Volume 3d.

Survey of the Upper San Fran.

by the Commission Hydraul.

1879.

Pyretie Saline
Saturday, Nov. 8th
League 182

At little island de José Maria

A.M.
5.55
Start.
6.00
R.M.
App. head of little island - a split in land behind us and the main land seen.

Here is still a bar running off along the island toward the L.B., but far much smaller than the bar on the Map.

6.05
We turn a dead river - and then up.

6.10
Opp. town side of Outlet of the Miraflores Island Channel. It is a wide opening just as shown on map, and my impression is that this steamer can run through there, but I will not, at present, appear to doubt the statement of the pilot who says that there is no sufficient channel near the outlet, and that all the bases come the other way.

The mouth of this outlet from port to port is about 150 meters.

6.19
We are now heading for the L.B.

The Miraflores Island Channel makes a very peculiar junction with the river - lighthouse in stream.

6.25
We are about 200 meters from L.B. Still in running toward it -

The upper end of the bar now on L.B. side and not really opp. the outlet of the Miraflores Channel.
The steamer ran directly over where the bar appears on map, with 3 meters water now.

6.28
About 140 meters from L.B. running 4 km.

About 220 meters to left.

We are much closer to L.B. than Halfpenny.

There is a small Island de Povo on map, which appears now only as a "bar" - just above stream.

There is a larger I. de Povo further up, in sight.

6.35
We now head more toward mid-north south.

6.38
150 meters from L.B. Low flat - running to some

Moderate sand hills - the leading out of the larger Sand hills up yesterday.

6.42
Opp. Lower pt. Ilha do Povo - 300 m. to left.
L.B. nearly 200 m. to right.

6.46
A bar between us and L.B. is only 20 meters.

See on the leeward bank that set is off. Also found the island. Our channel is 3 to 4 meters.
Saturday Nov. 8

I. 180

8.00 Begin curve to right - Sharp - then Straight
600 meters wide - Run straight

8.04 Now at a wide place turn Sharp to N.
150 meters wide (4.14)

8.06 170 m. (3,33)

[We have much faster than usual for the last 15 minutes.]

8.08 200 meters wide

8.08 A large looking man here - 3.3.3.44.

8.10 Some good houses and people, on our left.
A little below opp. Xiquexique.

8.12 Opp. lower end of Xiquexique.

I fear that the map along here is far out of the way.

Xiquexique.

After breakfast I went on with my little to Fr. Plunket and our companion Mr. Kruger.
We visited the houses of Mr. Addis, Col. Farmies and J. W. Roberts.

All the gentlemen went on house immediately after breakfast to do the town.

After a while, just as I had finished correspondence and as it was about to give one boat to take me to town, it came off with nearly all of us (not all) the principal men of the place.

The Commandant of Toboto or Kama, the Provo (20 men) has came and come to the house of Mr. Nickerson, a very pleasant gentleman.

I acquainted them with their pleasant Charleston for a time, then with the Commandant followed them on horse and on foot and rode the town.

It looks dilapidated, and the church and other buildings have bullet holes; but the physical damage to the buildings is quite considerable with the moral injury from being shot at, but has been in place here for a year or so, going on by politics.

It is an insignificant place, but the surrounding features are very distinctive for one, and the ordinary track of navigation.
Saturday Nov. 8. 1879

Today, this morning we left the rock of St. Paul's behind. I found navigation for learning better than I had anticipated. I think I had better stop indicating dates when we may arrive at goal places. Core Mutu Bay, that we need get up them as far as possible, for all are safe, and return when we Can.

Xiguiquique, Nov. 8. 1879

Mr. J. Reynolds von Kugel
Engr. on the
Esplada de fora Paulo Officius.

We arrived here this morning. Came at to send mail.

The most recent from the date that we arrived up here on Aribah as I had hoped. I will stop designating dates when we arrive at goal places. And say that we will get along as well as can.

The three gentlemen join me in kind regards to yourself and your staff.

I remain the honor to remain

Theodore J. Stetson

Mailed letter to Col. O. C. James which was written several days ago, enclosing one for Addie, written about the 5th of Oct.

Also a long one to my sister friend Eleanora W. Roberts, dated about the 5th of Oct., coming from a pretty full account of the war.

I said nothing about Xiguiquique in any of my letters, excepting in my letter to Mr. Plunk. I state that he had come on it by more readily than I had anticipated.

I made no reference to its appearance outside or inside, or to its fauna, flora, or politics, or anything.
We arrived here at 8\14 a.m. and at

11.45 We set off the being 6 hours 4 min of the wind

11.47 Opp. house on left - white, and opp. town end of

Aguereguac - this channel 250 meters wide.

11.55 Now clear on left - also opening on left at head of

a little island. We pass at the Pt, bearing by

the Long Arm White - 40 miles wide and

11.56 Then turn still to left - when we came in

arm 70 miles wide and now in go

against the current, 3 miles instead of 6.

We are on the same man channel that

we ordered by going now 3 miles an hour.

12.02 At a bend, now to the left - 70 miles wide

Channel widen to 50 miles in this bend.

12.12 Straightline - for 200 meter length. Preparing to

Climbing at the right -

12.10 Curve is right, 500 meters wide.

12.12 On course 70 miles wide - This is a long slice

Conor Marin I suppose when in Con born

we double on passage. At a hour, a

reversed curve. The orange between

12.19 King Curve to right end - as a turn - 500 meters

12.19 Give to left begin. 12.20 Increase at the third.

12.23 On same course at 800 meters wide. Opp. 51a

Anna do Mafaldino

12.26 Opp. Point on new Pt. Where the Channel runs

clear to turn to our right - the men did not come

12.27 Hop. Here on the other side of a deep channel

Close to head of Island and Game.

12.25 Opp. The curve, each island do sight, when

we turned sharp amount as we came in this

morning. This point in many hour, and leaves

According to map this is an island. Came

at the first after passing do Name. But

there is nothing but a large area of water.

The head of the Currac Island is more than a

mill mile from here. Coming up this morn-
in called West head and lovo.
Saturday Nov 8th about 1.179.

1.45 "Our Channel is 200 meters wide, a little quiet. Opp, where a few boats are standing on the right, begins a little to the left. The channel is quite shallow. The water is clear. Corn ripples will jet high in the channel. The water is calm. Corn ripples will jet high.

