 10 |
| <u>Georges Pt.</u> | ✓ | | | 7 X ✓ ⊙ | | | | | | 11 |
| <u>Little Bohemia Cr.</u> | ✓ | | ✓ | 7 X ✓ ⊙ | | ✓ | ✓ | | ✓ | 12 |
| <u>Free School Pt.</u> | ✓ | | | 7 X ✓ | | | | | | 13 |
| <u>Scotchman Cr.</u> | ✓ | | ✓ | 7 X ✓ ⊙ sign | | | | | | 14 |
| <u>Little Hack Pt.</u> | ✓ | | | 7 X ✓ | | | | | | 15 |
| <u>Old Hack Pt.</u> | ✓ | | | 7 X ✓ Big | | | | | | 16 |
| <u>Long Pt.</u> | ✓ | | | 7 X ✓ | | | | | | 17 |
| <u>Battery Pt.</u> | ✓ | | | 7 X ✓ Battery | | | | | | 18 |
| <u>Bohemia River</u> | 77 ✓ | ✓ | ✓ | ⊙ | | ✓ | ✓ | | ✓ | 19 |
| <u>Town Point</u> (town) | | | ✓ | ⊙ | | ✓ | ✓ | | | 20 |
| <u>Veazey Neck</u> | | | ✓ | 7 X ✓ | | | | | | 21 |
| <u>Parlor Pt.</u> (Bohemia R.) | | | ✓ | X ✓ | | | | | | 22 |
| <u>Veazey Cove</u> | | | | X 7 X ✓ | | | | | | 23 |
| <u>Hack Pt. (settlement)</u> | | | | X 7 X ✓ | | | | | | 24 |
| <u>Herring Cr.</u> | ✓ | ✓ | | ⊙ | | | | | | 25 |
| <u>Morgan Cr.</u> | | | | X ✓ | | | | | | 26 |
| <u>Sweet Potato Cr.</u> | | | | X ✓ | | | | | | 27 |
| <u>Pooles Cr.</u> | | | | X ✓ | | | | | | 28 |

GEOGRAPHIC NAMES

Survey No. T - 5655

| GEOGRAPHIC NAMES | | | | | | | | | | |
|-----------------------|---|---|---|---|---|---|---|---|---|----|
| Survey No. T - 5655 | | | | | | | | | | |
| Name on Survey | <div>On Chart No. 1226</div> <div>On previous survey No. T-2465</div> <div>On U. S. quadrangle Maps</div> <div>From local information</div> <div>On local Maps</div> <div>P. O. Guide or Map</div> <div>Rand McNally Atlas</div> <div>U. S. Light List</div> <div>K.C.P. 1937 sec. 27</div> | | | | | | | | | |
| | A | B | C | D | E | F | G | H | K | |
| <u>Piney Cr. Cove</u> | ✓ | ✓ | ✓ | ⊙ | ✓ | | | | | 1 |
| <u>Piney Cr.</u> | ✓ | ✓ | ✓ | ⊙ | ✓ | | | | | 2 |
| <u>Muddy Cr.</u> | ✓ | ✓ | | ⊙ | ✓ | | | | | 3 |
| <u>Jones Cr.</u> | ✓ | ✓ | | ✓ | | | | | | 4 |
| <u>Oldfield Pt.</u> | ✓ | ✓ | ✓ | ⊙ | | ✓ | | ✓ | | 5 |
| <u>Elk River</u> | ✓ | ✓ | ✓ | | | ✓ | ✓ | ✓ | ✓ | 6 |
| <u>Hylands Pt</u> | ✓ | ✓ | | | | | | | | 7 |
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Names underlined in - approved
by L. Heck on 8-2-38

REVIEW OF AIR PHOTO COMPILATION NO.

