

FE 160

WIRE DRAG

Diagram No.

NOAA FORM 76-35A

U.S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
NATIONAL OCEAN SURVEY

DESCRIPTIVE REPORT (HYDROGRAPHIC)

Type of Survey Photogrammetric

Field No.

Office No. FE-160WD

LOCALITY

State Puerto Rico

General Locality .. Caribbean Sea

Locality N. Culebra Island

1957

CHIEF OF PARTY
R.C. Darling

LIBRARY & ARCHIVES

DATE

☆ U.S. GOV. PRINTING OFFICE: 1976-669-441

NOTE: A new system for registering Field Examinations (FE's) was established in 1980. All FE's are now consecutively numbered as shown hereon. The date shown in the format is the actual date of survey. This material was previously registered as;

FE No.19, 1957

FE 160
WIRE DRAG

F E No. 19 1957 WIRE DRAG

Dist. Cht. No. 904-2.

Form 504

U. S. DEPARTMENT OF COMMERCE
COAST AND GEODETIC SURVEY

DESCRIPTIVE REPORT

Type of Survey WIRE DRAG

Field No. ESCAPE-1157 Office No. F.E. No. 19
(1957) W. D.

LOCALITY

State PUERTO RICO

General locality CARIBBEAN SEA

Locality N. CULEBRA ISLAND

19 57

CHIEF OF PARTY

R. C. Darling

LIBRARY ARCHIVES
AUG 22 1957

DATE

COMM-DC 61300

F E No 19
1957
WIRE DRAG

DESCRIPTIVE REPORT

FE 17(1957)

WIRE DRAG FIELD SHEET NO. ESCAPE 1157WD
CULEBRA ISLAND, PUERTO RICO
SCALE: 1:10,000
ROBERT C. DARLING - OFFICER-IN-CHARGE

A. PROJECT

Special for the Hydrographic Office, USN. Letter 20-RS D-1-NK, dated 12 July 1957 to Norfolk District Officer.

B. SURVEY LIMITS AND DATES

Sheet covers Latitude 18° 18' 30" to 18° 22' 30" and Longitude 65° 17' 00" to 65° 22' 00". Field work commenced on 28 July 1957 and was completed 3 August 1957.

C. VESSELS AND EQUIPMENT

The USS ESCAPE was the parent ship for personnel and setting out and taking in the drag. YTB 192 (Yard Tug Boat, 120 ft. long, 12 ft. draft) was the Guide Launch, YTB 746 was the End Launch, and the work boat off the USS ESCAPE was the tender. Standard wire drag equipment was used.

D. TIDE STATION

The tide corrections were taken from the predicted tide tables for San Juan, P. R.

E. SMOOTH SHEET

No smooth sheet will be prepared. An A & D sheet will take the place of the smooth sheet. *Plotting of strips on boat sheet also retained.*

F. CONTROL STATIONS

Manuscript RS-598 Photo Hydro - ACE, BOX, DOG, EVA
Hydro - CAR

See special report for Photogrammetry.

G. SOUNDINGS AND DRAG TESTS

Soundings were obtained by hand leads. Tests of the drag followed the method outlined in the manual.

H. CONTROL OF WIRE DRAG

Standard dual control methods were used. Cuts to the end buoys and the opposite vessel were taken immediately after each fix. (The end launch did not cut in the guide launch as directed.) The cuts were called plus (+) if the object was to the right of the signal and minus (-) if the object was to the left of the signal. Length of toelines was the distance from the center of the pilot house to the end buoy in each case.

J. ADEQUACY OF SURVEY

This survey is considered complete and is adequate to supersede prior surveys for charting.

K. COMPARISON WITH CHART

The wire drag is in good agreement with Chart 914 on the reported depths for the two shoals north of Culebra Island.

<u>No.</u>	<u>Lat.</u>	<u>Long.</u>	<u>HANG DATA</u>			<u>Least Sdg.</u>	
			<u>Hang Depth</u>	<u>Pos. No.</u>	<u>Clr. Dpth.</u>		
1	18° 21.05	65° 19.60	19.0 Ft.	14a	17.5 ⁰ Ft.	22A	---
2	18° 21.32	65° 19.65	26.0 Ft.	39a	23.0 Ft.	6b	---

L. TIME

Standard 60th Meridian time.

M. MISCELLANEOUS

The YTB used for guide and end launch could not be slowed to 1 knot speeds. The bos'ns in charge were briefed and shown how to maintain a tension on the drag at all times by observing the action of the end buoy. The engines were engaged periodically, enough to maintain tension and not to exceed a speed of 1 knot. The distances between position numbers are therefore not evenly spaced because of this.

All personnel on the end launch were inexperienced, however, the QMC had been with the Navy Hydrographic Survey, where he observed wire drag operations. He proved capable of taking sextant angles and plotting which was a big assist in using dual control for this survey.

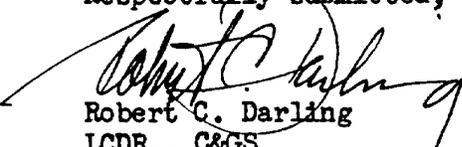
Radio communications were set up between all units, however, the TCS on the guide launch failed after position No. 4a. A walkie-talkie type was used between the guide launch, USS ESCAPE, and tender. Messages were relayed through the USS ESCAPE to the end launch. In the interim, whistle signals were used. Relay of messages was slow and misinterpreted, hence no cuts on the guide launch and continuous plotting by the end launch.

500 foot towlines were used because of the inexperienced crews. It was believed safer in the handling of the drag vessels and not as much danger in parting the drag. It was soon apparent on the guide launch that the bos'n in charge was very competent, hence the use of the 300 foot towline after the drag parted, subsequent to position 4a. The end launch was directed to use 300 foot tow on the second day of operations.

Strong Easterly winds are prevailing during this time of year. The winds and swells, however, moderated during the period of dragging and resumed their strength shortly after position 7b was reached. This fortunate break in the weather greatly assisted the operations.

Photo-Hydro signal BOX was originally incorrectly identified. The hydro signal CAR was therefore out of position, as BOX was used in determining CAR's location. A revised guide launch sheet was made to correct the plotting errors brought about by the signals being out of position. The correct location of signal BOX was obtained by a study of the 35 MM photos taken from a helicopter.

Respectfully submitted,


Robert C. Darling
LCDR., C&GS

RCD:fs

JAS

TIDE NOTE FOR HYDROGRAPHIC SHEET

Chart Division: R. H. Carstens

22 August 1957

Plane of reference approved in
3 volumes of sounding records for

HYDROGRAPHIC SHEET F.E. 19, 1957

Locality Culebra Island, Puerto Rico

Chief of Party: R. C. Darling in 1957

Plane of reference is mean low water

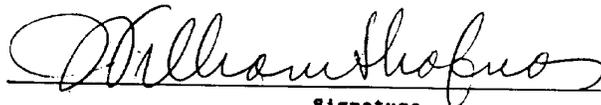
ft. on tide staff at

ft. below B.M.

