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Acc. No.

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Form 504	
DEPARTMENT OF COMMERCE	
U. S. COAST AND GEODETIC SURVEY	
State: <u>Louisiana</u>	
11-5613	
DESCRIPTIVE REPORT.	
(Aerial Photography)	
Topog.	Sheet No. <u>4038</u>
LOCALITY:	
<u>Miss. River Delta</u>	
<u>Grand Pass to Southwest Pass</u>	
1922	
CHIEF OF PARTY:	
<u>G. C. Mattison</u>	

A DESCRIPTIVE REPORT TO ACCOMPANY TOPOGRAPHIC

Sheet #3.

This sheet was compiled from airplane photographs. The photographs were made by personnel of the Navy Air Service in April and May 1922. Some photographs made in the spring of 1921 were used to fill in detail left between two of the strips.

The office reduction was not a continuous process. It was begun in March 1923, and the sheet completed in October 1923. The mosaics were constructed, and the pantographic reductions made by H. C. MacNab, Draftsman. The data was plotted on the sheet, and the sheet inked by G. C. Mattison.

The greatest percentage of error in any locality was found just west of the upper end of Southwest Pass. Within a space of two miles, the adjoining mosaics, when placed together, failed to check the control by the proportion 1/36. Errors of 1/60 were found when supplemental control was carried between the lower end of Grand Pass and △ Double Bayou Light. These errors were all distributed. In all other cases the errors were less than 1/100. Greater errors than this were found but they were traced to the source and corrections made. The shoreline of the river and Southwest and Grand Passes, should exceed in accuracy the results obtained in our planetable surveys.

GENERAL DESCRIPTION.

This whole area is marshy, with occasional solid ground close to the banks of the principal Passes. The greater portion is covered with a growth of cane, 10 to 14 feet high. Willows grow thickly along the river, Grand Pass and upper Southwest Pass on the west bank. They also mark the lines of the old bayous branching from Grand Pass.

GRAND PASS is said to be quite deep, but is limited for navigation purposes, in that a sill extends across the upper part. This is said to have a depth of 8 feet in places. The Pass is very shallow at its lower end.


SOUTHWEST PASS is lined with willows near its upper end on the west bank, with willow clumps scattered along the opposite bank.

There are only three or four habitations in this whole area, and they are used by fishermen during part of the year.





There was difficulty in interpreting the correct shoreline of some of the lakes and bays, due to the presence of lily patches. This was in part overcome by comparing the photographs of 1921 with 1922 and also by studying the obliques.


DETAIL OF CONSTRUCTION OF SHEET.

The triangulation stations covering this area had been computed using two different bases. The 1921 stations and those of previous years were based on the delta, while those of 1922 were computed from a scheme extending to Mobile. In order to tie in the two schemes, some of the 1922 stations were computed on the same datum used for the other stations. The stations computed on this datum are those 1922 stations the names of which appear in red ink.

Control flights on this sheet followed the Mississippi River, Southwest Pass, and Grand Pass. Two other crossflights had been made for control purposes, one in a southeasterly direction from a point on Grand Pass about 1 mile above  Campbell's Derrick, to the banks of Southwest Pass about 2 miles below the head of the Passes, and the other from the lower end of Grand Pass to Southwest Pass. The latter flight was of little value for control, as the flight passed over an open body of water making it impossible to construct a continuous mosaic. The remainder of the flights ran in a general northeast and southwest direction, or normal to the river.

The control strips were first plotted on the sheet and the remaining strips reduced using the control laid down. After reducing all the mosaics by means of the pantograph, a preliminary comparison of the reductions was made, and discrepancies of up to 160 meters were noted. Small discrepancies of 10 to 20 meters were found between adjoining strips. The large discrepancies occurred when it was necessary to carry control through several mosaics by graphical methods. It was decided that this must be almost wholly due to tilt, and that a study should be made of the photographs and mosaics with the idea of adjusting the control points, making allowance for tilt. The amount and direction of tilt was unknown, but comparisons could be made between adjoining photographs, and an indication of just which photographs were tilted would determine whether that photograph's control points should be given much weight.

Mosaic #63, (16-28BB), was used to plot control along the river between the Jump and Cubit's Gap.  River Light at Jump and  Quarantine were used for control.  North Base near the center of the mosaic was used as a check. There was a distance of 6 miles between the two control points. Fitting the reduction on these points,  North Base checked within 5 meters, or in ratio of 1/1,000.