1.55 Spotted Macdonald on Islet. 5 miles high. They saw a few, and where. Some islands seen. This is a good day for this channel.

2.00 As the bar is coming on the right side, there is a little deeper, along the river, and the copper of Macdonald, and the islands come along well. It is a good day for this channel.

2.04 Opp. on the right side of the island - the water flows in this way - there is nothing on the map. There is a small opening on the left side of the river. We are passing a small opening on the left.

2.07 Opp. on the right side of the island - the water flows in this way - there is nothing on the map. There is a small opening on the left side of the river. We are passing a small opening on the left.

2.12 Opps. on the right side of the island - the water flows in this way - there is nothing on the map. There is a small opening on the left side of the river. We are passing a small opening on the left.

2.15 Opps. on the right side of the island - the water flows in this way - there is nothing on the map. There is a small opening on the left side of the river. We are passing a small opening on the left.

2.19 Opps. on the right side of the island - the water flows in this way - there is nothing on the map. There is a small opening on the left side of the river. We are passing a small opening on the left.

2.20 We leave the R.B. in the middle of the channel. A very calm water. No waves. Opp. on the left side of the island - the water flows in this way - there is nothing on the map. There is a small opening on the left side of the river. We are passing a small opening on the left.

2.25 This is evidently a new channel. I cannot explain Macdonald's map, since we have been running on the wrong channel.
3.43 P.M. - About 3/4 mile off, I found a sand bank where we landed and anchored.

I learned from the Pilot that a Pilot in Xiqueque told him that this channel was open. Hennigso confirmed this.

I was anxious; an account of the circumstances of the situation.

We went to work, and tried to back out with steam, and the canoes were put under the bow to heave on her. We then put the keel anchor, about 200 feet astern, brought the rope to the Capaceto (so we could not do it any other way) and heaved on it, with the canoes as the big engineers off of the deck, and put it in deck; but no motion. By this time it was nearly dark.

We then concluded to light the steam engine, taking out all the wood. This was my decision because it had taken a long distance anchor to bow, and we would have a chance of picking it up. This took them till about 3 a.m. Meanwhile we pumped and bailed out the sides. It proved that the rope from the keel was drawn taut, and left till daylight.

Considerable wood had yet to be put off, when it began to rain; but I did not know it. I thought there was very little. The steamer is fast in the middle - just bow at the bow and stern; but in this manner,

It was briefly past 11 when the steamer was up, the men were out, and we screwed off at the keel. The pilot was on the deck. Clear of the Persea at 10 F.P.M. as the first motion. It was 11:25 before the engines had steam enough to do anything. I felt greatly relieved, as I am confident that this stop is nothing.

We now must go to where our wood is piled on the bar, and get the wood on board again.

11.29 Start on the wood pile.

11.37 Above 3 miles - above a sniff. Ready to go.

11.45 Start on our regular course in a good main channel 3 miles deep. Staff, Current, 2 miles 1 hour. Oblique across forward R.B. Channel 1500 fathoms.

2.45 Start on our regular course in a good main channel 3 miles deep. Staff, Current, 2 miles 1 hour. Oblique across forward. R.B. Channel 1500 fathoms.

2.51 Within 20 miles of R.B. 3 miles. (Possibly, west.)

2.55 Wash out 200 meters.

3.00 Yes, we are safe, 2 miles from the shore. I can see the signs. No difficulty. About 7 o'clock.

2 mile in.

Sunday Nov. 9. Afternoon, 4 P.M.

I had the old Indian who is sick in my cabin last night. He was badly pressed in the crowd on the bow, for a sick man.

At daylight, I went on deck, and after the men were out and went to work, finishing the camp any out of the wood which occupied several hours.

The Engineer (Machinista) then wheeled whether it could be taken to the water or not. The doctor (as Henningsu wished) or by post with the steam to help.

He said the first with the steam to help; but by the time the steam was hot, the men were out, and the men were pulled at the keel. The Pilot, the Staff, and the deck at the taffle. Clear of the Persea at 10 F.P.M. as the first motion. It was 11:25 before the engines had steam enough to do anything. I felt greatly relieved, as I am confident that this stop is nothing.

We now must go to where our wood is piled on the bar, and get the wood on board again.
Sunday, Nov. 9.

3.11 Opp. Cliffs of houses on R.B. a small channel, then along channel bar in first of island. At end there is the good channel along the R.B. Then where Halford's channel was.

3.18 2 1/2, 21/2. About 1 177 - lower end.

3.21 4 200 m. L.B. (45°) Woods at L.B. in front of the sand hills, which are behind, 100 ft. high. Continue Favorit Channel.


3.35 Not over 400 miles wide here - to bar. Macapabó do Vento.

3.35 Opp. Point Arata Branca - sandy pt. 35 to 40 ft. high.

3.42 L.B. (Macapabó) - clayey sand trimmings.

3.43 Opp. a Cove in the clay bank around about. The point which is clay, slightly cutting; count 2 1/2 M.


3.45 Opp. Point not far from R.B. - then advice along opp. port channel 4° to 12 miles.

3.48 The R.B. chart.

4.16 Opp. a little water near a R.B. close to shore. A large island.

4.26 We incline now to 100 miles from shore app. on the N.W. side of island. 1 mile ahead, the clay which is only 100 miles from R.B. From where we turned off the R.B. there is felt cutting.

4.30 Now run mid. more exactly toward R.B.


4.35 Opp. a little island near the 133. About 4 1/2 miles.

4.36 Opp. a large island near the R.B. 2 1/2 miles.

4.44 20 miles from L.B. Stepping sand bank. At best close to R.B. side (W. of bar) and comes within 250 m. of the R.B. on L.B. side - 1 1/2 mile.

4.50 Soundings now in the deepest place. The bottom even fine up to line and marked the narrow.

5.00 Approaching Carqueiral. The banks are fringed with a rocky bank of forest clay, and freshets material. A large bank at R.B. a little bank from run bank - a number of Bombay Carnauba trees.

5.10 Clayey bank.

5.16 Opp. Carnauba - on large bank with a number of Bombay Carnauba trees.

5.20 A cove near the front of the clay bank.

5.25 Palm Grove - on large scale along here.


5.39 Faro mid. river. (5° + 00 mid. river) inclining toward R.B. side.


5.50 Anchor - Majestick Stream.

REPORT

A good steamboat at 9 a.m. from Laguna to Rand - and in and out of the Rio near the Laguna. 12 miles from the Rio. In and out. Rio. In and out it is 6.15. That is nice. So many thanks to that.