Chief of Party:

Compiled by:

Project:

Instructions dated:

1. The charts of this area have been examined and topographic information necessary to bring the charts up to date is shown on this compilation. (Par. 16a, b, c, d, e, g and i; 26; and 64)

2. Change in position, or non-existence of wharfs, lights, and other topographic detail of particular importance to navigation which affect the chart, is discussed in the descriptive report. (Par. 26; and 66 g, n) *additional shore line details not visible on photos to be turned in by hydrographic party see office memo*

3. Ground surveys by plane table, sextant, or theodolite have been used to supplement the photographic plot where necessary to obtain complete information, and all such surveys are discussed in the descriptive report. (Par. 65; and 66 d, e)

None

4. Blue-prints and maps from other sources which were transmitted by the field party contain sufficient control for their application to the charts. (Par. 28)

None

5. Differences between this compilation and contemporary plane table and hydrographic surveys have been examined and rectified in the field before forwarding the compilations to the office and are discussed in the descriptive report.

None

6. The control and adjustment of the photo plot are discussed in the descriptive report. Unusual or large adjustments are discussed in detail and limits of the area affected are stated. (Par. 12b; 44; and 66 c, h, i)

7. High water line on marshy and mangrove coast is clear and adequate for chart compilation. (Par. 16a, 43, and 44)

Possible minor corrections will result from hydrographic survey.

NOTE: Strike out paragraphs, words or phrases not applicable and modify those requiring it. Paragraph numbers refer to those in the Topographic Manual. Refer also to the pamphlet "Notes on the Compilation of Planimetric Line Maps from Five Lens Air Photographs."

8. The representation of low water lines, reefs, coral reefs and rocks, and legends pertaining to them is satisfactory. (Par. 35, 37, 38, 39, 40, 41)
9. Recoverable objects have been located and described on Form 524 in accordance with circular 30, 1933, circular letter of March 3, 1933, and circular 31, 1934. (Par. 29, 30, and 57)
None
10. A list of landmarks was furnished on Form 567 and instructions in the Director's letter of July 16, 1934, Landmarks for Charts, complied with. (Par. 16d, e; and 60)
None to be submitted by hydro party.
11. All bridges shown on the compilation are accompanied by a note stating whether fixed or draw, clearance, and width of draw if a draw bridge. Additional information of importance to navigation is given in the descriptive report. (Par. 16c)
12. Geographic names are shown on the ^{sheet} ~~overlay tracing~~. The accepted local usage of new names has been determined and they are listed in the report, together with a general statement as to source of information and a specific statement when advisable. Complete discussion of place names differing from the charts and from the U. S. G. S. Quadrangles is given in the descriptive report, together with reasons for recommendations made. (Par. 64, and 66k)
13. The geographic datum of the compilation is *1927 N.A.* and the reference station is correctly noted.
14. Junctions with adjoining compilations have been examined and are in agreement. (Par. 66j)
15. The drafting is satisfactory and particular attention has been given the following: *This sheet is to be redrawn - This sheet was drawn roughly in outline as requested by*
 1. Standard symbols authorized by the Board of Surveys and Maps have been used throughout except as noted in the report.
Washington Office.
 2. The degrees and minutes of Latitude and Longitude are correctly marked.

3. All station points are exactly marked by fine black dots.

~~4.~~ closely spaced lines are drawn sharp and clear for printing.

5. Topographic symbols for similar features are of uniform weight.

~~6.~~ All drawing has been retouched where partially rubbed off.

7. Buildings are drawn with clear straight lines and square corners where such is the case on the ground.

(Par. 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 48)

16. No additional surveying is recommended at this time.

17. Remarks:

It is believed that the notes and legend on the sheet together with the Descriptive Report are complete and that the field inspection prints and office photos will not be needed in the redrafting of this sheet. However the person that redraws this work should follow the notes legend and Descriptive Report closely.

18. Examined and approved;


Chief of Party

19. Remarks after review in office:

SECTION OF FIELD RECORDS

REVIEW OF AIR PHOTOGRAPHIC SURVEY T-5655

Scale: 1:10,000

Photographs taken May 1, 1937.

Compiled March to July, 1938.

Refer to pages 1 to 3 of the descriptive report for additional data.

Chief of Party: L. W. Swanson.

Radial Plot by: S. B. Grenell.
J. P. Lushene.

Radial Plot checked by: L. C. Lande. Inked in Field by: W. C. Russell.

Redrawn in office by: C. R. Wittmann.

There are no contemporary plane table surveys in this area. Shoreline and hydrographic control stations were located by the photographic plot.