Height of mean high water above plane of reference is 1 foot.

NOTE: Tide reducers were verified by using San Juan predictions with no correction.

Condition of records satisfactory except as noted below:


Signature

Chief, Tides Branch

Hydrographic Surveys (Chart Division)

HYDROGRAPHIC SURVEY NO. F.E. No. 19
(1957) W.D.

Records accompanying survey:

Boat sheets ..1..; sounding vols. .1...; wire drag vols. ...?...;
bomb vols.; graphic recorder rolls;
special reports, etc. 1-Descriptive report..1-A.&.D. Sheet..and..
.1-Chart No. 914,.....

The following statistics will be submitted with the cartographer's report on the sheet:

Number of positions on sheet	.....	
Number of positions checked	.....	
Number of positions revised	.....	0	
Number of soundings revised (refers to depth only)	.....	0	
Number of soundings erroneously spaced	.....	0	
Number of signals erroneously plotted or transferred	.....	0	
Topographic details	Time	.....	1
Junctions	Time	.....	0
Verification of soundings from graphic record	Time	.....	0
Verification by <i>J. J. Jeske</i>	Total time	.....	6
		Date	8/23/57
Reviewed by <i>J. J. Jeske</i>	Time	.....	3
		Date	8/24/57

Review of Field Examination No. 19, 1957

(Field Sheet No. ESCAPE 1157 W.D.)

This is a special wire-drag field examination made for the Hydrographic Office, U.S.N., by the Coast and Geodetic Survey. The work was accomplished in compliance with the Director's letter 20-RS D-I-NK, dated 12 July 1957.

The purpose of the examination was to verify the depths in the area encircled on Chart 914, dated 1-14-52, which lies about 3/4 of a mile east northeast of Punta de Melinos, Isla de Culebra, Puerto Rico, where H O N to M 12, 1957, reports depths of 20 ft. are known to exist.

The results of the work are as follows:

1. A wire-drag whose effective depth was 19 ft., hung in lat. $18^{\circ}21.05'$, long. $65^{\circ}19.61'$. A wire-drag whose effective depth was 17 ft. cleared the obstruction.
2. A wire-drag whose effective depth was 26 ft. hung in lat. $18^{\circ}21.32'$, long. $65^{\circ}19.67'$. A wire-drag whose effective depth was 23 ft. cleared the obstruction.

The results of the wire-drag examination are tabulated on page 2 of the Descriptive Report and are plotted on the accompanying section of smooth sheet. The area and depth diagram is shown on the accompanying cloth tracing.

The work was applied to Chart 914 from advance information of the present field examination (Chart letter 160, 1957). The cleared depth of 18 ft. charted in lat. $18^{\circ}21.12'$, long. $65^{\circ}19.57'$, was revised to 17 ft. during the verification and review of the field examination, and plots on the present field examination about 100 meters south-southwestward of its charted position. The cleared depth of 23 ft. in lat. $18^{\circ}21.32'$, long. $65^{\circ}19.67'$ is correct as charted. Reported depths of 25 ft. previously charted in the above positions originated with information reported by the Hydrographic Office, U. S. Navy (Chart letter 847, 1951).

The Descriptive Report adequately covers all other matters pertaining to this examination. No further discussion is considered necessary.

I. M. Zeskind
23 August 1957

Inspected by - T. A. Dinsmore

Chart 914 appl'd 8-26-57 after over. & Review mQ

For FE 19 (1957)

RS 598 - BP 55457
CL 568 (1957)

Form 504

U. S. DEPARTMENT OF COMMERCE
COAST AND GEODETIC SURVEY

DESCRIPTIVE REPORT

Type of Survey PHOTOGRAMMETRIC

Field No. Office No.

LOCALITY

State PUERTO RICO

General locality CARIBBEAN SEA

Locality N. CULEBRA ISLAND

19 57

CHIEF OF PARTY

R. C. Darling

LIBRARY & ARCHIVES

DATE

PHOTOGRAMMETRY

SPECIAL REPORT ON CONTROL STATIONS -
CULEBRA ISLAND, P. R.

1. GENERAL: In view of paragraph 8, Field Work, of the Report for RS-598, a determined effort was made to recover and identify all triangulation stations located in the area covered by photography. Station SURF 1900 was visited by packing from Flamingo Bay. An LCU landing could not be risked in the area of the station. It took two hours to reach the station site because of dense jungle growth and treacherous terrain. It was concluded from this experience not to take up valuable time needed for wire dragging to search out triangulation stations. In addition, the overhead of maintaining one large ship and two small vessels and about 130 personnel and officers for this work would be out of proportion in cost. It was decided to postpone the search for stations and use helicopter with only two personnel involved. This method would also enable photographs to be taken of stations to assist in photo interpretations, as the photographs furnished were ten years old.

White wooden tripods were built over each triangulation station in the range area (NW peninsula of the island) to be used for target locations and fall of shot positioning. The tripods were anchored to cement posts. The tripods are now destroyed by shell hits as a result of errors in target identification.

2. GEODETIC CONTROL:

Station SURF 1900 - This station was destroyed. The approximate site was found. There are six concrete posts with steel threaded rods at the top to which was secured the tripod beacon mentioned in the description No. 600, page 5. Identifiable points on the photos were tied into the center of these six posts. The 1947 photos also show this tripod which can be recovered direct on the photograph. It is recommended that this station not be used unless evidence in the plot indicates that the position on the photo is correct. 47

Flamingo 1900 - This station was destroyed. The approximate site was found. There is a 5 inch iron pipe about 20 feet high set in concrete that is supposed to be over the station site. There are 3 large concrete posts equally spaced from this iron pipe that once supported a white wooden tripod. The remains of this tripod are at the station site. Seven photos, Neg. Nos. 14 through 20 were taken of this station. The identification points were not recognizable on the 1947 photos, however, the tripod shows on the photograph and can therefore be recovered directly. It is recommended that this station not be used unless evidence in the plot indicates that the position on the photo is correct. 47

Stream 1900 - This point was a hydrographic signal cut in by triangulation. The site was visited, but since the station was never marked or described, only a guess could be made as to the station site. There was a large boulder with many crevices in it, located in a cleared area and at the highest point in that area. From past experience, this point has good possibilities for erecting a hydrographic signal - both for ease in making fast and visible in all directions. At best, this site is a guess and should not be used in the plot. R

Resaca 2 1914 - The station was recovered and four pictures were taken to assist in the identification (Neg. Nos. 1 through 4) A white "T" was placed over the mark to help pick out the station on these photographs. Enlargements were made of these photos and of photo VIR-1-149. It is difficult for a positive identification of points and station sites to be made after 10 years elapse of time. 5th

It is recommended that an experienced photo interpreter locate this station on the photos.

Scrub Cay 1900 - Station was recovered and two pictures were taken to assist in the identification (Neg. Nos. 5 and 6) Enlargements were made of these photos to further assist the identification on the photographs.