We stop at the R.B. 2 mile below for the Port. Alegre on L.B. side.
Monday, Nov. 10

5:38 Start along R.B. Shine (young fellow's family) from him: 300 Mts. R.B.
5:54 Opp. learn pt. of bar 250 Mts. R.B.
6:02 Opp. Upjohn buildings of Porto Alegre

Heads of island Porto Alegre is merged into the Sand bar, indistinguishable.
6:15 Opp. up. end of said Sand bar as in other appear, a few mts. L.B. above here.
6:20 Opp. Bar on mid. sand bank (point) which makes the channel is 250 Mts. - mean point now.
6:27 The Halked Channel was on the R.B. mts.
6:38 Heav'y a wave in R.B. river. They must be up or g. an island. There is a little water before it. The main land is genius in yellow. No doubts it is a high level channel.
6:32 Far out-ill. of E. P. Alegre, Id.
6:34 Opp. lower end of bar on L.B. side. From here to out-ill. of P. Alegre.
6:36 Opp. Lower end of bar on L.B. side. From here, again.
6:38 Opp. upper end of bar on L.B. side. From here, again.
6:40 Opp. upper end of bar on L.B. side. Against the side which is sandy. Cutting 1800 ft. wide. 50 mts. from R.B. cutting bank. From here it is I. da Batalha, and that lead on.
6:44 Opp. upper end of bar on L.B. side above against.
6:46 Bar along L.B. side - not large. headache to strike a white spot in L.B.
6:48 Opp. Appear of head of I. da Batalha, but no salt cutting. From what it was in Halked's cutting 300 meters off.
6:54 Opp. Where Clay point, in L.B. - 30 meters off. We now in good channel along Conce - not cutting.
6:56 Opp. Cthouse of houses - mud - and when near a low place line a H.W. out for the bank. Map on Halked's map. (No land marks.)

7:04 Opp. Lower point of island 1500 ft. up.
7:05 Heading and heading mid channel 200 ft. R.B.
7:07 Heading - 1000 mts. to island 200 mts. R.B.
7:16 Opp. a cave in island - low spot when run with a high water. Somewhat looks this now. No large this appear. This man is a newland when the Coroa Alta. (Halked) was. 7:19 R.B.

8:06 Opp. Lower point of island 400 ft. L.B.
8:08 Opp. Lower point of I. de Telo. L.B. side. 400 ft. from island.
8:10 Opp. Lower point of island 400 ft. L.B.
8:14 Opp. Lower point of island 400 ft. L.B.
8:16 Opp. Lower point of island 400 ft. L.B.
8:18 Opp. Lower point of island 400 ft. L.B.
8:20 Opp. Lower point of island 1200 ft. L.B.
8:22 Opp. Lower point of island 1200 ft. L.B.
8:24 Opp. Lower point of island 2000 ft. L.B.
8:26 Opp. Lower point of island 4000 ft. L.B.
8:28 Opp. Lower point of island 4000 ft. L.B.
8:30 Opp. Lower point of island 4000 ft. L.B.
8:32 Opp. Lower point of island 4000 ft. L.B.
8:34 Opp. Lower point of island 4000 ft. L.B.
8:36 Opp. Lower point of island 4000 ft. L.B.
8:38 Opp. Lower point of island 4000 ft. L.B.
8:40 Opp. Lower point of island 4000 ft. L.B.
8:42 Opp. Lower point of island 4000 ft. L.B.
8:44 Opp. Lower point of island 4000 ft. L.B.
8:46 Opp. Lower point of island 4000 ft. L.B.
8:48 Opp. Lower point of island 4000 ft. L.B.
8:50 Opp. Lower point of island 4000 ft. L.B.
8:52 Opp. Lower point of island 4000 ft. L.B.
8:54 Opp. Lower point of island 4000 ft. L.B.
8:56 Opp. Lower point of island 4000 ft. L.B.
8:58 Opp. Lower point of island 4000 ft. L.B.
9:00 Opp. Lower point of island 4000 ft. L.B.
9:02 Opp. Lower point of island 4000 ft. L.B.
9:04 Opp. Lower point of island 4000 ft. L.B.
9:06 Opp. Lower point of island 4000 ft. L.B.
9:08 Opp. Lower point of island 4000 ft. L.B.
9:10 Opp. Lower point of island 4000 ft. L.B.

7:14 Head of island Porto Alegre is merged into the Sand bar, indistinguishable.
7:18 Opp. upper end of said Sand bar as in other appear, t a few mts. L.B. above here.
7:24 Opp. Lower end of bar on L.B. side.
7:28 Opp. Head of island 200 mts. on L.B. side.
7:30 Opp. Lower end of bar on L.B. side.
7:32 Opp. Lower end of bar on L.B. side.
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8:10 Opp. Lower end of bar on L.B. side.

On L. 172.

7:40 Opp. Lower end of bar on L.B. side.
7:42 Opp. Lower end of bar on L.B. side.
7:44 Opp. Lower end of bar on L.B. side.
7:46 Opp. Lower end of bar on L.B. side.
7:48 Opp. Lower end of bar on L.B. side.
7:50 Opp. Lower end of bar on L.B. side.
Monday Nov. 10. I. 170

10.02 Opp. another cemented clay bluff - on L.B. full of little cayman. The wind, a deliquescence behind.

# This is a very marked cemented clay bluff.

10.03 Notice that above here these clay cliffs appear at intervals for a mile up. Time Navigation

Clear river.

10.06 Houses on the north on L.B. clay cliffs in front.

There are not as many houses along this last mile as shown on Map.

# The feature - along this portion of the river on L.B. Sambaiba, a medium clay bluff.

10.25 (2 large barcas off to the left) near a bar.

I. 169. Somewhere about here

10.30 First here the river bends are visible on both sides.

Low country, all grass and heather.

None mountains up. The main distance are R.B. 15-20 miles away. Those between in front are little hills, but not much more distinct than those near a mountain back. (Georgina May 12.35. The Run.

10.40 Opp. Caçasaíra on R.B. 2 miles back and away. We are within 100 miles of L.B. Sambaiba.

Steering toward Ilha da Turema - we now come to the left of the island. The old channel was on the right - going up.