CONTEMPORARY HYDROGRAPHIC SURVEYS

The contemporary hydrographic survey, Field No. 1005, is not yet in the office. Upon receipt of the hydrographic survey, a comparison will be made and any corrections or additions to T-5655 resulting from the hydrographic survey will be added in red on the temporary file copy. These same corrections and additions will be made on the negatives and plate for T-5655 prior to the final printing. An additional discussion regarding the comparison with the hydrographic survey will be added to this review if needed.

Temporary stations located on T-5655 for control of hydrography will remain on the celluloid T-5655 as a semi-permanent record but these stations will not appear on the finished prints of T-5655.

All stations and other details in black on the boat sheet and smooth sheet were printed direct from a reproduction of T-5655 and require no verification as regards correctness of transfer.

PREVIOUS TOPOGRAPHIC SURVEYS

See note on opposite page

Comparison of T-5655 with the previous topographic surveys listed below shows that T-5655 is complete and adequate to supersede the sections of those surveys which it covers except for the details noted.

Refer also to page 6 of the descriptive report regarding comparisons made by the field party.

Shore line changes have been small in this area. There have been numerous cultural changes since the last surveys.

T-186 (1:20,000) 1855, except for contours.
T-2351 (1:10,000) 1898
T-2412 (1:10,000) 1899, except for contours.
T-2465 (1:10,000) 1900, " " "
T-2668 (1:20,000) 1904, " " "
T-2717 (1:20,000) 1905, " " "

COMPARISON WITH CHART 1226 (CORRECTED TO 2/9/37)

The following details on chart 1226 are not visible on the photographs and are not yet shown on T-5655. It is expected that these will be located by the hydrographic survey and will be added to T-5655 prior to final printing:

Light at Town Point Wharf
Lights at Court House Point
Wreck North of Town Point
Rocks at Stoney Point and just north of Stony Point

A number of natural objects have been located and are shown as topographic stations on T-5655 but no recommendation is made regarding landmarks as this will be done by the hydrographic party.

OFFICE WORK ON T-5655

The compilation and the descriptive report were complete in detail as submitted from the field and the office review has been made without difficulty. No additional topographic surveys are needed for charting.

A few minor changes in stream lines and additions of trails were made in the office. These are noted on an ozalid copy of the original celluloid which will be sent to the field party for inspection.

T-5655 has been entirely redrawn on a blue line print in this office. The rough drawing submitted by the field party was entirely satisfactory except for the violet ink used for fence lines. This was used at the suggestion of this office but is not entirely satisfactory and black ink should be used in the future.

This is the first survey handled in this manner. The reasons for experimenting with this method are discussed in detail on pages 3 to 5 of the descriptive report. This method, if used extensively, would no doubt improve and standardize the appearance of the published topographic maps. Where the turnover of personnel in the field parties is rapid, as is often the case, it would relieve the field personnel of the burden of smooth drafting. The smooth drafting is more readily accomplished in the office on a blue line reproduction of the original than on the celluloid work sheet in the field.

The method shifts a rather considerable amount of work from the field to the office and would require about one office draftsman for every ten field sheets per year.

It would relieve the reproduction branch of considerable negative work which is required on the usual smooth drawings made in the field.

The results from one sheet do not give conclusive cost or time figures. The comparative figures given below indicate that the total cost is no more than by the usual method and also further test a number of additional sheets should be completed in this manner when office personnel are available.

| | <u>T-5655</u> | <u>Similar sheet by usual method</u> |
|---|---------------|--|
| 1. Field drafting | 13 4/7 d. | 35 d. |
| 2. Office drafting or retouching | 15 4/7 d. * | 1 2/7 d. |
| 3. Preparation of bluesline. (Not necessary by usual method) | 6/7 d. | ---- |
| 4. Negative work | 6/7 d. | ⁴ 8 6/7 d. |
| 5. Total | 30 6/7 d. | ⁴¹ 39 1/7 d. |

* Better than average draftsman. Average time would be about 23 days. Adding 8 4/7 days to time on T-5655 or total of 38 3/7 days.