Fungy Bowl 1900 - Not visited - Navy said area was dangerous because of unexploded rockets and could not land personnel on the island. The description says the station on the highest part which is easily identifiable from any part of the Island of Culebra.

Culebra West Base 1900 - Not recovered - searched for $1\frac{1}{2}$ hours; station believed lost, as it is in traveled open area and no one in area remembers mark.

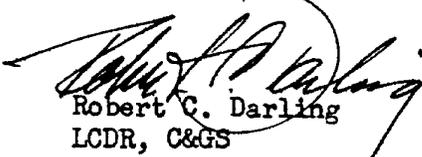
Culebra East Base 1900 - Not recovered - searched for 1 hour. This station is on the side of a hill near a prominent tree. Fence described in description is no longer there, however, it can be plainly seen on photo. The site is covered with very penetrating cactus, which hampered the search considerably. The mark should be undisturbed, as area is isolated, but was not found at this time.

3. PHOTO-HYDRO CONTROL:

It was not practical to use the office picked points in two cases. White wash was the most easily obtained material and would show up the best. The points selected by the office were at the water line and surf on the cliffs prevented white washing. Photo hydro site BOX was therefore relocated as shown in photo neg. Nos. 7 and 8. The site for CAR could not be identified on the photographs, hence it was located by sextant cuts and used as a hydro station. This point is shown on photo neg. Nos. 9 and 10.

Photo hydro site DOG and EVA were recovered as located on the manuscript. See photo neg. Nos. 11, 12, 13. Photo hydro site ACE could not be reached because of surf conditions. It was therefore relocated as the extreme NE tip of the island, as that was easily identifiable from the drag area without being marked.

Respectfully submitted,


Robert C. Darling
LCDR, C&GS

RCD:fs

RS-598 See Bp 55457, CL 568 (1957)

RS-sheet was destroyed on Coastal Mapping termination of PH-project. Original drawing contained excessive distortion resulting in displaced shoreline. Signals on FEA (1957) was adequately adjusted to approximately correct geographic positions.

*RH Karstens
11/75*

Photo -Hydro Signals



Neg # 8



Neg # 7



Neg # 9



Neg # 10



Neg # 12



Neg # 11



Neg # 13

Triangulation stations

1:4200
2:4700

4:10,000
1:2,400



Neg # 2



Neg # 4



Neg # 1



Neg # 3



Neg # 17



Neg # 16



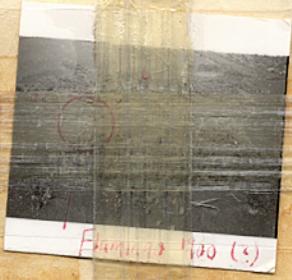
Neg # 19



Neg # 14



Neg # 20



Neg # 18



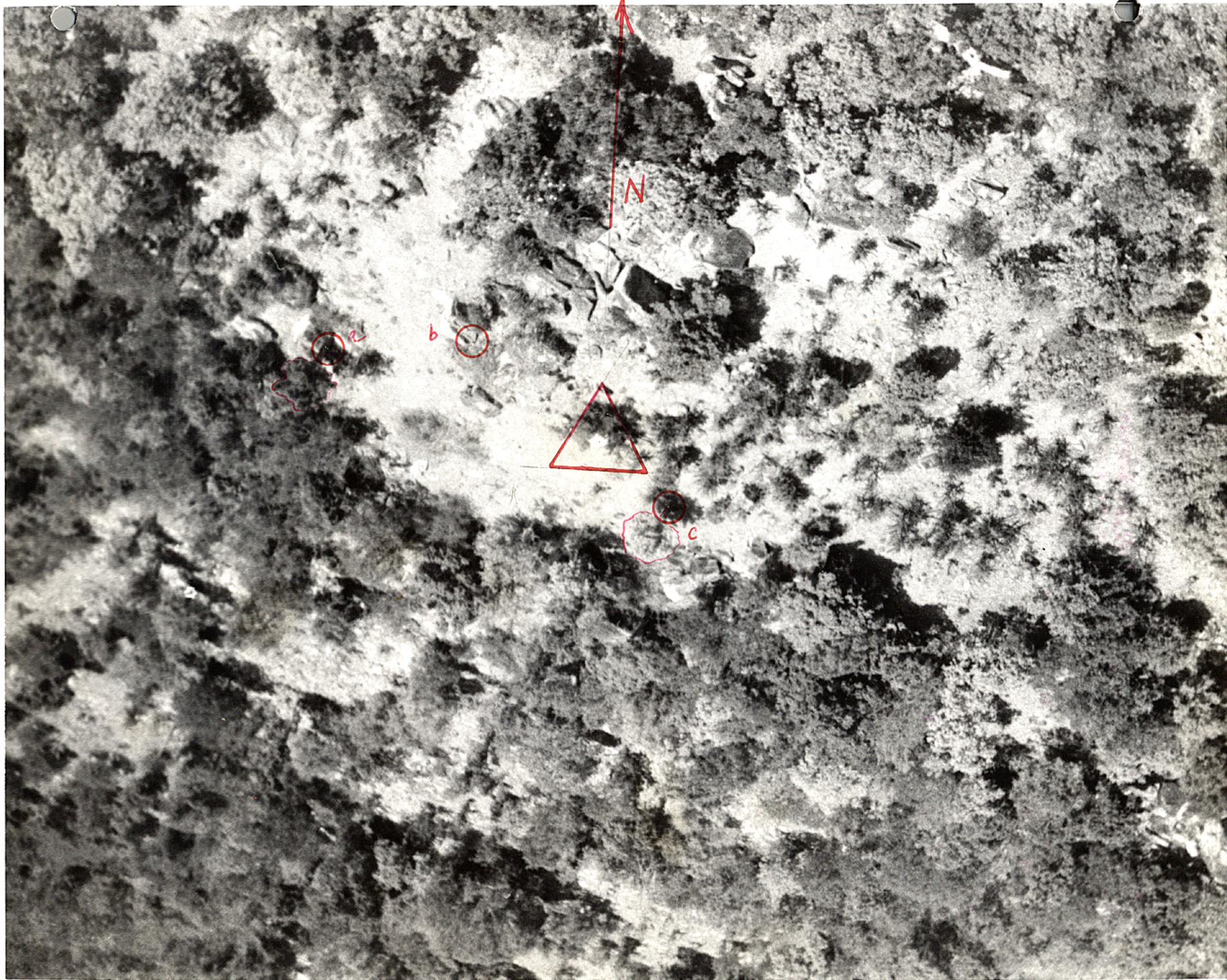
Neg # 15



Neg # 5



Neg # 6



@ RESACA 2 1914

a - FUNGY BOWL 1900 $\angle 41^{\circ} 01'$ dist. 57 Ft.

FUNGY BOWL 1900 - b $\angle 08^{\circ} 18'$ dist. 35 Ft.

c - FUNGY BOWL 1900 $\angle 171^{\circ} 08'$ dist. $20\frac{1}{2}$ Ft.