10.46 Opp. House on R.B. Islanda da Turema. 50

Water to our R.B. as we go up. The island is cutting come on my side - the R.B. side - Channel runs 1200 ft. wide.
Monday, Nov. 10 - League 169.

Ilha da Jurema.

When we got toward upper end of island the VILLA should be in full view. The church was seen about mile back.

The vegetation on these low flat lands looks very green and abundant. The bushes come down to the low water line. This is a splendid channel about 800 feet wide. 4 fathoms deep - nearly always permanent - clay bank on R.P. side and much clay in channel on island side or green with brush.

Island Curved Magnificently around to right.

11.00 Island cultivated - R.P. not.

Island so it was in Halffield's time, excepting that all the lower part of the bay along the island has disappeared - or else it was put too far down in the map.

11.77 Point of island. Where formerly was the channel now only a lagoon - and outside of a new island - and the channel some on the R.P. side, where the large bar shown on the map was in Halffield's time - clay bank on R.P. side, but it has cut, and it is little, slow cutting - no boat can stop here in this current 4-5 M. Channel now 1000 ft. deep.

VILLA IN SIGHT.

The view is bounded all around to the right and in front by high, distant mountains. Magnificent beautiful Channel!

11.24 Whistle - for the VILLA now in sight.

11.30 Opposite head of Ilha da Jurema.

The immense altar above the island on the L.B. side appears to run from the head up obliquely up to the L.B. shore, nearly a mile.

Opp.

12.05 Off lower end of VILLA. Sandstone clay.

12.11 Church.

12.15 Stop - in front of Casa - with steps.

VILLA DA BARRA DO R. GRANDE.

Monday, Nov. 10.

Villa da Barra do Rio Grande.

Soon after anchoring we went on shore. As we landed we met by a very pretty little gentleman, who tendered his services to accompany and show us an house to be proved to be the Port Master, and told us that the mail had started yesterday. The letters mailed at Itaperiguá are all right, but those from Rio were not.

This gentleman took us to a store and introduced us; then upon our inquiring for the judge, he accompanied his officers to him. The way Mr. Castro discussed that he is queer. The judge, a fine looking man, tall, solidly gentleman, we as handle in his house, and opened all for the judge. But I saw directly that he valued the Postmaster, for the P.M. was a bore. As then near the church. One old one and the new one - the new one has all the masts, finished and the very one of it stands for want of money to finish it. 5000 dollars - money forbidden and make a fine church. It is quite large.

We went then walked through the Villa; we came joined by the Capitan Cuñado - who looks like Henry, Hathaway only he is a Cuban citizen. He was my porter andispensable. We both in Hombres Hospital. There are only a few patients, but the French was sickness in the town when they were. Although it has been open lately, there is a garden attached with quite a variety of rare orange trees, figs, pears, Carter out the in, in but it is not kept in any order. We then walked through the resident of the town, which has some good houses, and good looking small stores.
VILLA da Barra do Rio Grande

Monday Nov. 10th

There is a large area of land lying between the Rio Grande and the Rio Sard Francisco, low, subject to overflow, which could be cultivated.

The Rio Grande is navigable for large barcas for 140 leagues and for smaller boats much farther, and some of its branches are also navigable. There are sugar plantations up the Rio Grande.

If there was a cheap outlet to the sea, people might then have an inducement to cultivate more than they now do. Without this facility for transportation, the business of the wine valley from here to Batata might be connected as at its origin.

That is to say, the people raise enough to support themselves, the officers of the general government and the Padres, with a little surplus. And whether there should be 10,000 more or 10,000 less inhabitants it seems to make no practical difference to the supplies of the world.

But with an improved road and a steam system of railroading, and a rail road (economically managed) among the fields, affords added inducements might be given that would result in considerable production for shipment.

There is a certain amount of land, largely salt and bog adobe, which keeps a number of barcas running; but Rio Grande, like the other forms of rain, has a few wells off, and many are poor.

There are the walls of the church and the wall of a theatre as they have been for years, showing that there were here at times when there was more.

There is certainly a considerable population here.

We arrived here yesterday, about mid-day, and propose to leave at noon to day.

The navigation on excellent from Resende to this place. The Channels have changed considerably since Hayfield's survey, but they are everywhere of ample width and depth for our vessels, which now average one metre. It needs only a pilot who is acquainted with the changes.

Our pilot was not here along this part of the river for several years, so he has not once missed the Channel, which did not happen beyond the first anna of the day. He is cousin to one of the two best pilots on the river, and he has not missed.

There is considerable business here, compared with the business generally at the towns along the river, chiefly rapadura and salt.

There is also a large population, but like the other towns of this coast along this river, there are few wells off, and many are poor.

As far as we know, Come, of the valley, it may be said that the people along the Marquis of the river have enough to support themselves, the officers of the towns, etc., with a little surplus, and whether there should be ten thousand men or ten thousandless of a population, along the river, it makes little practical difference. The Empire, or to the world, as the river flows is cut with an improved road and a railway, ensuring the future economy.

Early managed, an improved river means a far better future for the whole area.
Tuesday, Nov. 11th - Villa del Rio Grande

Wrote to Capt. O.C. James - encasing letter to address of this date - written this morning.

It rained a little last evening, but it is clear this morning.

2.44 Stand & float down - opp. Church 2.17.
2.19 Opp. Old Point - 2.1 - Stop sliding

I see a heavy cloud when the S.F. & R.C. went & must just below the day point.

2.21 We may call Stadhoud, from town on of Villas.
All the people who can find these are going.
We sail for the Broad Channel - we were about due 3, and in order to sail on the map in the right form. The Island Guanajuato is entirely different. Stadhoud was the island at the low shore at the juncture of the Rio Grande, and the old town of Stadhoud's kingdom. It is totally different.

2.23 We are o'er to the sand heap, show R.B.
Look both and see nothing but water there.

The town of the Villas - all below the point about M.'s member.

The new Church on the San Juan lies, too near this point, and now, when the Villas island has a floating, healthy aspen, it's an important event.

2.25 We arrived off town mid noon.

2.40 Going up mid night - island now 250 M. by R.C. R.B.

The map shows the air.

On the L.B. edge now, which is a part of the island, there is a large sand bar, opposite, near to the same above. The coral reef may be seen beneath, and bar - but it must be a strait.

2.47 Our course is now toward the town, passing through the island, actually ahead. No, the only thing in the map, which is a region of sand bar, what I can see, San Juan Point is the Madre Sea, of Middle Island.

