5787

Form 504
Rev. Dec. 1933

DEPARTMENT OF COMMERCE
U.S. COAST AND GEODETIC SURVEY
R. S. PATTON, Director

DESCRIPTIVE REPORT

Topographic
Hydrographic } Sheet No. 32

State South Carolina

LOCALITY

~~Upper~~ North & South Santee Rivers

Upper Part

1935

CHIEF OF PARTY

Lt. Comdr. [illegible]

U. S. GOVERNMENT PRINTING OFFICE: 1934

5787

Form 537
Ed. Dec., 1930

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

REG. NO.

HYDROGRAPHIC TITLE SHEET

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

Field No. 32

REGISTER NO. 5787

State South Carolina

General locality ~~Charleston, S.C.~~ North & South Santee Rivers

Locality ~~Upper North & South Santee Rivers~~ Upper Part

Scale 1:10,000 Date of survey December, 1934 + Jan. 1935

Vessel Party No. 19

Chief of Party Benjamin H. Rigg

Surveyed by Lt. (j.g.) Edward B. Brown, Jr.

Protracted by C. J. Harryman

Soundings penciled by L. B. White, Jr.

Soundings in ~~fathoms~~ feet

Plane of reference M.L.W.

Subdivision of wire dragged areas by _____

Inked by R. McCann

Verified by A.H.YEOMANS

Instructions dated October 10, 1933

Remarks: _____

U. S. GOVERNMENT PRINTING OFFICE, 1933

DESCRIPTIVE REPORT TO ACCOMPANY
HYDROGRAPHIC SHEET NO. 32

DATE OF INSTRUCTIONS - October 10, 1933.

SURVEY METHODS - The positions were taken by the standard three-point sextant fix on signals located by planetable triangulation. The soundings were taken while the launch was under way, with a hand lead line in deep water, and with a sounding pole in shoal water. The lead line and pole were graduated in fathoms and feet in accordance with standard methods; A note was entered in the sounding record when a change was made from lead line to pole or from pole to leadline. Sounding lines were run on ranges when possible. When no ranges were available, lines were run by compass courses. Shorelines were run by keeping a constant estimated distance off shore. In the North Santee River, five lines were run by following the general outline of the river. An attempt was made to keep the lines equally spaced between the side shorelines. No cross lines were run in the upper part of the North Santee River; because, due to high trees on either bank of the river, no ranges were available. The banks are very steep in the upper part of the N. Santee and it is believed by the hydrographer that under these conditions, cross lines would only lead to inaccurate results causing confusion and discrepancies. On the shore lines in this area there are several marked changes in depth in the soundings. This condition is due to the fact that the banks are very steep and the shoal soundings were taken one or two meters nearer the shore than the remainder of the soundings on the line.

In Minim Creek a shore line on either shore and an ebb-tide channel line were run. In the other small creeks on the sheet a single line was run to give hydrographic data for charting purposes; where possible the ebb-tide channel was followed, but where the creek was very narrow, a center line was followed. The soundings in these creeks were controlled by range

finder distances and compass bearings to points that could be identified on the compiled shore line.

The method used in running the lines was noted in the sounding records. The boat sheet must be used as a guide in plotting sounding lines.

PURPOSE OF SURVEY - The purpose of the survey was to obtain data for compiling a New Intracoastal Waterway chart. Particular attention was paid to the development of all natural waterways that are used as part of the Intra-coastal waterway. No attempt was made to do hydrography in dredged canals because that would only be a duplication of data furnished by the U. S. Engineer Department. Attention was paid to any channels that lead from the Intra-Coastal Waterway to points where supplies may be obtained and to inlets that lead to the ocean. An attempt was made to develop inlets out to the 12 foot curve and to junctions on either side with depth curves obtained by previous surveys. Single lines were run in small, unimportant creeks that are shown on the Aerial Photo Compilation Sheets so that hydrographic data could be shown in these creeks on the new chart.

DISCREPANCIES - None.

DANGERS - There is a sand bar that is bare at Mean Low Tide that extends about 70 meters off shore at Lat. 33° 08.7', Long. 79° 19.2'. There are several stumps on this bar that are covered at high tide.

A bar at the point of the island at Lat. 33° 08.8', Long. 79° 19.3' extends to the dredged canal. The sounding on the point at the edge of the canal is 2 feet.