Mosaic #64 - (8-18 K), covered the same territory as #63. There was tilt in this strip, and  North Base did not check in azimuth by 60 meters, an error of 1/85, There was no error in distance.

Mosaic #55- (43-54L), along upper Grand Pass between △ River Light at Jump and △ Campbell's Derrick. The preliminary examination indicated that this control strip was probably in error. An examination of the photographs showed excessive tilt in two photographs, and these two photographs had been oriented by matching along lines normal to the axis of the mosaics. This would cause a swing in the mosaic.

Mosaics #72, 73, and 74 and #110 were used to carry control along the pass in order to correct Mosaic #55. Mosaic #72 extended from the river near △ North Base to △ Campbell's Derrick, #73, #74 and #110 joining on the northwest side. These four mosaics indicated an error in Mosaic #55 in azimuth at the center, of 85 meters, or the ratio of 1/62. The four mosaics checked each other throughout their lengths.

Mosaic #113 (43-49L), was constructed and reduced to show the upper part of Grand Pass to a correct scale.

Mosaic #109 - (8 - 15V, 1921) completed the area near the northwest corner of the sheet where there was a gap left in the 1922 flights.

Mosaics #71, 69, 121, 70, 119, 120, 78 and 105 were used to cover the area southeast of Mosaic #72, and extending to a flight between △ #2 Engineering Station and △ Grand Pass. Supplemental control was carried from one strip to the next for the purpose of checking the control flights. Between △ North Base and △ Quarantine, control was carried through 6 mosaics, a distance of 3 miles, and checked within 45 meters, an error of 1/130. Between △ Quarantine and △ No. 2 Engineering Station, through 4 mosaics, a distance of 3 miles, the control checked within 60 meters, an error of 1/100.

Along Grand Pass between △ Campbell's Derrick and △ Grand Pass, the control checked exactly.

Mosaic #56 - (55-67L) was the control strip for the lower half of Grand Pass. This control checked exactly with the supplemental control carried through other strips.

Mosaic #76 - (65-77W) was a control strip running across the other flights, in the interior of the delta. This flight served as a control for those strips that did not check, which was the case in the flights close to Southwest Pass.

Northwest of Southwest Pass, there was a great deal of difficulty in constructing and checking mosaics. Broken flights had been made, and numerous gaps in the work necessitated using pictures made in previous years. The assembling of the pantographic reductions gave the appearance of patch-work.

Mosaics #102, 106, 107, 104 and 101 were used to carry control from △ No. 2 Engineering Station to Southwest Pass. The control as carried did not close by 150 meters, or the ratio of 1/36.

It was necessary to reject this supplemental control entirely and depend upon mosaic #76 for control purposes.

Mosaics #102, 103, 100 and 99 were used to carry control between \triangle Grand Pass and \triangle Double Bayou Light. This did not check by 155 meters, an error of 1/60. This error was distributed.

Mosaics #116 and #117 were used to fill in gaps between mosaics.

The large ratio of error in this section, is probably due to tilt, and also weak construction of the mosaics due to the large water areas present.

Mosaic #75 was constructed in 2 sections, covering Southwest Pass between \triangle Head of Passes Light and \triangle Scott's Canal Light, and from there to \triangle Echo Camp.

Mosaic #108 - (31-45J) covered Southwest Pass also and checked #75 almost exactly.

Mosaics #111, 112 and 114 completed the sheet southeast of Southwest Pass. There was no way of checking the location of these three mosaics, but they checked with each other and with the Southwest Pass strips.

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

TOPOGRAPHIC TITLE SHEET

The finished Topographic Sheet is to be accompanied by the following title sheet, filled in as completely as possible, when the sheet is forwarded to the Office.

U. S. Coast and Geodetic Survey.

Register No. 4038 #3

State . . . Louisiana

General locality . . . Mississippi River delta

Locality . . . between Grand Pass to Southwest Pass

Chief of party . . . G. C. Mattison

Air ~~Photographic~~ Survey by Naval Air Service

Date of survey . . . April- May 1922

Scale 1/20,000

Heights in feet above . . . none

Contour interval none . feet.

Inked by G.C. Mattison . Lettered by G.C. Mattison

Records accompanying sheet (check those forwarded): Photographs,

Descriptive report ☒, Horizontal angle books, Field computations,

Data from other sources affecting sheet

Remarks:

The negatives of the aerial photographs are on file in the Archives. The photographs, pantographic reductions and notebooks will be forwarded at the completion of all the sheets.