FUNGY BOWL 1900 - West target at Water line CAYO NORTE Island $\angle 114^{\circ} 24'$

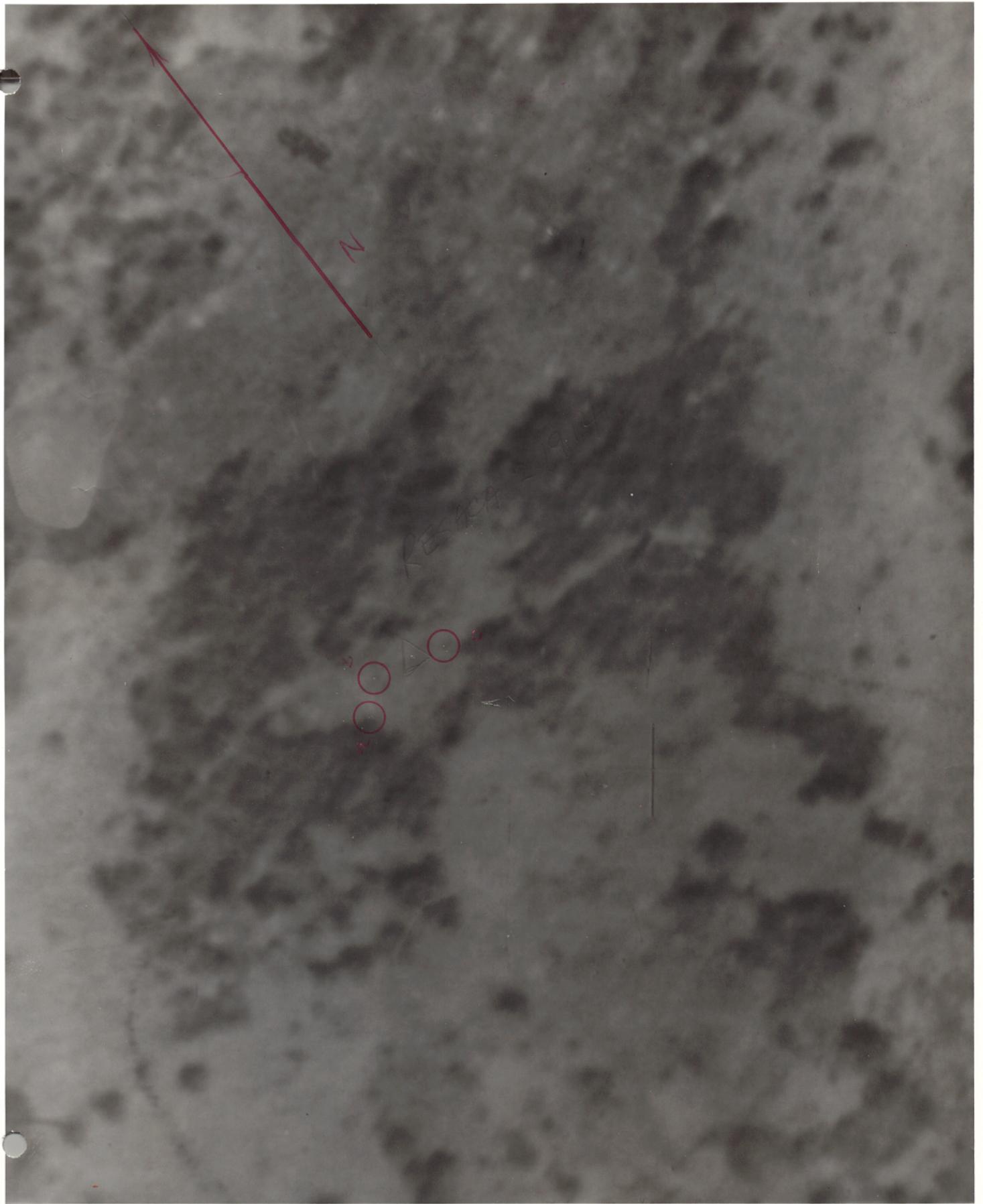
a. - base of dark colored tree

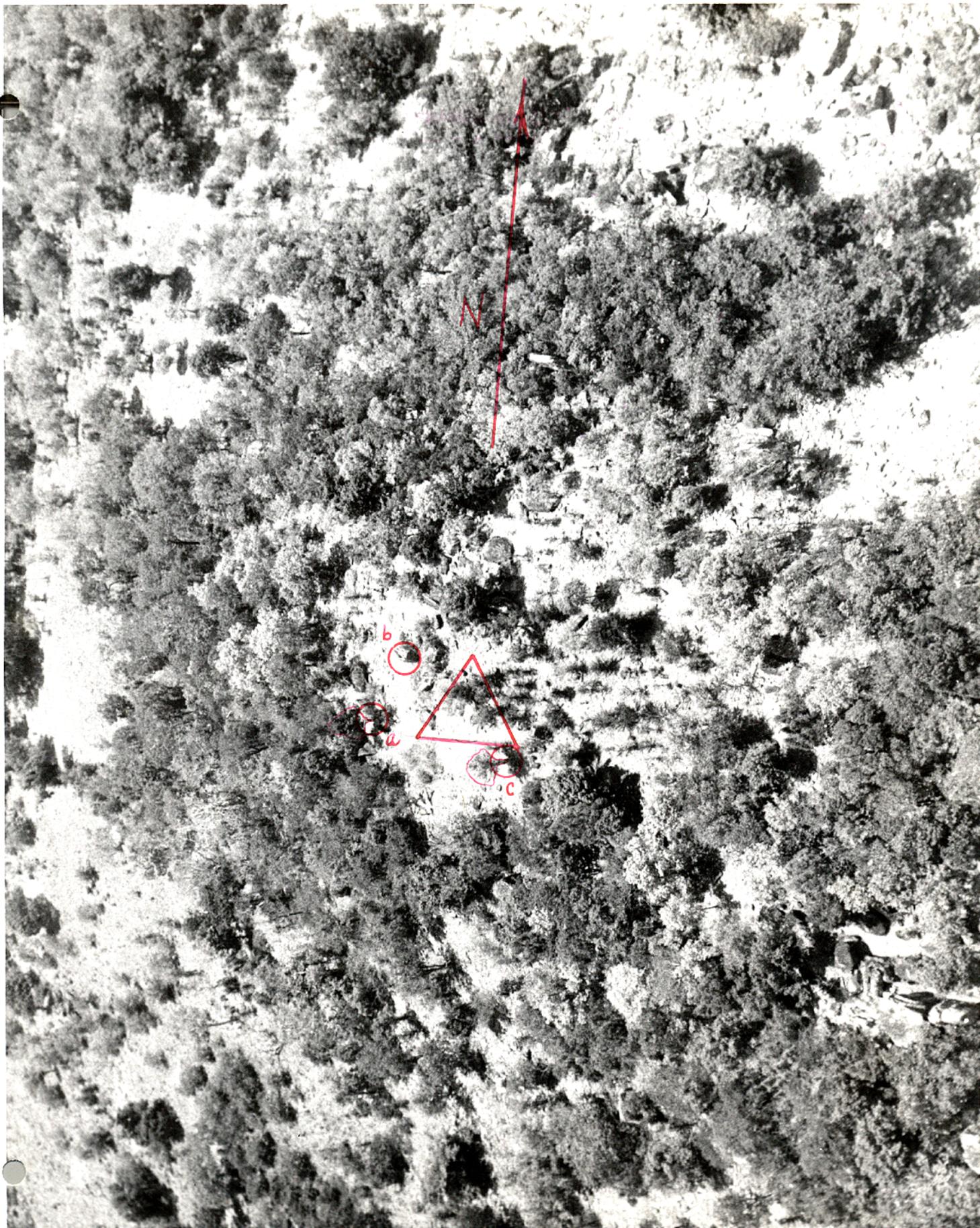
b. - top + S. tip of 7 Foot high boulder