At Lat. 33° 09.2', Long 79° 20.3', there is a snag that is covered at high tide. The snag is on a small shoal that is bare at Mean Low Tide. The hydrographic party nailed a piece of 2 x 4 pine lumber on the snag so that its position may be known at any stage of the tide.

At Lat. 33° 09.3', Long. 79° 20.8' a bar extends off the northern shore of the river. On the center of the bar, about 60 meters off shore,

there is a large snag that is bare at all stages of the tide. This snag was located by the topographic party.

A flat extends South Westward from the island at Lat. 33° 09.8', Long. 79° 22.2'. The controlling depth on the flat is ~~one to~~ two feet.

A sand bar extends off shore at Lat. 33° 09.9', Long 79° 22.5'. The controlling depth on the bar is two feet.

A flat extends off shore at Lat. 33° 10.3', Long. 79° 22.8'. The controlling depth on the flat is one foot.

A flat extends off shore at Lat. 33° 10.5', Long 79° 23.2'. The controlling depth on the flat is two feet.

A flat extends off shore at Lat. 33° 10.6', Long. 79° 23.7'. The controlling depth on the flat is two feet.

At Lat. 33° 10.2', Long 79° 17.5', a tree has fallen into the river (near signal But). The off shore end of the tree is about 34 meters off shore. The off shore and of the tree was located by an estimated distance while on a sounding line. A note is entered in sounding Vol. No. 5, page 14 on "h" day between pos. 83 and pos. 84. The uppermost branches of the tree are bare about 5 feet at Mean Low Water.

At Lat. 33° 10.4', Long. 79° 17.6' there is a sand mound that is bare at Mean High Water. This information was not shown on the boat sheet or the photo compilation. Probably is a part of the low water area shown on the sheet.

At Lat. 33° 10.3', Long. 79° 18.3' is a dredge cutter head that is bare 2½ feet at mean low water. This cutter head was located by an estimated distance when abeam of the launch on a sounding line. Since this cutter head was only about 15 meters off shore, no attempt was made to get a more accurate location of it. See note in sounding Vol. No. 5 page 15 on "h" day between pos. 90 and pos. 91.

In the North Santee River from Lat. 33° 10.3', Long. 79° 20.8' to Lat. 33° 12.7', Long. 79° 23.7', there are numerous dead trees, stumps, and snags about 5meters outside the high water line. Due to their quantity

and to their short distance from the high water line, no attempt was made to locate them.

CHANNELS - The Intra-coastal Waterway includes a section of Duck Creek and a section of the North Santee River. The controlling depth in this section of the Waterway is 11 feet at Lat. 33° 10.4', Long. 79° 17.3'; this depth is shown on the soundings between pos. 80 and 81 "g" day. A shoal point with a 6' controlling depth extends out the entrance to Big Duck Creek at Lat. 33° 10.5', Long 79° 17.2'; the depth off this point is 13 feet. Sounding lines in this section of the Waterway were spaced 15 to 20 meters apart.

The controlling depth in Big Duck Creek is 4 feet at its mouth, Lat. 33° 11', Long 79° 16.2'; and is 4 feet at Lat. 33° 10.6', Long. 79° 16.9'.

The controlling depth in Duck Creek is 6 feet at its mouth, Lat. 33.11.1' Long. 79° 16.3'; and is 6 feet at Lat. 33° 11.1', Long 79° 16.6'.

The controlling depth in the North Santee River from the lower limit of the sheet to the Intracoastal Waterway is ~~seven~~ (upper part) feet at Lat. 33° 09.9', Long. 79° 17'. +8ft. for lower part. A draft of 11 feet (the controlling depth in the waterway) may be carried from the waterway to the upper limit of the sheet by following the ebb tide channel.

A draft of 7 feet may be taken from the North Santee River to the South Santee River through Six Mile Creek. The controlling depth of seven feet is at its mouth, Lat. 33° 10.4', Long. 79° 22.8' on pos. 15 "b" day. When entering the creek from the North Santee River, a vessel must run close to the northern shore in the first reach to avoid a flat that extends off the southern shore at Lat. 33° 10.3', Long. 79° 21'; the controlling depth on the flat is 4 feet.