Reviewed in office by: L. C. Lande

Inspected by: B. G. Jones

Examined and approved: E. P. Reed

Thos B Reed
Chief, Section of Field Records

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Chief, Division of Charts

G. H. Wade
Chief, Division of Hydrography
and Topography.

PLANE COORDINATE GRID SYSTEM

Positions of grid intersections used for fitting the grid to this compilation were computed by Division of Geodesy and the computation forms are included in this report.

Positions plotted by Ed Reed Jr

Positions checked ^{on} by Ruling Machine by HDR

Grid inked on machine by HDR

Intersections inked by _____

Points used for plotting grid:

^{1,100}
x = 2,300,000 Ft
y = 615,000 Ft

^{1,1}
x 2,310,000
y 595,000

^{1,1}
x = 2,300,000
y = 580,000

x _____
y _____

^{1,1}
x 2,320,000
y 615,000

x _____
y _____

^{1,1}
x 2,320,000
y 580,000

x _____
y _____

Triangulation stations used for checking grid:

K = 2,314,557.93; Y = 613,757.13

1. Court 2, 1937 5. _____
2. Intersection of Projection Lines 6. _____
39° 26' 00" + 75° 53' 00"
3. K = 2,315,418.75; Y = 588,632.75 7. _____
4. _____ 8. _____

after making computations the x values for this grid were changed by subtracting 1,200,000 ft. corrections have been made on these computations in red ink. Bgg 3/27/40

GEODETIC POSITIONS FROM LAMBERT COORDINATES

STATE Md STATION X = 2,300,000
Y = 615,000

| | | | |
|--------------------------------------|-------------------------|--------------------------------|-------------------------|
| x | <u>2,300,000</u> | $R_0 + A$ | <u>26,369,112.76</u> |
| C | <u>2,000,000</u> | y | <u>615,000.00</u> |
| $x' (=x-C)$ | <u>300,000</u> | $R_0 + A - y$ | <u>25,754,112.76</u> |
| $\log (x-C)$ | <u>5.47712125</u> | $\frac{\theta}{2}$ (in secs.) | <u>1201.29635</u> |
| $\log (R_0 + A - y)$ | <u>7.41084659</u> | $\log \frac{\theta}{2}$ | <u>3.07965016</u> |
| $\log \tan \theta$ | <u>8.06627466</u> | $\log S$ | <u>4.68557241</u> |
| θ | <u>0° 40' 02".5927</u> | $\log \sin \frac{\theta}{2}$ | <u>7.76522257</u> |
| | <u>2402.5927</u> | | |
| $\log \theta$ (θ in secs.) | <u>3.38068015</u> | $\log \sin^2 \frac{\theta}{2}$ | <u>5.5304451</u> |
| $\log l$ | <u>9.79770654</u> | $\log 2$ | <u>0.3010300</u> |
| $\log \frac{\theta}{l}$ | <u>3.58297361</u> | $\log R^*$ | <u>7.41084659</u> |
| $\Delta\lambda (= \frac{\theta}{l})$ | <u>3828.0148</u> | $\log y''$ | <u>3.2423217</u> |
| | | y'' | <u>1747.23</u> |
| λ (central mer.) | <u>77° 00' 00".0000</u> | $R_0 + A - y$ | <u>25,754,112.76</u> |
| $-\Delta\lambda$ | <u>1 03' 48.0148</u> | y'' | <u>+ 1747.23</u> |
| λ | <u>75° 56' 11.9852</u> | R | <u>25,755,859.99</u> |
| | | | |
| | | y | <u>615,000.00</u> |
| | | y'' | <u>- 1,747.23</u> |
| | | y' | <u>613,252.77</u> |
| | | ϕ (by interpolation) | <u>39° 31' 01".9292</u> |

$$\tan \theta = \frac{x-C}{R_0 + A - y}$$

$$\Delta\lambda = \frac{\theta}{l}$$

$$\lambda = \lambda \text{ (central mer.)} - \Delta\lambda$$

$$y'' = 2R \sin^2 \frac{\theta}{2}$$

$$y' = y - y''$$

C is constant added to x' in computation
of coordinates

R_0 is map radius of lowest parallel

A is value of y' for R_0 ; in most cases it is zero

ϕ is interpolated from table of y'

* Use $(R_0 + A - y)$ as an approximate value of R and later correct this value when R is obtained below.