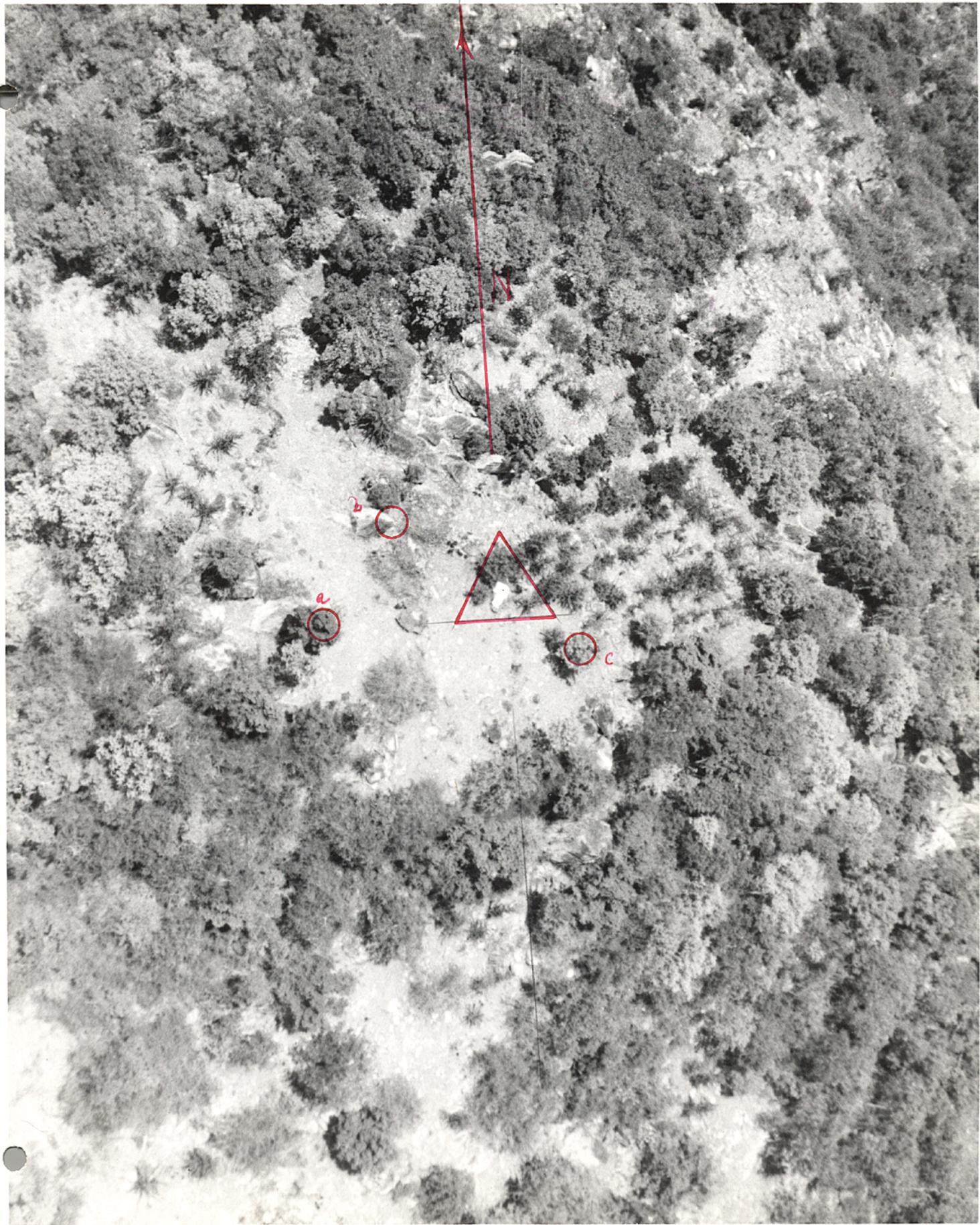
c. - base of light colored tree

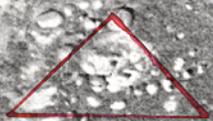
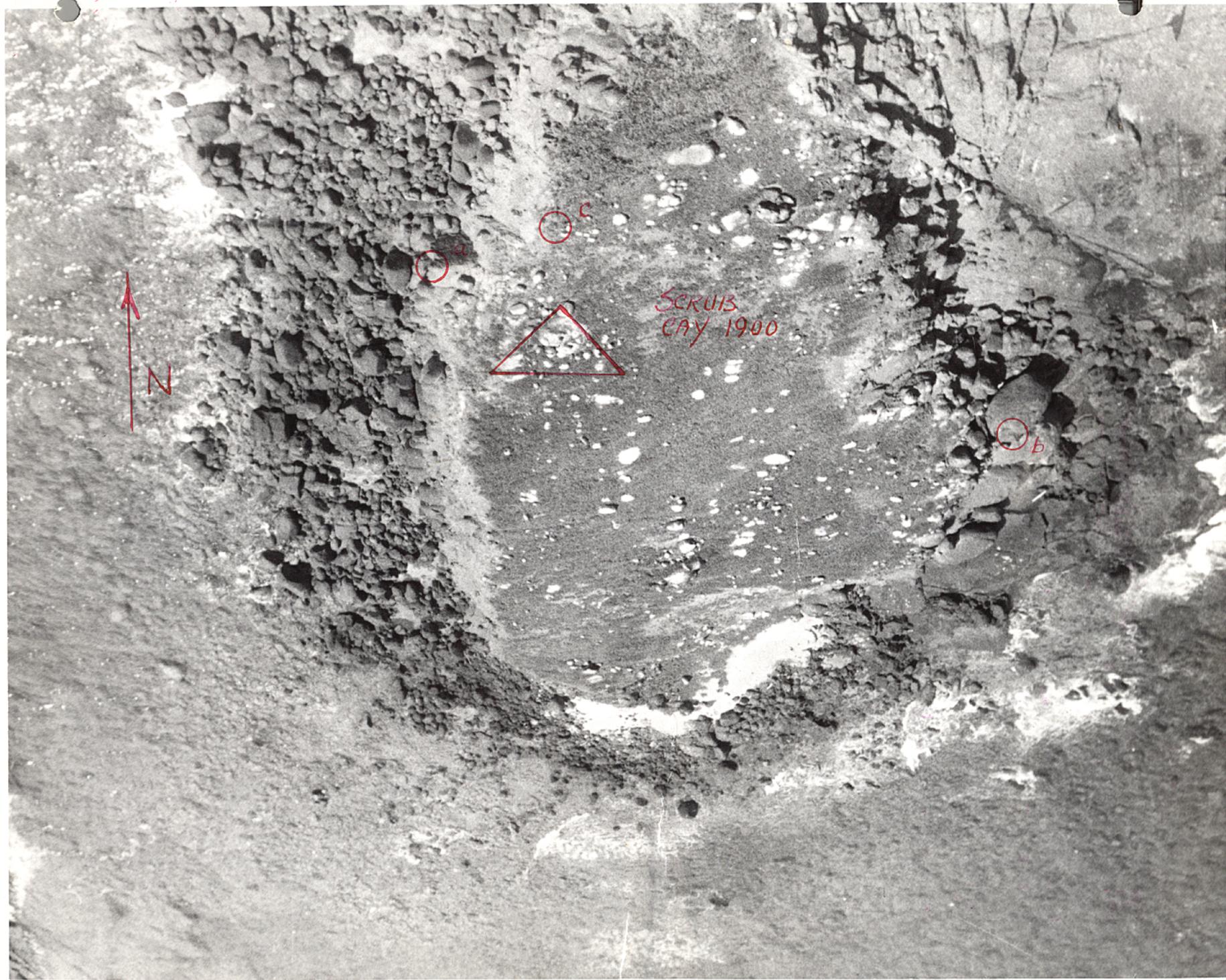
Time 1500 LOW meridian