Pleasant Creek is of very little use; it is very narrow and crooked; it is controlled with a depth of two feet at its head, Lat. 33° 11.1', Long. 79° 22.1'.

In Minim Creek from the Intracoastal Waterway, Lat. 33° 11.7', Long. 79° 16.4', to the fork, Lat. 33° 12', Long 79° 19.2', the controlling depth is 6 feet at Lat. 33° 11.9', Long. 79° 18.2'. In the branch that goes through to the North Santee River the controlling depth is 7 feet at its mouth, Lat. 33° 11', Long. 79° 19.5'

Pleasant Meadow Creek leads to an old plantation landing at Lat. 33° 12.38', Long. 79° 19.8'. The controlling depth from Minim Creek to the Landing is 5 feet at Lat. 33° 12.3', Long. 79° 19.75'. Hydrography was continued to a foot bridge that blocked the creek; only a row boat could pass under the bridge. The controlling depth from the landing to the bridge is four feet.

Kinlock Creek is of very little use; there are no landings on its banks. It is very narrow and crooked, and comes to practically a dead end at Lat. 33° 12.6', Long. 79° 21'. The controlling depth at Lat. 33° 12.3', Long. 79° 20' is 5 feet. This depth may be carried to Lat. 33° 12.5', Long. 79° 20.8'; three feet is the controlling depth from this point to the head of navigation.

Bluff Creek is of very little use. It has no landings on its banks. The controlling depth in the creek is 4 feet at Lat. 33° 11.4', Long. 79° 20.5'. The creek is blocked by a large sand bar that is bare at low tide at lat. 33° 11.4', long. 79° 20.65'.

Little Duck Creek is of very little use. It has no landings on its banks and is blocked at Lat. 33° 11', Long. 79° 18.2' by a rice field bank. It is very narrow and crooked. It is controlled by a depth of three feet at its mouth.

Atchinson Creek is of very little use. It has no landings along its shore and is blocked at Lat. 33° 10', Long. 79° 19.9' by a rice field bank.

In the South Santee River from the Intracoastal Waterway to the mouth of Pleasant Creek, the controlling depth is 7 feet at Lat. 33° 09.3',

Examination of the photograph covering this area verified the existence of the wharf, and was added to the sheet and photo completion.

T-5382.

Long. 79° 20.4'. From the mouth of Pleasant Creek to the mouth of Six Mile Creek, the controlling depth is 5 feet at Lat. 33° 09.9', Long. 79°22.4'. The 5 foot channel is about 100 meters wide and crosses the middle ground in about a North-South direction. A wide 4 foot, controlling depth, channel may be found across the middle ground. In S. Santee R

From the mouth of Six Mile Creek to the upper limit of the sheet, the controlling depth is 3 feet at Lat. 33° 10.8', Long. 79° 23.9'. A very narrow 4 foot channel may be found in this area but the general controlling depth as stated above is 3 feet.

There is a small wharf on the South West shore of the river about 50 ± meters above (Northwest of) the highway bridge, Lat. 33° 11.1', Long. 79°24.3'. A small launch of about 4 feet draft may land at this wharf at high tide, but only a row boat could land at this wharf at low tide.

COMPARISON WITH PREVIOUS SURVEYS (CHART 1238)

In the North Santee River, the depth curves are in fairly good agreement. In the upper part of the river where no curves are shown on the chart, the depths obtained by the present survey are more shoal than the depth shown on the chart.

The section of the Santee River and Duck Creek that is used as part of the Intracoastal Waterway was dredged to a controlling depth of 11 ft. The old range was removed and new beacons installed to mark the waterway.

In the South Santee River a shoal point is shown extending about 170 meters off shore at the mouth of Alligator Creek, Lat. 33° 08.6', Long. 79° 18.8'. The present survey indicated that this shoal point no longer exists; that the six foot curve extends about 50 meters off shore in this vicinity. However, there is a point that is bare at Mean Low Water that extends about 70 meters off shore at Lat. 33° 08.7', Long 79° 19.3'. This point is not shown on the existing chart.

* It is believed both the N. + S. Santee Rivers was meant as 11 ft. is the shoalest depth recorded on the sheet in both Rivers. G.R.

There are two shoals that are bare at Mean Low Water to the Southward of Brown Island at Lat. 33° 09.2', Long 79° 20.3'. These shoals are not shown on the existing chart.