GEODETIC POSITIONS FROM LAMBERT COORDINATES

STATE Md STATION $x = 2,300,000$
 $y = 580,000$

| | | | |
|--------------------------------------|--|--------------------------------|--|
| x | <u>2,300,000</u> | $R_0 + A$ | <u>26,369.112.76</u> |
| C | <u>2,000,000</u> | y | <u>- 580,000.00</u> |
| $x' (=x-C)$ | <u>300,000</u> | $R_0 + A - y$ | <u>25,789.112.76</u> |
| $\log (x-C)$ | <u>5.47712125</u> | $\frac{\theta}{2}$ (in secs.) | <u>1199.6661"</u> |
| $\log (R_0 + A - y)$ | <u>7.41143640</u> | $\log \frac{\theta}{2}$ | <u>3.07906040</u> |
| $\log \tan \theta$ | <u>8.06558485</u> | $\log S$ | <u>4.68557242</u> |
| θ | <u>$0^\circ 39' 59''.3323$ $2399''.3322''$</u> | $\log \sin \frac{\theta}{2}$ | <u>7.76463282</u> |
| $\log \theta$ (θ in secs.) | <u>3.38009039</u> | $\log \sin^2 \frac{\theta}{2}$ | <u>5.5292656</u> |
| $\log l$ | <u>9.79770654</u> | $\log 2$ | <u>0.3010300</u> |
| $\log \frac{\theta}{l}$ | <u>3.58238385</u> | $\log R^*$ | <u>7.4144658</u> |
| $\Delta\lambda (= \frac{\theta}{l})$ | <u>3822.8200</u> | $\log y''$ | <u>3.2417614</u> |
| λ (central mer.) | <u>$77^\circ 00' 00''.0000$</u> | y'' | |
| $-\Delta\lambda$ | <u>$1^\circ 3' 42.8200''$</u> | $R_0 + A - y$ | <u>25,789.112.76</u> |
| λ | <u>$75^\circ 56' 17.1800''$</u> | y'' | <u>+ 1744.86</u> |
| | | R | <u>25,790,857.62</u> |
| | | | |
| | | y | <u>580,000.00</u> |
| | | y'' | <u>- 1744.86</u> |
| | | y' | <u>578,255.14</u> |
| | | | |
| | | ϕ (by interpolation) | <u>$39^\circ 25' 16''.0336$</u> |

$$\tan \theta = \frac{x-C}{R_0 + A - y}$$

$$\Delta\lambda = \frac{\theta}{l}$$

$$\lambda = \lambda \text{ (central mer.)} - \Delta\lambda$$

$$y'' = 2R \sin^2 \frac{\theta}{2}$$

$$y' = y - y''$$

C is constant added to x' in computation
of coordinates

R_0 is map radius of lowest parallel

A is value of y' for R_0 ; in most cases it is zero

ϕ is interpolated from table of y'

* Use $(R_0 + A - y)$ as an approximate value of R and later correct this value when R is obtained below.