2.51 Now on turn of the point, encasing to run off to the R.

2.52 Opp. Pt. R.B. Whisk which point at this head of an island, instead of being R.B. - town channel.

2.51 Town of the town is on the head of this island.
Tuesday - Nov 11th 1667

2.55. App. We are now where we left the island which I had thought R.B. was between that and another island about 180 miles to the left - which is much fuelled, with many pines and a number of little fisher boats, a mile or two in the bay.

3.00. We are now in the main channel 300 miles to the shore of land and L.B. is now upon land.


3.05. It is not only a point but a head. Look back. - City still in full view, mainly on the land of or near the opp. City.

3.10. Madeira Seca - the town fortune are up to the point above. A fine town, 2017 - at 46 the wax now.

3.14. The land bar head of island above, seems to be a continuation of the R.B. with a mile above.

3.19. A small clay point. - Still there are horses, and a clay, all along.


3.35. Opp. A small clay point. - Still there on the land.

3.45. Opp. clouds end of island head. A small clay point, which means there is land, but this land may be an island. There is a point at northwest of the main channel, where this small point is in the land. It is not on the land, but on the land, a mile or two, where it is.

3.49. App. Leaving the small island with all its boats, and an island.

3.50. Opp. There is now a little island, and a bar on the main channel.

3.52. Opp. There is now a little island, and a bar on the main channel.

4.00. We are now in the small city of Hermione, which comes next.

4.03. Opp. Point of island. Rising up the hill and then down to the land.

4.06. Opp. Point of island. Rising up the hill and then down to the land.

4.08. Opp. Point of island. Rising up the hill and then down to the land.

4.10. Op H. Jua - on the L.B., a number of Arabs.

4.17. Opp. Lorn of H. Jua. It is a fine min.


4.44. App. There is now a little island, and a bar on the main channel.

4.46. Our new town Dinner Bell - Jan 165

4.48. Opp. There is now a little island, and a bar on the main channel.

5.00. Opp. There is now a little island, and a bar on the main channel.

5.02. Opp. There is now a little island, and a bar on the main channel.

5.10. Opp. There is now a little island, and a bar on the main channel.

5.12. Opp. There is now a little island, and a bar on the main channel.

Camelleira Tree.
Tuesday-No. 11 on I. 165
5.25 Stop on R.B. side. Pilot says there is no good place to stop for a league or so. We anchor for the night, opp. Jakoba.

Report

Good navigation all the way from Villa da Bessa - on I. 168 - to ship on I. 165. Some wind on 3 leagues.

I hear the first "Arrival" this evening.

Gamellea Tree.

Wednesday Nov. 12. I. 165
6.55 Start on R.B. 250 m. about 11.45 PM. On pier out toward J.B. Jakoba.

River rose since last eve, 24 inches.

I presume that we will see no moon to-night at Villa da Bessa - north of Rio Grande, the range thought to be 34-35 miles.

Yesterday - about 2 p.m., in order to drop the approximate low water, we must adjust 84 miles per day with reduced the width, time, and also the rate of current.

The Conceito Cutting side on had clay bank, on J.B., or Jakoba side.

We shall channel on J.B. side at upper end of Jakoba - upper end of hard clay, 6 ft. Rises in about 2500 ft. wide here.

6.07 Opp. very in mid gum, with grass nearly covered with water.

Majestic stream above.

6.12 In J.B. channel 40 miles from ship, opp. upper end of high hard clay bank and upper part of Jakoba. Strong current.

6.15 Opp. foot of Ia. de Prepeco - close on J.B. Some wind behind it as the foot.

Prepeco is behind the island.

6.17 We steer oblique to left towards mix mar.

I. 164 - just below Ia de Prepeco.

6.21 We ran over a bar on R.B. out 100 m. width. This bar is about 4 miles out, 6 ft. above the water line. The bar along the island Prepeco, on the upper.

6.32 Opp. upper end, new bar on R.B. Ur new stream from mid now toward Channel on I. Prepeco.

I. de Maria D. Araujo - M.

This island is much more obtuse than the Map shows.

6.36 Steering clear of Fr. d. island, to run on R.B. or East side of island.

Opp. foot head of Ia. de Prepeco very small.


The island is cutting on E. side at lower end. Channel to R.B. 920 ft. in 9 m. upper.

6.45 Now inding down away to left.

The immense bar (on Map) on R.B. side, below this island up to I. 163 is invisible. It may be under water. In fact there yet.

6.50 Near and now steering up. Run 14.00 -

P.S. A party of what was bar has become land.

6.55 Heading for R.B. I. 163.

Tile roofs.


Ia. de Maria d. Araujo - an old headiy.

Pilot says - Tree - Angicalo Bocacou.

7.07 Opp. - a handsome large town.

7.10 We now run along Conceito R. B. clay - with a little sand bar island, just below, head of Ia. do Angicala. R.B. in now straight.

7.16 Opp. head of Ia. do Angicala.

Fine river for 1/2 league above island.
**Wed. Nov 12. I. 165. Angical**

7.19 Now incline gradually away from R.B. Turn here.
R.B. Fine River ahead.

7.23 Opp. Angical - 150 M. from R.B.
Calm.


7.40 Opp. Second nice house. While we are P.B. we are 250 Miles from L.B. Running up but just now began to incline toward R.B. Tapeira.

7.50 We are running slowly, our wheel is MAP. Bar not visible, a current bar in mid-R.

7.53 Opp. Malalome, in the bend, R.B. 100 M. off.

**Grand Serras to leagues on R.B. Serro do Brejo or Itacutiara.**

7.57 Opp. large rock not an island, but a shoal.
Come 3/4 mile above and it appears to be back up, and above it - the channel is very close, but the river is bucking the lands away, and it is only 15'5' abou present scale.

8.05 We are away from R.B. Steaming for L.B.
Bass on R.B. do not appear on MAP. (Taking care.)
As we approach the said point, the river is

8.25 Opp. Where I called the "Point." L.B.
Handsome concave bend above point.

8.30 River 1500' St. Not cutting near a either side.
L.B. along here - woods, no cultivation.


8.37 Mid-R. Beautiful River!


8.53 Opp. Louna and R. da Itacutiara. on L.B.
Long, high Island, 2000' wide. We are on the L.B. side of Island. 1000' wide at mid-R.