TIDAL DATA - See attached report.

STATISTICS -

Vol. No.	Miles	Soundings	Positions
1	36.5	1619	286
2	34.0	1490	237
3	38.5	1742	270
4	33.3	1585	230
5	39.1	1798	273
6	27.5	1266	211
	208.9	9500	1507

Respectfully submitted,

Edward B Brown Jr.

Lt. (j.g.) Edward B. Brown,
Jr. H. & G. Engineer

Forwarded by,

Lt. Benjamin F. Rice,
Chief of Party

CAG R

82-DRM

November 11, 1935.

To: Lieutenant B. H. Rigg,
U. S. Coast and Geodetic Survey,
Arcade Bank Building,
Atlantic City, New Jersey.

From: The Director,
U. S. Coast and Geodetic Survey.

Subject: Signal "Erg", H 5787 (field No. 32).

Inclosed is a tracing from your hydrographic survey H 5787 (field No. 32), North and South Santee Rivers, on which signal "Erg" and Beacon No. 11 are indicated.

The records do not contain any information regarding the character of signal "Erg". It is possible that this is the old location of beacon No. 5 which may have been removed at the time of the removal of other beacons in this vicinity.

You will please furnish the office with such information regarding the feature on which this signal is located as will permit its proper charting.

(Signed) R. S. PATTON

Inclosure.

Director.

80 POST-OFFICE ADDRESS:

20 TELEGRAPH ADDRESS:

EXPRESS ADDRESS:

DEPARTMENT OF COMMERCE

U. S. COAST AND GEODETIC SURVEY

November 16, 1935.

1935 NOV -18- AM 8:32

To: The Director,
U.S.Coast & Geodetic Survey,
Washington, D. C.

From: Lt. Benjamin H. Rigg,
Chief of Party,
Atlantic City, N. J.

Subject: Signal"ERG", H5787 (Field No.32)

You are advised that Signal "ERG" was the old intercoastal waterway Beacon No. 5. After the hydrography was completed on Sheet No.32, Beacon 5 was removed and new Beacon 11 was placed in this vicinity. Only Beacon 11 is now standing.

Respectfully,

Lt. Benjamin H. Rigg,
Chief of Party.

Applied to H. 5787 (1934).
GR/Nov. 1935.

GEOGRAPHIC NAMES

Date. May 27, 1935 — S. CAROLINA

Survey No. H5787

Chart No. 1238

Diagram No. 1238-2

Approved by the Division of Geographic Names, Department of Interior. ✳

Referred to the Division of Geographic Names, Department of Interior. R

Under investigation. Q

Status	Name on Survey	Name on Chart	New Names in local use	Names assigned by Field	Location
?	Kinloch Creek ✓	----------			
	Pleasant Meadow Creek ✓	Same			
	Minim Creek ✓	"			
	Little Duck Creek ✓	"			
	Bella Creek ✓	"			
	Bluff Creek ✓	---"---------			
	North Santee River ✓	Same			
	Garfish Creek ✓	----------			
	Sixmile Creek ✓	----------			
	Pleasant Creek ✓	----------			
	Atchison Creek ✓	Same			
	Fourmile Creek Canal	"			
	Duck Creek ✓	"			
	Little Crow Island ✓	"			
	Big Duck Creek ✓	"			
	North Santee Bay ✓	"			
	Crow Island ✓	"			
	Cedar Island ✓	"			
	Brown Island	"			
	South Santee River ✓	"			
	~~Mosquito Creek~~	Alligator Creek ✓			
		MOSQUITO CREEK			

APPROVED NAMES UNDERLINED IN RED

H.L. Flamer

(4-36)

HYDROGRAPHIC SURVEY NO. 5787

Smooth Sheet 1

Boat Sheet 1

Sounding Records 6 Vols.

Descriptive Report Yes

Title Sheet Yes

List of Signals Yes in Vol. 1

Landmarks for Charts (Form 567) See Letter 459 (1935)

Statistics Yes

Approved by Chief of Party B. H. Rigg

Recoverable Station Cards (Form 524)

Special Chart for Lighthouse Service
(Circular Nov. 30,1933)

Remarks

Field Records Section (Charts)

HYDROGRAPHIC SHEET NO. ..5787

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

Number of positions on sheet	.1507.
Number of positions checked	..23..
Number of positions revised	..3...
Number of soundings recorded	.9500
Number of soundings revised	..19...
Number of signals erroneously plotted or transferred	..0...