GEODETIC POSITIONS FROM LAMBERT COORDINATES

STATE Md STATION $x = 2,320,000$
 $y = 615,000$

| | | | |
|---------------------------------------|------------------------|--------------------------------|------------------------|
| x | <u>2,320,000</u> | $R_0 + A$ | <u>26,369,112.76</u> |
| C | <u>2,000,000</u> | y | <u>- 615,000.00</u> |
| $x' (=x-C)$ | <u>320,000</u> | $R_0 + A - y$ | <u>25,754,112.76</u> |
| $\log (x-C)$ | <u>5.50514998</u> | $\frac{\theta}{2}$ (in secs.) | <u>1281.3748</u> |
| $\log (R_0 + A - y)$ | <u>7.41084659</u> | $\log \frac{\theta}{2}$ | <u>3.10767618</u> |
| $\log \tan \theta$ | <u>8.09430339</u> | $\log S$ | <u>4.68557207</u> |
| θ | <u>0° 42' 42.7496"</u> | $\log \sin \frac{\theta}{2}$ | <u>7.79324825</u> |
| | <u>2562.7496</u> | | |
| $\log \theta$ (θ in secs.) | <u>3.40870617</u> | $\log \sin^2 \frac{\theta}{2}$ | <u>5.5864965</u> |
| $\log l$ | <u>9.79770654</u> | $\log 2$ | <u>0.3010300</u> |
| $\log \frac{\theta}{l}$ | <u>3.61099963</u> | $\log R^*$ | <u>7.4108465</u> |
| $\Delta \lambda (= \frac{\theta}{l})$ | <u>4083.1904</u> | $\log y''$ | <u>3.2983731</u> |
| | | y'' | |
| λ (central mer.) | <u>77° 00' 00.0000</u> | $R_0 + A - y$ | <u>25,754,112.76</u> |
| $-\Delta \lambda$ | <u>1° 08' 03.1904</u> | y'' | <u>+ 1,988.00</u> |
| λ | <u>75° 51' 56.8096</u> | R | <u>25,756,100.56</u> |
| | | | |
| | | y | <u>615,000.00</u> |
| | | y'' | <u>- 1,988.00</u> |
| | | y' | <u>613,012.00</u> |
| | | | |
| | | ϕ (by interpolation) | <u>39° 30' 59.5496</u> |

$$\tan \theta = \frac{x-C}{R_0 + A - y}$$

$$\Delta \lambda = \frac{\theta}{l}$$

$$\lambda = \lambda \text{ (central mer.)} - \Delta \lambda$$

$$y'' = 2R \sin^2 \frac{\theta}{2}$$

$$y' = y - y''$$

C is constant added to x' in computation
of coordinates

R_0 is map radius of lowest parallel

A is value of y' for R_0 ; in most cases it is zero

ϕ is interpolated from table of y'

* Use $(R_0 + A - y)$ as an approximate value of R and later correct this value when R is obtained below.

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GEODETIC POSITIONS FROM LAMBERT COORDINATES

STATE Md

STATION X = 2,320,000
Y = 580,000

| | | | |
|--------------------------------------|----------------------|--------------------------------|------------------|
| x | 2,320,000 | $R_0 + A$ | 26,369,112.76 |
| C | 2 000 000 | y | 580,000.00 |
| $x' (=x-C)$ | 320,000 | $R_0 + A - y$ | 25,789,112.76 |
| $\log (x-C)$ | 5.50514998 | $\frac{\theta}{2}$ (in secs.) | 1279.6359 |
| $\log (R_0 + A - y)$ | 7.41143640 | $\log \frac{\theta}{2}$ | 3.10708641 |
| $\log \tan \theta$ | 8.09371358 | $\log S$ | 4.68557208 |
| θ | 0° 42' 39".2718 | $\log \sin \frac{\theta}{2}$ | 7.79265849 |
| | 2559".2718 | | |
| $\log \theta$ (θ in secs.) | 3.40811642 | $\log \sin^2 \frac{\theta}{2}$ | 5.5853170 |
| $\log l$ | 9.79770654 | $\log 2$ | 0.3010300 |
| $\log \frac{\theta}{l}$ | 3.61040988 | $\log R^*$ | 7.4114698 |
| $\Delta\lambda (= \frac{\theta}{l})$ | 4077.6494 | $\log y''$ | 3.2978168 |
| | | y'' | |
| λ (central mer.) | 77° 00' 00".000 | $R_0 + A - y$ | 25,789,112.76 |
| $-\Delta\lambda$ | 1 07' 57.6494 | y'' | + 1985.26 |
| λ | 75 52' 02.3506 | R | 25,791,098.02 |
| | | | |
| | | y | 580,000.00 |
| | | y'' | - 1,985.26 |
| | | y' | 578,014.74 |
| | | | |
| | | ϕ (by interpolation) | 39° 25' 13".1576 |

$$\tan \theta = \frac{x-C}{R_0 + A - y}$$

$$\Delta\lambda = \frac{\theta}{l}$$

$$\lambda = \lambda \text{ (central mer.)} - \Delta\lambda$$

$$y'' = 2R \sin^2 \frac{\theta}{2}$$

$$y' = y - y''$$

C is constant added to x' in computation
of coordinates

R_0 is map radius of lowest parallel

A is value of y' for R_0 ; in most cases it is zero

ϕ is interpolated from table of y'

* Use $(R_0 + A - y)$ as an approximate value of R and later correct this value when R is obtained below.