8 Aug. 1957



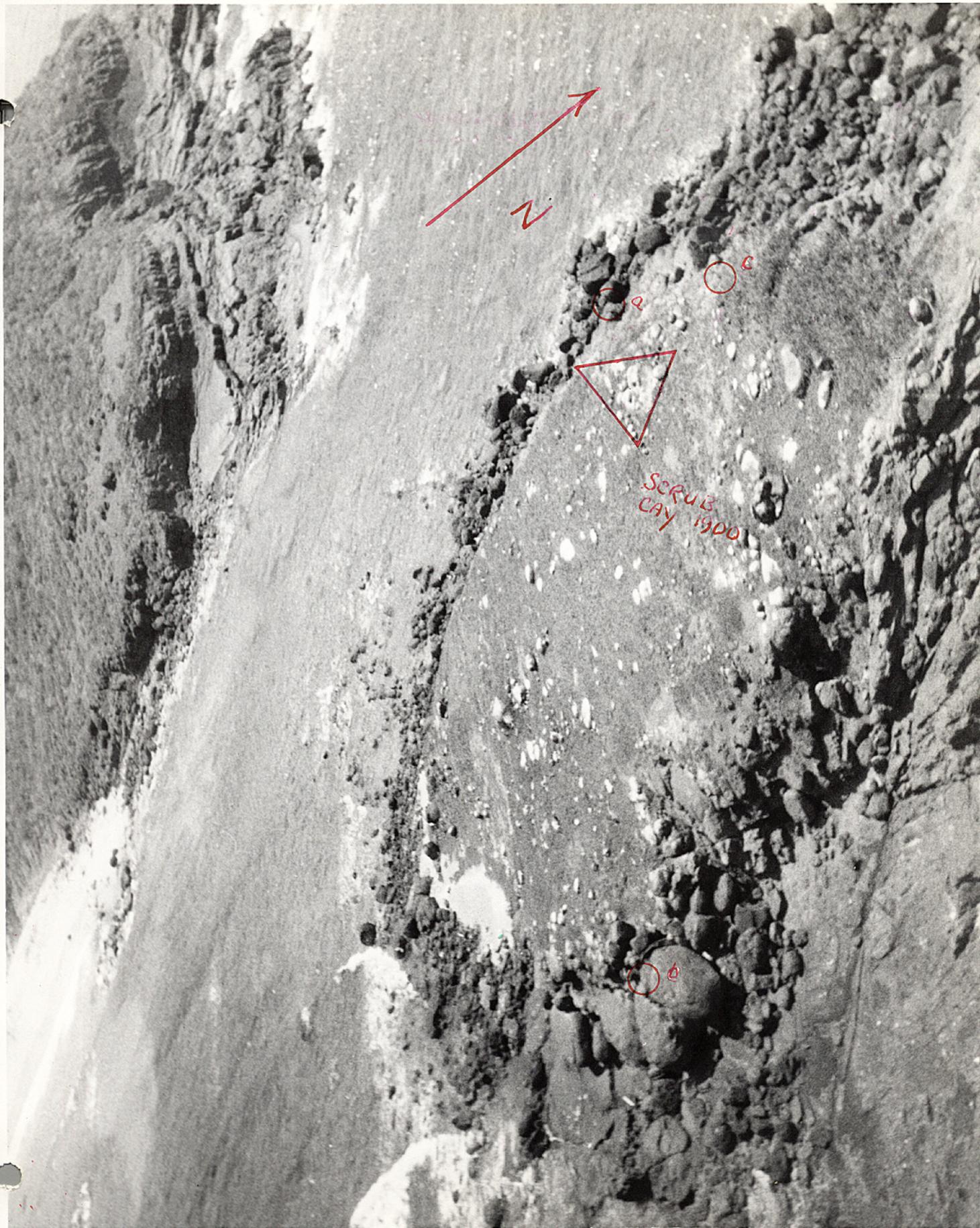


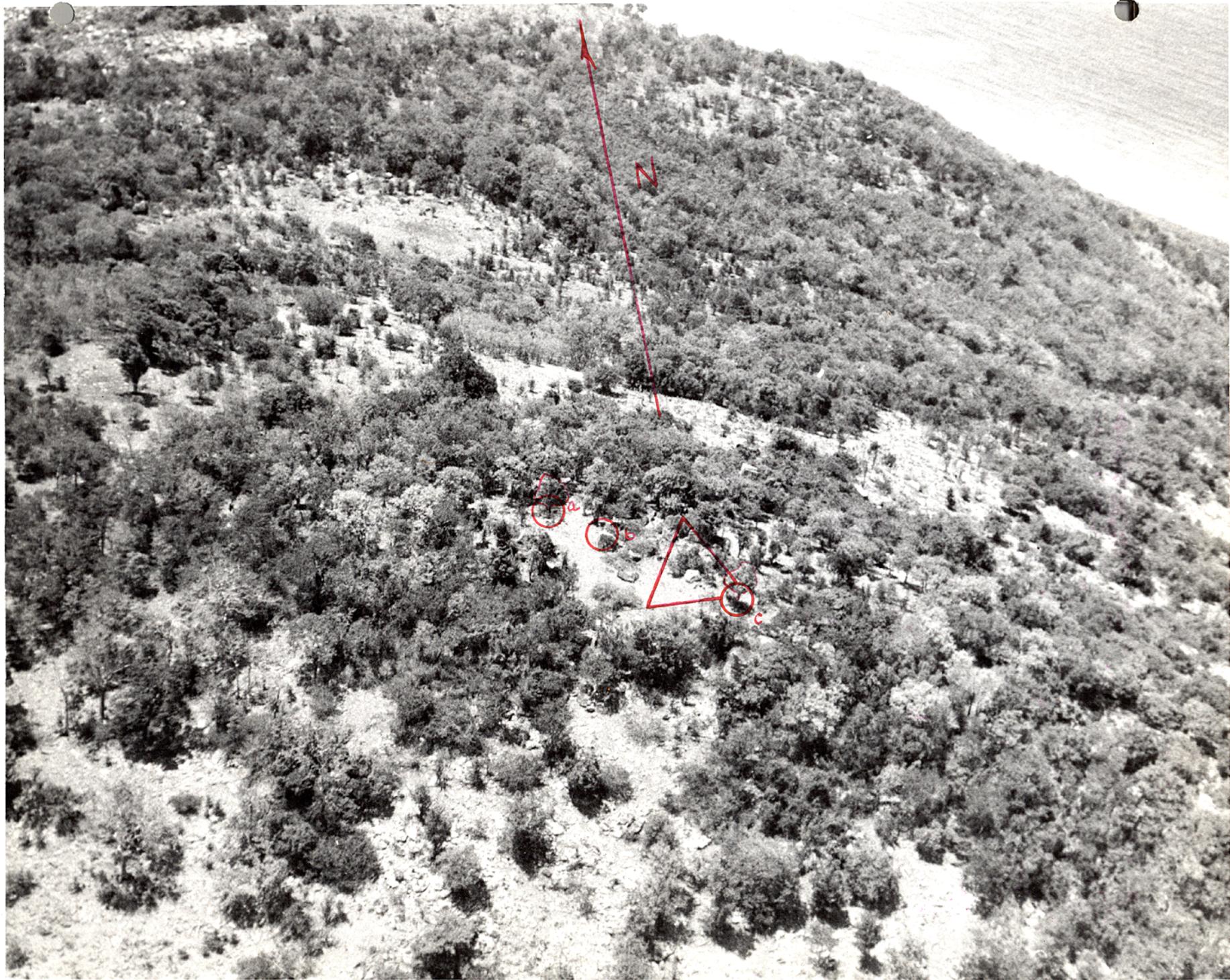




SCRUB
CAY 1900







CULEBRA ISLAND

Report for R 3 - 599

*Single Lens
Bridging
Report*

1. Photography

- (a) Camera - K17, 6 inch nitrogen lens. Photography taken by Navy in 1947
- (b) Photos - VIR-149 thru 151 and VIR-160 thru 163
- (c) Quality of photography - No evidence of film shrinkage could be found during the examination of the stereo models. The model quality was good.

2. Topographic Sheets

- (a) Culebra Island - Soldier Point to N.W. Point Coast and Geodetic Survey, 1900, 1:10,000, Register T2480
- (b) Eastern Part of Culebra Island - Coast and Geodetic Survey, 1900, 1:10,000 Register T2491

These sheets show differential shrinkage up to one MM per minute of projection. Attempts to obtain a scale for the setting of the stereo models, by holding detail points, proved unsuccessful due to either differential shrinkage or change in shoreline since 1900.

3. Geodetic Control Available

- (a) A control network is present but several of the stations (as noted in recovery sheets) have been destroyed. Control was not identified on the photos and could not be adequately identified in the stereo models.

4. Scaling

Since no control was identified on the photos and control stations could not be seen in the stereo models an attempt was made to scale to various landmarks and rocks on the stereo sheets. This proved unsuccessful ^{to go} due either to the age of the film, the age of the ~~best~~ or the change in topography over a period of 47 years.