Date: Aug. 15, 1935

Verification by A.H.YEOMANS
INKED BY R. McCann

Time: 50 hrs. Verification by G.R. 9¾ hrs.
+ 14¾ hrs

Review by G.P.

Time: 21¼ "

Form 712
DEPARTMENT OF COMMERCE
COAST AND GEODETIC SURVEY
Ed. Feb. 1936

TIDE NOTE FOR HYDROGRAPHIC SHEET

June 19, 1935

Division of Hydrography and Topography:

✓ Division of Charts: Attention Mr. E. P. Ellis

Tide Reducers are approved in
6 volumes of sounding records for

HYDROGRAPHIC SHEET 5787

Locality Upper Part, North and South Santee Rivers, South Carolina

Chief of Party: B. H. Rigg in 1935
Plane of reference is mean low water reading
2.8 ft. on tide staff at Santee Club Wharf
5.2 ft. below B.M. 1
0.7 ft. on tide staff at U.S.E.D. Mimum Creek at E.M. Canal
7.3 ft. below B.M. 1
3.1 ft. on tide staff at North Santee Bridge
17.0 ft. below B.M. 1
0.8 ft. on tide staffat South Santee Bridge
21.7 ft. below B.M. 1

Height of mean high water above plane of reference is 4.1 ft. at Santee Club Wharf; 3.9 ft. at U.S.E.D. Mimum Creet at E. M. Canal; 3.0 ft. at North Santee Bridge; 3.8 ft. at South Santee Bridge.

Condition of records satisfactory except as noted below:

Paul S. Whitney

Chief, Division of Tides and Currents.

U. S. GOVERNMENT PRINTING OFFICE

H-5787 (1934-35)

1. The records conform to the requirements of the General Instructions.

2. The usual depth curves were completely drawn. The delineation of the depth curves by the field party was satisfactory. ✓

3. The field plotting was completed to the extent prescribed in the Hydrographic Manual. ✓

4. The office draftsman did no drafting over that had been done by the field party except make corrections to the shoreline so that it corresponded to the latest airphoto compilation. ✓

5. The junction with H-5785 (1934) was made and found to be satisfactory. ✓

6. The topographic signals Cow* and Erg,* lat. 33-10.2 long 79-17.5, are outside the high water line but no information could be obtained as to what they are on. They are probably old positions of beacons that have been removed. Beacons 1, 3, 5, 7, 9, 11, 13, 10 and 12 were plotted ± by the verifyer from topos T-6295 (a+b) and T6296 (a+b). These beacons seem to have been erected during or since the hydrographic survey. ✓

Submitted by,
A. H. Yeomans

* Signal Erg is on an old structure ("Bn 5") see Boat sheet,
" Cow is not known at this date (Oct. 23/35) what it is on. T. 6295 descriptive report, page 4, gives data on "Aids to Navigation" but does not clear the questions what signal Cow is on and whether both structures for the above signals are now existing.
This information will be requested from the field in order to represent the present conditions.

S. Risigari
Oct. 23/35.

± The new Bn's were located after the completion of the present survey.

Section of Field Records

REVIEW OF HYDROGRAPHIC SURVEY NO. 5787 (1934-35) FIELD NO. 32

Upper Part, North and South Santee Rivers, S. C.
Surveyed in 1934 - 35
Instructions dated Oct. 10, 1933 (B. H. Rigg)

Hand Lead and Pole Soundings.

3 Point fixes on shore signals.
Signals spotted from compiled shoreline.
Range finder and bearings on signals spotted from compiled shoreline.

Chief of Party - B. H. Rigg.
Surveyed by - E. B. Brown, Jr.
Protracted by - C. J. Harryman.
Soundings penciled by - L. B. White, Jr.
Verified by - A. H. Yeomans.
Inked by - R. McCann.

1. Condition of Records.

The records are neat and legible and conform to the requirements of the Hydrographic Manual. ~~except as follows~~:

The Descriptive Report is very complete and comprehensive and satisfactorily covers all items of importance.

2. Compliance with Instructions for the Project.

This is an excellent survey and fully complies with the instructions for the project. It may well be considered a standard for this type of waterway.