GEODETIC POSITIONS FROM LAMBERT COORDINATES

STATE

Md

STATION

X = 2,310,000
Y = 595,000

| | | | |
|--------------------------------------|------------------------|--------------------------------|-------------------------|
| x | <i>2,310,000</i> | $R_0 + A$ | <i>26,369,112.76</i> |
| C | <i>2000000</i> | y | <i>595,000.00</i> |
| $x' (=x-C)$ | <i>310,000</i> | $R_0 + A - y$ | <i>25,774,112.76</i> |
| $\log (x-C)$ | <i>5.491,361.69</i> | $\frac{\theta}{2}$ (in secs.) | <i>1240.3726^3</i> |
| $\log (R_0 + A - y)$ | <i>7.41118372</i> | $\log \frac{\theta}{2}$ | <i>3.09355218</i> |
| $\log \tan \theta$ | <i>8.08017797</i> | $\log S$ | <i>4.68557225</i> |
| θ | <i>0° 41' 20".7453</i> | $\log \sin \frac{\theta}{2}$ | <i>7.77912443</i> |
| | <i>2486.7452^6</i> | | |
| $\log \theta$ (θ in secs.) | <i>3.39458217</i> | $\log \sin^2 \frac{\theta}{2}$ | <i>5.5582489</i> |
| $\log l$ | <i>9.79770654</i> | $\log 2$ | <i>0.3010300</i> |
| $\log \frac{\theta}{l}$ | <i>3.59687563</i> | $\log R^*$ | <i>7.4112151^7</i> |
| $\Delta\lambda (= \frac{\theta}{l})$ | <i>3952.5341</i> | $\log y''$ | <i>3.2704940</i> |
| | | y'' | |
| λ (central mer.) | <i>77° 00' 01".000</i> | $R_0 + A - y$ | <i>25,774,112.76</i> |
| $-\Delta\lambda$ | <i>1 5 52.5341</i> | y'' | <i>+ 1864.21</i> |
| λ | <i>75° 54' 07.4659</i> | R | <i>25,775,976.97</i> |
| | | | |
| | | y | <i>595,000.00</i> |
| | | y'' | <i>- 1864.21</i> |
| | | y' | <i>593,135.79</i> |
| | | | |
| | | ϕ (by interpolation) | <i>39° 27' 43".1065</i> |

$$\tan \theta = \frac{x-C}{R_0 + A - y}$$

$$\Delta\lambda = \frac{\theta}{l}$$

$$\lambda = \lambda \text{ (central mer.)} - \Delta\lambda$$

$$y'' = 2R \sin^2 \frac{\theta}{2}$$

$$y' = y - y''$$

C is constant added to x' in computation
of coordinates

R_0 is map radius of lowest parallel

A is value of y' for R_0 ; in most cases it is zero

ϕ is interpolated from table of y'

* Use $(R_0 + A - y)$ as an approximate value of R and later correct this value when R is obtained below.

PLANE COORDINATES ON LAMBERT PROJECTION

(For calculating machine computation)

State Md. Station Court 2, 1937
 $\phi = 39^{\circ} 30' 47.930''$ $\lambda = 75^{\circ} 53' 06.437''$
 Tabular difference of R for $1''$ of $\phi = 101.18117$