8.56 Hour before part of Itacutiara, up part.
50 miles from L.B. Side - 50' or mult. Pluck.

8.58 Opp. Had clay point at light case white sand. Three Houses behind. Good current here. 800'.

9.07 Opp. Point on R.B.
9.10 Opp. Risco da Itacutiara, a bar of green.

Good current 500'.

No cultivation along L.B. Side, house here.

9.40 River 1600' wide. We are on the L.B. incline to mid R. A.

9.45 Heading for R.B. Side.
We are now about Opp. the ends of the Chijan Mountains Itacitiara.

9.50 Bass on MAP. No vicinity on MAP. (Taking care)

9.56 Heading for L.B. Side, good current, 1000' wide.

10.10 Opp. Point on R.B. 100 M. & L.

10.13 Opp. 2 miles ab. Point on R.B.

10.44 End of bend, I (H.W.I.) Carvao on L.B. Side.
We now parallel with R.B. 10'15' incline away.
[200'. Beautiful River ahead - 1/2 league?]

10.18 About - R. 159.

10.40 Approaching L.B. Side. Small bar just below here on L.B. was submerged now.

10.41 Within 25 M. of R.B. Steep. Works usually

[I] Here when R.B. was in Halford's time.
Wednesday, Nov. 12 - I. 159, P. da Picada

10.45 mi. 30 mi. of L.B. Sandy beach. Cutting only a short dis. below L.B. Opp. L.B.

10.50 Mid R. (1600 ft.) Clear for a mile ahead, appearing 73/4%.

Shore intact along here. Water on L.B.

11.01 Opp. near, see Is. near, small island, on L.B. Sidewash. Like the Front of a house. Small but thick with green growth. Above it, a small ridge projects out as a place under for 1/3 way across water.

11.10 We enter an is. with some small bar. The tide goes up 300 ft. - 400 ft. on island with deep channel.

11.15 L. 158, about.

11.24 Opp. here small shoals to cut L.B. wooded.

We begin to head away towards L.B. Shore for our wooded place. Riv 1500 ft. here.

11.29 Opp. near, or upper end I. da Picada and lower end of I. do Timbo.

I. des Sebastianos behind do Timbo.

11.30 We are near L.B. bank holding within a short dis. below Timbo.

We stop here to cut and load wood. 8 large loaded barcas from down stream after we stop from Salgarado.

Thursday, Nov. 13, at Timbo

L. 158

On Left Bank about a league below Timbo. Called do Commander Ant. Manani

We have now about 5000 shillings.

The river has been rising gradually all the time, and now about 5 miles from here, 12th and Monday of 14 and about 3 miles more of the evening of 13th.

Friday, Nov. 14 - Timbo, L. 158

Our starting is delayed this morn. by bad management of the engineer, my impression is that he started the fire in pretty good time, and then let it out.

Now seems to be some new move to delay - nearly every day, new mercies.

Top-bank about 15 ft. above present water. No 3 1/2 hours lost by absence of Piranhaas.

9.20 Start from lower end of Timbo (Sandown, L. 158)

River current is about 14 M. along here, now.


9.35 Opp. Upper end of I. da Picada. - Riv an open 400 ft. under through which run leaving the I. do Timbo on R.

Now open is shown, too low down on map by 1/2 a mile or 3/4 mile.

9.42 Just through said opening - into the main run - to island now on the other side of shown on map.

9.54 Opp. Upper end I. da Picada - as it is now.

9.57 Opp. Lower and Small island to left (on map) we are including our toward Torraha (on map).

The fazenda de Commander Ant. Manani an unattractive looking place.

10.00 Opp. Upper end of said small island on R.

L. 157

This is a very marked point - a rocks back bone in a q. I just before the fazenda builds up to terrain above the river. The rocks descend from the other end, and again ascend to the same level. The highest is about 60 ft. high, with steep up and down along the face.

On the map, Halbeid gives nearly the name of the place, and lies between two small hills.

P.S. A doctors fault in Halbeid's Map is shown.

Separate knot. Bike and another Channel.
Friday Nov. 14  

**PARA** is rather pretty situated under the highest or only mount 300 ft. high.

11.32 Opp. the mouth of Ro. Paramanima, apparently 20 Mts. wide, but it could not be at this distance. Many people gaging.

11.37 Woods on R.B. We ran 50 miles from R.B.

11.45 On map the Channel is on Island side but near there is a sand bar there, and the Channel is on R.B. side and beginning to cut a little. The 3 sand bars shown along here on map on L.156 have I think disappeared. - When the river is my Thursday to day and a little southerly by the wind - 05 Mts. from here.

11.56 1/20 miles out. That is our noon drift over our land. The bar marked on map - The sand bar on the Island side continues nearly up to head of Island - Rocado near mid run. Heading up run - 1600 ft. more.

12.00 Opp. head of 1. 3 do Rocado. This is a bluffs.
We leave it 100 miles on our right - A sand bar runs from head of Island to the L.B. shore. Closing that channel - even now with the run up. One four men will put water through that channel.

12.15 -

12.22 Mid River running up run - Opp. head of Island on L.B. side. - That north head of Island Rocado 700 ft. more.

12.36 Opp. a marked point of rocks - falling down into the water on L.B. side. 1000 of map.

Rocks about 60 feet high. It is a columnite.

11.40 -

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12.36 Opp. a marked point of rocks - falling down into the water on L.B. side. 1000 of map.

Rocks about 60 feet high. It is a columnite.
Friday, Nov. 14

12.54 Opp. head of Ilha de Toca.

2.09 Start - after fixing valve packing. Good.

2.13 Opp. "Tano" (clay) I.B. Stop - again.

2.15 Start - very slow - Something out of sorts in my after current, had to stop again.

2.18 [Tano] "Good" to soon.

12.54 Opp. head of Ilha de Toca, as per below.

A bar now in the river, opp. head of island - 200 meters from I.B. side of island.

We pass between said bar and head of island.

The island is all sand, and it is now cutting - the channel now runs nearly square across the head of the island, as near right as we can against a 2-mile current.

This will eat this island away, like sugar.

It will also form a bar on the I.B. side, so the.

There is a wide channel between the island, and the I.B. side and much water available. This will help to reduce the rate of eating on the head of the island.

12.57 We are heading for R.B. - which is heavily cultivated - part woods. L.B. side all woods. The run is 3/4 mile wide.

On the map is an unmarked bar on the R.B. side a mile above the Ilha de Toca, and now make it. We are running directly on said bar.

