

U. S. COAST AND GEODETIC SURVEY.

F. M. Thonn Superintendent.

State: *Alabama.*

DESCRIPTIVE REPORT.

Hydrographic Sheets Nos *1909-*
to - 1918.

LOCALITY:

Mobile River.

1888.

CHIEF OF PARTY:

J. Henry Turner.

- H01909 H01912 H01915**
- H01910 H01913 H01916**
- H01911 H01914 H01917**
- H01918**

Special Report

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Triangulation of Mobile River

J. Henry Turner.

It was originally intended to make the preliminary triangulation of the Mobile River with the plane table, but an examination proved the impracticability of this scheme, as the country bordering on the river is, with a few exceptions, a heavily wooded swamp; the trees overhanging the banks. Recourse was had to a small triangulation extending in a chain of quadrilaterals from Spanish River to the Alabama - the limits of the survey. In lieu of signals on shore, sapling cut in the neighboring woods & forced into the mud forming the bed of the river were made use of. Their distance apart limited by the width of the river varied from forty to four or five hundred meters. Sextants were used for measuring the necessary angles, in general six at each station. Necker cliffs =

culty was often experienced in observing angles (which had to be done from a boat anchored alongside the signal) on account of the rapid current causing the boat to swing thereby displacing the signals or else "running them down". At varying intervals short bases were measured to furnish as many checks as possible. Azimuth was carried up the river by axial lines. It was found possible, by resorting to numerous devices, to measure all of the azimuth angles with a six inch theodolite.

Instead of names the azimuth stations have, in nearly cases, been lettered; ~~instead~~ the points for carrying up the small triangulation bar numbers - those on the east side being numbered even - on the west side odd.

Three solar azimuths were observed with a 3 inch altazimuth - No. 112 - viz. at Spanish River, 21 mile bluff & Mt. Vernon Landing.

The following instruments were used.
For measuring solar azimuths - 3 in. theodolite

No. 112 - For carrying azimuth up the river -
Theod. no 12 - & for the small triangulation
Sextants nos. 128 & 178.

The length of river covered by the triangulation was 40 miles - necessitating over 1100 triangles - The numbers of azimuth lines about 50 - No. of bases 30.

In the absence of old triangulation points (none could be recovered) temporary use was made of an old wharf at the head of Spanish River to furnish a 'connecting' point. The latitude & longitude of the end of this wharf as taken from the old sheet has been used as a basis for my computations.

Much annoyance & delay was caused by incessant rains in February & April causing rapid rises in the river, thereby increasing much the difficulties of the work.

Additional statistics are given on the printed blank.

J. Henry Furness
Actg. Chief of Party

Special Report
Topography of the Mobile River

J. Henry Turner.

On account of the great number of Δ^m points & $\frac{1}{2}$ proximity to each other; the heavily wooded banks, & swampy character of the back country, the plane table was used but little in the survey of the Mobile River. The shore line being very regular - it was sketched in between stations the irregularities being noted. By this method almost as great accuracy was secured as could have been by the use of the plane table with the heavy cutting it would necessitate. Where the high piney lands touched the river, forming bluffs, the plane table was made use of & the topographic features, including the heights of the various bluffs, $\frac{1}{2}$ carefully mapped. The various bayous were explored for short distances. The

Topographical survey of the Moku is in no
wise inferior to the triangulation or topog-
raphy.

Statistics are given in the printed form

J. Henry Turner,

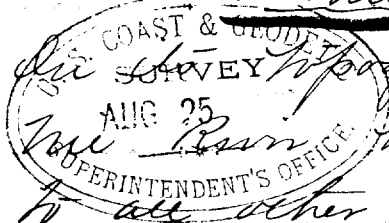
Aid & Chief of Party

Description Report -

Henry Turner

Mobile River - (Topl)

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Topographical features the Mobile River has a striking resemblance to all other delta rivers being bordered by a heavily timbered swamp formed by alluvial deposits. The Mobile River is the most westerly of those streams forming the delta, in several instances touching the enclosing walls - the high piney lands of the interior at these points of contact. Bluffs of red clay are formed varying in height from five to fifty feet & serving as landings for vessels plying the river. These bluffs afford easy access to the river from the interior. The roads being good & of easy grades. Five bluffs occur between Mobile & Mt. Vernon Landing & are designated by their supposed distances from Mobile as "21 mile bluff" - "27 mile bluff" - "31 mile bluff" - "32 mile bluff" - "37 mile bluff" & "42 mile bluff". "32 mile bluff" is also

Known as "Deymour's bluff"; 37 mile bluff as "Chestain's bluff" & 42 mile bluff as Mt. Vernon Landing. Mt. Vernon Arsenal is distant about 2½ miles from the Landing. At "37 mile bluff", 32 mile bluff & Mt. Vernon Landing are small settlements inhabited by negroes - There are no other settlements along the river worthy of a name.