3. Shoreline and Signals.

The shoreline was transferred from T-5380 (1934), T-5381 (1934), T-5382 (1934), T-5383 (1934), and T-5384 (1934).

The topographic signals were obtained from T-6295a (1934), T-6295b (1934), T-6296a (1934), and T-6296b (1934).

4. Sounding Line Crossings.

A few cross lines that were run as well as the closely spaced adjacent lines, show good agreement.

5. Depth Curves.

The usual depth curves can be satisfactorily drawn.

6. Junctions with Contemporary Surveys.

The junction with H-5785 (1934) on the east is satisfactory.

7. Comparison with Prior Surveys.

a. H-1193a (1873).

This survey is on a scale of 1:10,000 and covers approximately the areas of North and South Santee Rivers, west of longitude 79° 21'.

Comparison reveals a number of changes in depths since the date of the old survey. With the exception of a few places, which are in fair agreement, the depths of the present survey are generally shoaler than those of the prior survey, with differences of as much as 7 feet for both rivers. The old survey contains no important shoals not fully developed on the present survey.

b. H-1193b (1873).

This survey is on a scale of 1:10,000 and covers approximately the areas of N. Santee River and Minim Creek between longitude 79° 17', and 79° 21', ~~and 79° 21'~~ and of S. Santee River, between longitude 79° 19' and 79° 21'. In a number of places the agreement is fairly good but aside from these the depths have, in general, changed particularly where dredging operations have occurred for the Intracoastal Waterway.

The 3 foot sounding (charted) in S. Santee River, off Alligator Creek falls in depths of 8 to 9 feet on the present survey. This sounding is part of a shoal off the north of the creek with depths of 3 to 6 feet on it. The present survey indicates a general deepening in this area and the 3 should be discontinued in future charting.

c. H-1194 (1873).

This survey is on a scale of 1:10,000 and overlaps the present survey with a few soundings on its east limit in N. Santee Bay and N. Santee River. A general shoaling has taken place in this area, in N. Santee Bay, by as much as 3 feet and in N. Santee River by as much as 6 feet.

8. Comparison with Charts Nos. 1238 (corrected to July 5, 1935)
3255 (" " December 11, 1934).

a. Hydrography.

Within the area of the present survey the charts are based on surveys discussed in the foregoing paragraphs and contains no additional information that needs consideration in this review.

b. Controlling Depths.

The controlling depth of 4 feet charted for the Intracoastal Waterway is maintained by the U. S. Engineers (Chart letter 206, 1935). The present survey did not cover the main portion of this waterway according to the Descriptive Report, page 6. The section of the Santee River and Duck Creek that is used as part of the Intracoastal Waterway was dredged to a controlling depth of 11 feet. This is generally borne out by the present survey. However, at the confluence of Duck Creek, Big Duck Creek and the both Santee Rivers in approximate latitude 33° 10.6', longitude 79° 17.3', the controlling depths of 11 feet is effective only for a very narrow strip.

c. Aids to Navigation.

The beacons as shown on the present chart No. 3255, originate with N. to M. 25 of 1931. There have been numerous changes in the positions of the beacons and their latest positions have been indicated on the aid proof from N. to M. 9 of 1935, N. to M. 13 of 1935, and chart letter No. 459 of 1935, and are in agreement with the positions located on the present survey.

9. Field Plotting.

The protracting of positions and the plotting of soundings were well done.

10. Additional Field Work Recommended.

No additional field work is required.

11. Note to compiler.

Since the execution of this survey several beacons have been removed. For authority see T-6295b.

12. Superseding Old Surveys.

Within the area covered the present survey supersedes the following surveys for charting purposes:

H-1193a (1873) Entirely.
H-1193b (1873) In part.
H-1194 (1873) " "

13. Reviewed by - G. Risegari, October 23, 1935.

Inspected by - A. L. Shalowitz.

Examined and approved:

C. K. Green, Chief, Section of Field Records.

L. O. Colbert, Chief, Division of Charts.

Chief, Section of Field Work.

Chief, Division of H. & T.

25 Jan 2, 1935
Cals

Applied to chart	836	Feb. 6, 1935	H.C.S.
" " "	787	May 1937	J.S.R.
" " "	1238	Oct. 22, 1937	g.H.S.