1.05 We are now heading away from R.B. side - former.

1.10 L. 154 - about.

1.23 There is a heavy sand bar all along opposite, bar on the R.B. side which seems to be off toward the Conceito, L.B. which is not cutting.

Sleep water 2 1/2 to 3 m. as near now as possible.

Current is parallel with the other - mid river.

1.30 Some of the valve packing is burnt and requires fixing. We stop and anchor. Thank Knew, to allow engineer to fix it. We may in opp. bar condition.

I got no land marks along shore, to designate just where we are at about 153 1/2.

The desire of the day was concerned in fixing the machinery - which is certainly very poor.

I believe that the engineer knew about the best he can with it, under all the circumstances.

Good navigation this far.

Saturday, Nov. 15 - on L. 154.

5.27 Just Sunrise, by my watch.

Sr. Lisbon reports water over 2 inches, since yesterday afternoon - say 12 hours.

Morning calm and pleasant.

Current rate of wind here.

The islands and bars and in every case, the main forms are so changed that it is difficult to follow the map.

Our rate runs to 1 League an hour.

5.40 Start. Ready as good as I have hoped.

6.02 We are of the R.B. now, parallel to mid river.

6.15 Opp. Riacho das Canoas on L.B. 9 knots. Heads 20 minutes, all matched - co. sir. tied.

6.15 Foot of sand spit at tail of L.R. de Riacho das Canoas, close on L.B. about 1/2 hour.

The details are so far as I can judge above shown on Halpin's map. Rev. 9 M., ind.

6.35 Upper end (now) of L.R. de Riacho das Canoas, we are 250 miles from R.B. 45 km. running up.
Saturday - Nov. 15. L. 153.

6.37 A.D. settlement 24 hours on J. B. now.
6.50 Opp. Riachão - a hamlet on R. B. It extends up.

On the opp. or L. B. side the place looks as if it might represent the western end of the island Riachão das Canas - of Halliday's map.

But this is a mile below the Faz de Fazenda da Barra, in reality, shown on his map, it is not 200 miles. Beautiful River.

7.02 Like a sweet orange cake with distant mountains behind the view of a point.
The island da Fazenda da Barra present a very obvious one. Making out my hand, filling the middle of the valley.

7.03 From bank on the R. B. shore a land of Cultivation along here - Part of Riachão.
Possibly the unknown part of the Faz de Riachão may be opp. here. It is black.

We are within 30 miles of R. R. Shew or Shewy-landing.

Ruvu appears to be at a stand along here, judging from the horizontal line of excavation in the valley, known as Shewy-landing.

7.08 Opp. Extreme up. end of Riachão, last house.
(8 minutes opp. Riachão)

7.22 Opp. Lower end of Riachão, last house.

7.22 Opp. Lower and 1st da Faz, da Barra, culture.

7.25 Widest river on J. B.) We take J. B. side.
Channel 1400 ft wide at first turning above.

Several houses on town feet of island.


(Continued Ruvu 2000 ft.)

Saturday - Nov. 15. L. 152.

7.43 Along in Faz. da Barra. 51/2 B. 2nd.

7.50 River 6000 ft. wide. 3 B. 2nd. In channel.
Now somewhat this channel looks beautiful.

I. 152 is a long one on the map, 153 a short one.

8.08 Head of the Faz. da Barra.
We reach the head quicker than I expected, from the map - 460 minutes long (about night). The bar (large) shown on R. B. side does not show - it may be a submerged sand island. About 2000 ft. This is called a Shewy-landing.

8.15 Wind begins - from the South. B. R. River approaches.

8.40 Close in by the R. B. shore. Strong Current.

8.40 R. B. Shore comes up to the left. Island.

I. 151.

Jut out that in past the town end of Island do Saboio - while I was writing on another 5 of us was along that island now.

9.20 Bar on left (or R. B.) woods on L. B.

9.27 Opp. Pt. of land on J. B. a concave above to.

9.35 a number of huts on main house on R. B. Low houses - cultivated. Woods on L. B.

9.40 A high bar Rock - larger S.S. W. - across L. B. side. ['Titanic'] Table - on map - it is a very marked Rock, isolated - just high. Shewing stratification - dip - cold crown of a chiseled.

9.45 about I. 150.

9.55 We incline off from R. B. toward L. B. A sand bar island if mid-nest (on map) not now visible. I think it is gone.

10.15 In our mouth to the L. B. Opp. Where 'Devarante' was map - but it is washed away.

10.21 Opp. To the Pt. the Rock - 1 mile from the river 2000 ft high.

Old columnite - Bear Went
Saturday Nov 15. L. 150.
10.35 Opp. Town end Ia das Carábas.
10.38
10.40 Opp. Upper end Ia das Carábas.
10.46 Opp. a mag 30 miles from shore R.B. From town.
10.55 Steam bank (R.B.) is cutting the original
River in 7 1/2 miles wide - with basque toward
the L.B. side and R.B. side now cutting.
11.02 Some clay on the bank now - makes it cut now.
11.07 A con Melville tea - on a hill (white boat - Melly)
The men are now washing away -
Another beautiful tea above.
An enormous bar has
formed in the L.B. side. It has forced the
Channel over to the R.B. when it is now
Cutting.
11.15 Woods in both sides of river.
11.26 Within 250 meters of L.B. Still avenue - too
River now 7 mile wide.
11.35 We soon turn after being near L.B. and head
North toward R.B. toward Carábas, a R.B.
a small hamlet.
11.50 Opp. Carábas, 400 yards.
11.52 Opp. Lower end of Ia da Boa Vista.
The island is green from here at least
4 miles to the north end of the
town of Carábas.
We run the new channel, between R.B.
and Island of Boa Vista - 700. We were
a Under river on the L.B. side.
12.00 Opp. Head of Island - the sand channel
between that and the next island behind it
may now be a main land.
12.05 The R.B. side has much grass - but it is only
partly.
A fine range of Mountains - 3 leagues off
L.B. Olives (eucalyptus) on R.B. Vegetation
on both sides, Irrigate here.
12.30 Opp. head of Boa Vista Island.
12.37 Opp. Lower pt. Ia da Sississuruna, a
point, Canal 30 miles wide - with grassy cars.
We now head from near foot of this island one
obliquely toward the L.B. to avoid bar pro-
jecting into the north side of island.
A large bar on a map, below As tres Ilhas, has
disappeared, in part. We run across where it is
marched in map. The lower part has cut away.
The face of the current has cut it into a different shape.
12.54 No cultivation on L.B. (150 M. N.R.)
A little cultivation on islands - Opp. 250 M. 600 M.
12.56 -
1.00 Opp. Head of Island. - Then sand channel
between that and the next island behind it, or it
may now be a main land.
1.05 The R.B. side has much grass - but it is only
partly.
The proportion of cultivation is much less.
Clay banks along here which do not cut easily.
No cultivation on R.B. Some limestone
Plenty of Ficus (cotton) along here.