The Mobile & Birmingham R.R. at 31 mile bluff runs within a quarter mile of the shore & at 37 mile bluff within ¾ mile. The L. & N. R.R. which follows the west bank of the river from Mobile crosses thirteen miles above the city runs to the eastward & crosses the delta. The bluffs are well timbered mostly with pine & in some places cultivated. The swamp bordering the river in other places is heavily covered with a dense growth of cypress, gum, bay melow (along-shore) & oak. The cypress timber in the spring is cut, made

into rafts & floated to Mobile then to be sawed & shipped abroad in vessels of all nationalities. The timber industry is a very large one numbers of immense rafts being floated down in the spring when the river is swollen by the spring freshets.

The cypress trees grow very large & tall - the growth being 60 or 80 feet in height.

The floods usually occur in winter about Dec. or Jan. & the spring rise in April. At Mt. Vernon the vertical rise is fifteen to twenty feet - a fifteen rise submerging all of the lowlands.

Most of the eroded material comes from the bluffs & is carried into Mobile Bay changing the contour of the river bottom very little -

J. Henry Turner
div.

Special Report Mobile River

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Hydrography J. H. Turner

In sounding the Mobile River the scheme selected was to run normal lines of soundings (lines at right angles to the axis) at distances apart of a hundred meters, connecting them by diagonals. This scheme has been followed over a large portion of the river. Towards the end of the season ^{limited} ~~a lack~~ of time necessitated the substitution of stream lines. From the Tusaw River to the origin of the Mobile River five stream lines & cross sections (normals) run at greater intervals. From Seymour's (32 mile) bluff to the Tusaw River three (3) such lines were run in addition to cross sections.

Sounding the river disclosed steep banks on either side so steep in fact that the eighteen feet curr in a great many places lies under the 12 feet curr.

Except in the case of stream lines all lines of soundings were run on

ranges from signal to signal.

From Spanish River to Bayou La
 two stream lines were run: from Bayou La
 to 18 mile point one stream line. The origi-
 nal scheme (normals & diagonals) was fol-
 lowed ^{in soundings} from Spanish River to 32 mile
 bluff.

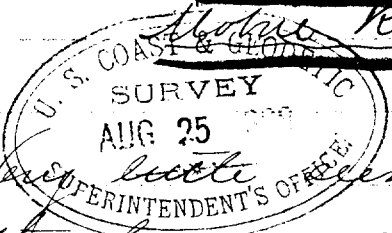
Statistics are given in the printed form

J. Henry Turner
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Descriptive Report

Hotate River (Hydrographical)

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J. Henry Turner.

This ^{herebefore} ~~is~~ ^{is} ~~not~~ ^{is} ~~known~~ ^{known} of
 the hydrography of the whole River even
 by pilots who have navigated its waters
 for years. The river is singularly free ^{from shoals.}
 - contrary to general report - the channel
 being comparatively broad & sharply
 & deepened throughout its entire length
 Between Spanish River & the head of
 the river but two "bulwarks" occur
 & on these the depth is several feet
 At the head of course a shoal oc-
 curs in the angle but does not ex-
 tend far enough from shore to be
 dangerous to navigation. The chief
 danger arises from the rapid cur-
 rent in some parts, notably at
 White Horse Bend where steamers pass
 much difficulty sometimes in man-
 euvring.

The river is very crooked the
 bends being in the cases of "White Horse"
 & Magnolia bends very sharp. There are three miles

above Mobile is Great or Or-bow^{head} where
the river crosses in a double horse-shoe

Several lines of Steamers ply this
river running from Mobile to interior
points such as Tuscaloosa & Montgomery

In the summer the boats all tie up
resuming operations in the winter. Dense
fogs sometimes impede navigation & float-
ing drift causes occasional accidents.

There are no striking landmarks to
show the pilot his whereabouts on dark
nights. The outlines of the river-tops are
used instead & from constant observation
forms a good substitute.

J. Henry Turner
A.S.