The scale of the photography was found by comparison of the contact photography with the topographic sheets based on this overall scale, the C-5 stereoplanigraph was set up to yield a shoreline manuscript of approximately 1:10,000 scale.

5. Bridging

After setting the scale for the first model pass-points were dropped to control each following model in scale and position. Passpoints were held to a maximum in error at 0.2 mm

6. Compilation

The compilation was accomplished by detailing four stereo models. Three of the models were cleared of parallax very easily, however, model VIR-1-162--VIR-1-163 contained a minimum of land area and was rather difficult to clear and orient.

Heavy surf, especially around rocky point areas, made compilation of shoreline details and rocks difficult.

Office photographs were prepared with photos centers, passpoints and radials drawn with red ink. Photo centers and passpoints are shown by red ~~dots~~ *circles* on the reverse side of the manuscript.

7. Projection

The above compilation was made without a projection. The compilation was then placed over T2480, held to top details on T2480 (over-all fit) and the projection lines (Puerto Rico Datum) traced from T2480. Thus the compilation has been placed approximately on a projection *line*

It is a preliminary compilation, and should be used in accord ^{with} Photogrammetry instruction *14*. However, it is believed that the projection has been added with sufficient accuracy to permit photo-hydro signals to be used in conjunction with the existing triangulation.

8. Field Work

At least two and preferably three or four of the triangulation stations should be identified if practicable so that the compilation can be placed more accurately on datum for smooth sheet plotting.

Approved:

John Ferrow
Cartographer

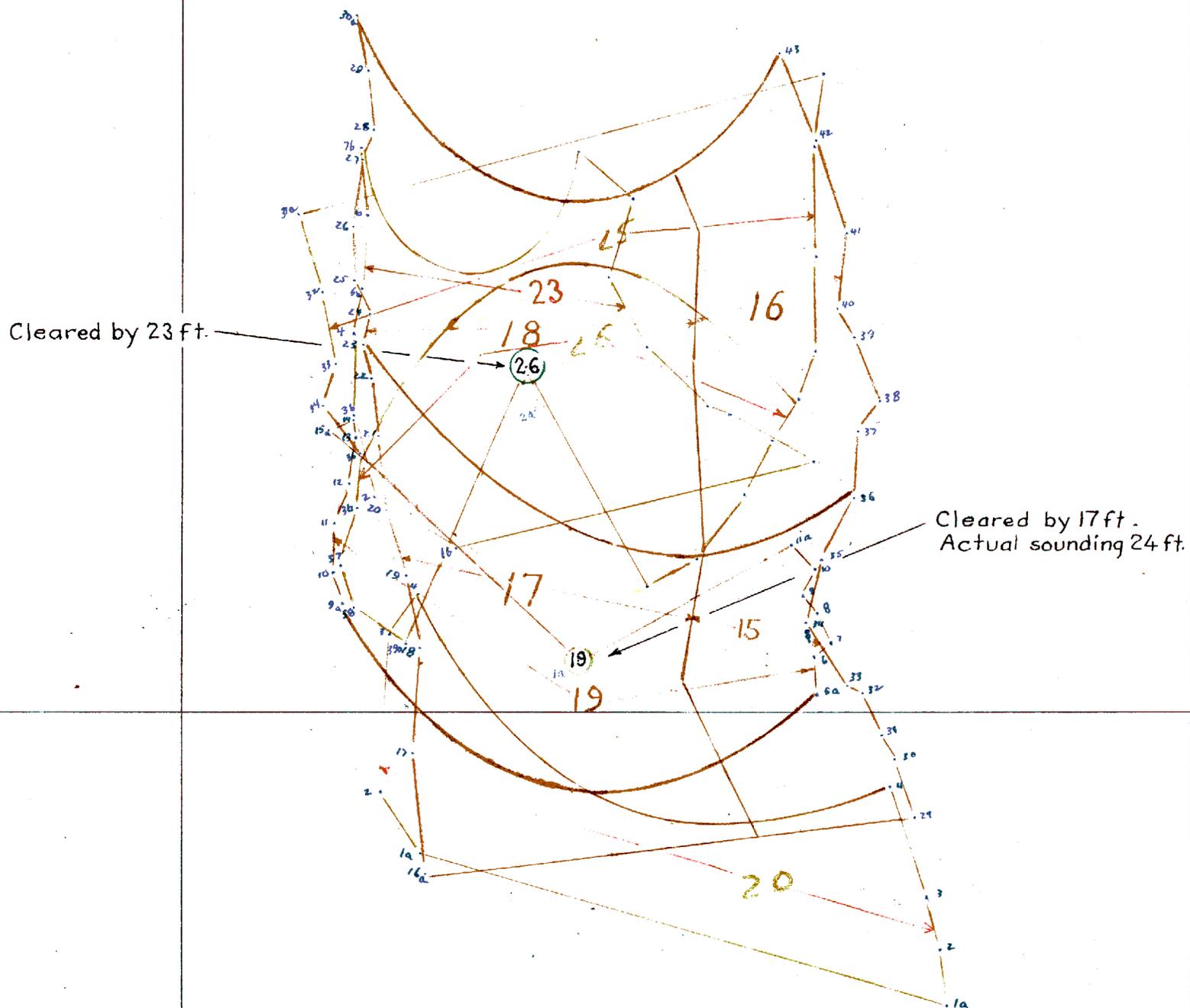
M. Keller, Chief
Single Lens Unit

65° 20'

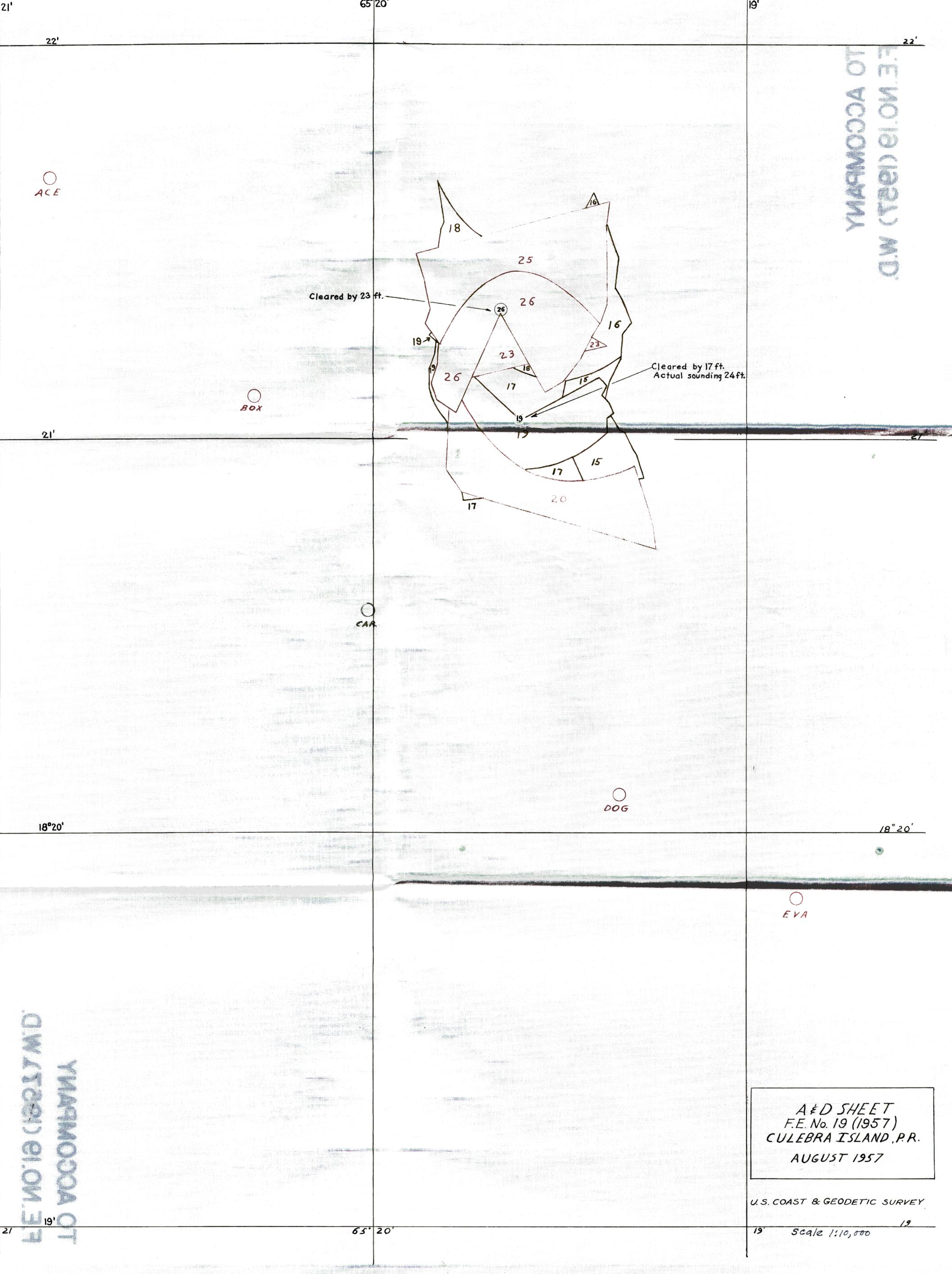
19'

22'

FIELD EXAMINATION No.19, 1957
WIRE DRAG
PUERTO RICO
CARIBBEAN SEA
NORTH CULEBRA ISLAND
Scale: 1-10,000
Soundings and depths of Drag in feet at M.L.W.



18° 21'



F.E. NO. 19 (1957) W.D.
 TO ACCOMPANY

Cleared by 23 ft.

Cleared by 17 ft.
Actual sounding 24 ft.

○
ACE

○
BOX

○
CAR

○
DOG

○
EVA

A & D SHEET
 F.E. No. 19 (1957)
 CULEBRA ISLAND, P.R.
 AUGUST 1957

U.S. COAST & GEODETIC SURVEY

Scale 1:10,000

F.E. NO. 19 (1957) W.D.
 TO ACCOMPANY