| | | | |
|--------------------------------------|----------------------------------|---|----------------------|
| R (for min. of ϕ) | <u>25,762,126.06</u> | y' (for min. of ϕ) | <u>606,986.70</u> |
| Cor. for sec. of ϕ | <u>- 4,849.61</u> | Cor. for sec. of ϕ | <u>+ 4,849.61</u> |
| R | <u>25,757,276.45</u> | y' | <u>611,836.31</u> |
| | | $y'' (= 2R \sin^2 \frac{\phi}{2})$ | <u>+ 1,920.82</u> |
| θ (for min. of λ) | <u>+ 0^{\circ} 42' 03.0892''</u> | y | <u>613,757.13</u> |
| Cor. for sec. of λ | <u>- 04.0401</u> | | |
| θ | <u>+ 0^{\circ} 41' 59.0491''</u> | | |
| θ'' | <u>2519.0491</u> | | |
| | | | |
| $10^5 M$ (for given $10''$) | | $10^7 K$ (for given $10''$) | |
| Cor. for fraction of $10''$ | <u>-</u> | Cor. for fraction of $10''$ | <u>+</u> |
| $10^5 M$ | <u>0.4848016296</u> | $10^7 K$ | <u>0.29604039</u> |
| $(R\theta) \cdot 10^{10}$ | <u>6.488384406</u> | | |
| $\sin \theta$ ($\theta'' M$) | | $2 \sin^2 \frac{\theta}{2} (\theta'' K)$ | |
| $x' (R \sin \theta)$ ($R\theta M$) | <u>314,557.93</u> | $2 R \sin^2 \frac{\theta}{2}$ ($R\theta K$) | (Place result above) |
| | <u>2,000,000.00</u> | | |
| x | <u>2,314,557.93</u> | | |
| | <u>11</u> | | |

$$x = 2,000,000.00 + R \sin \theta.$$

$$y = y' + 2R \sin^2 \frac{\theta}{2}.$$

y' = the value of y on the central meridian for the latitude of the station.

R , y' , and θ are given in special tables.

$\sin \theta = \theta'' M$ (see table for M).

$2 \sin^2 \frac{\theta}{2} = \theta'' K$ (see table for K)

The factors 10^5 and 10^7 indicate that the decimal point has been moved to the right five places in M and seven places in K . To determine the position of the decimal point in the result, move the decimal point in θ'' five places to the left for M and seven places for K . Multiplication will then give the result properly pointed off.

PLANE COORDINATES ON LAMBERT PROJECTION

(For calculating machine computation)

State Md Station _____
 $\phi = 39^{\circ} 26' 00.000''$ $\lambda = 75^{\circ} 53' 00.00''$
 Tabular difference of R for $1''$ of $\phi =$ _____

| | | | |
|---------------------------------------|---------------|--|----------------------|
| R (for min. of ϕ) | | y' (for min. of ϕ) | |
| Cor. for sec. of ϕ | - | Cor. for sec. of ϕ | + |
| R | 25,786,409.18 | y' | 582,703.58 |
| | | $y'' (=2R \sin^2 \frac{\theta}{2})$ | + 1,929.17 |
| θ (for min. of λ) | | y | 584,632.75 |
| Cor. for sec. of λ | - | | |
| θ | 0 42 03.0892 | | |
| θ'' | 2523.0892 | | |
| $10^5 M$ (for given $10''$) | | $10^7 K$ (for given $10''$) | |
| Cor. for fraction of $10''$ | - | Cor. for fraction of $10''$ | + |
| $10^5 M$ | 0.4848015909 | $10^7 K$ | 0.29651518 |
| $R \theta \cdot 10^{-10}$ | 6.506141051 | | |
| $\sin \theta$ ($\theta'' M$) | | $2 \sin^2 \frac{\theta}{2}$ ($\theta'' K$) | |
| $x' (R \sin \theta)$ ($R \theta M$) | 315,418.75 | $2 R \sin^2 \frac{\theta}{2}$ ($R \theta K$) | (Place result above) |
| | 2,000,000.00 | | |
| x | 2,315,418.75 | | |
| | 1,1 | | |

$$x = 2,000,000.00 + R \sin \theta.$$

$$y = y' + 2R \sin^2 \frac{\theta}{2}.$$

y' = the value of y on the central meridian for the latitude of the station.

R , y' , and θ are given in special tables.

$\sin \theta = \theta'' M$ (see table for M).

$2 \sin^2 \frac{\theta}{2} = \theta'' K$ (see table for K)

The factors 10^5 and 10^7 indicate that the decimal point has been moved to the right five places in M and seven places in K . To determine the position of the decimal point in the result, move the decimal point in θ'' five places to the left for M and seven places for K . Multiplication will then give the result properly pointed off.