Saturday Nov 15th. L. 148. 139
0.20 Opp. Hampton of Boa Vista - half dozen
Hatched houses. It has not improved in
25 years -since Halford's day. Clay bank
and now is from being washed away.
It stands a little bend opp. head of Island.
Opp. gazape negro predominating.

[Strange! how such Missionnaires should
continue for a quarter of a Century or more?]

12.30 Opp. head of Boa Vista Island.

Channel widens out at head of island - width 1000 M. A
Think that this island has lengthwise at both ends.
above present - Covered by palms.
River runs wide above island. (500 M.) The
mouth of Jordan with sand bars now visible about the corner on the L.B. side.
Opp. in a thick of a mile above island.

12.37 Opp. Lower pt. Ia da Sississuruna. a
point, Canal 30 miles wide - with grassy cars.
We now head from near foot of this island one
obliquely toward the L.B. to avoid bar pro-
jecting into the north side of island.
A large bar on a map, below As tres Ilhas, has
disappeared, in part. We run across where it is
marked on map. The lower part has cut away.
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A little cultivation on islands - Opp. 250 M. 600 M.
12.56 -
1.00 Opp. Head of Island. - Then sand channel
between that and the next island behind it, or it
may now be a main land.
1.05 The R.B. side has much grass - but it is only
partly.
The proportion of cultivation is much less.
Clay banks along here which do not cut easily.
No cultivation on R.B. Some limestone
Plenty of Ficus (cotton) along here.
Saturday Nov. 15. I. 147.

1.15 Opp. Faz. Grande on L.B. Shows a small one, with little roof.

The Ilha da Faz. Grande is opp. on the R.B. shore. The I. da Imbunhane seems to have clame in with the other and with the Tres Ilhas, too.

The side of the I. Faz. Grande is nearly dry sand, and it is cutting away now late. Sugar cane, with the rising moon. It is in a (Cancio) and the Channel one seems to be secured against it, it may soon cut deeply.

1.25 We are now opp. the Upper end of Fazenda Grande place on L.B. side. There is no sign of a good house.

1.27 We are running 40 meters from R.B. (orange) shore. The land is cutting away on the upper side.

1.27 Now we take away [wind direction] until we are a storm ahead, over the Mountains 2 or 3 leagues.

1.40 The Upper end of Ilha Fazenda Grande had failed to see. I think it was mingled with the main land. [Mid Row]

1.45 opp. Lower end of I. de Piripiri on R.B. Side. Map. Shows sand flats in between island and Main R.B. [Cancio] is west.

This island, has kelp, and is cultivated. The large low, in mid (island) is not visible.

1.52 I. 146.

1.54 opp. a house in L.B. House on main. Scattered all along here.

The slope is not well cut into, along the now, here. The cultivation appears to be back, the good seems to have been away from the main bank. River here 12.00 ft. wide.

This piece of staggery houses is called Batentes on Piripiri.

It is about opp. upper end of the island, but it is scattered along for a mile or more.

The upper part of the island is a conglomerate of white sandy, and green bushes. There is a green clay on the L.B. bank. It stands well.

Sunday Nov. 16. I. 146.

2.15 There must be more moisture along here than on the land end of Piripiri or they could not have produced as high of the bank, as they do here. The bank appears to be above high water, but not above a high flood. There is much clay in this side.

The upper end of I. Piripiri on L.B. It probably has little resemblance to it, the while Halford's map was made. I cannot see this opp. from here, though it is all visible behind it, extending of to a point on R.B. 1 1/2 mile further.

2.20 Shale clay banks - cutting now on L.B. no cultivation along side.

2.27 There is a splendid mountain seen viewed from here, is mid river. Covered with green. In front is a range 600 to 800 feet high, and beyond, showing trees in the depression, and on open from a range 1000 ft. high - my regular on L.B.

We are now heading for the Sandy Pt. on R.B.

2.37 30 meters from R.B. Sand bank, when the rain came down, in floods.

2.55 Opposite Point on R.B. now head for L.B.

2.59 I. 145.

We run listening from Pt. in R.B. toward the foot of the Serratipe de Irinome. It is a distant black cultivation just up on the Serratipe on flat.

3.08 Opp. Lower end of Piripiri on L.B. A farm, and plantation behind the Serratipe, which itself is rocks and trees.

3.12 Opp. Lower end of Piripiri - 1.15 M. from L.B. 3/4 mile side.


3.20 Opp. Upper end of foot of Serratipe - Black, lighter.

An open partly cultivated land between the foot of the Serratipe and the Mt. 3/4 mile side.

On R.B. side opp. sand bars.
Saturday Nov 15th 1.45.

3.33 About 1 hour across the flat - range of the foot of the Mts. 13 minutes, bearing in front of flat.
3.35 Opp. high peak of Mt. and 1000 to 2000, high.
3.39 Opp. grand natural amphitheatre in the Mts.
3.41 Then corner opp. the end of another Mts. or another town end of the same.
All of Musci Covered with handsome green, healthy looking woods - far ahead of the Sierra down the valley. The vegetation is luxuriant.

3.42 In front up the river is a beautiful landscape, the horizon being Mountains of various shapes, crags.
1st View winnow - 4 miles in.

3.50 Punting along on R.B. Side 30 M. from shore.

The Mountains are one night of league and a half Mts. behind these from Mts. Uferna to above (no comparison with the sketch). Quite different in appearance. Very high, and many of a chain, but otherwise larger area of flat. Forepeak - a great flat. Modern vegetation - ornaments of dark foliage, some long, pinkish and others, others with Scabiosa flowers. We drifted a different formation from that nearer to this fair of the mists.

4.00

L. 144

4.05 In an easy landing away from R.B. No cultivation on either side of river in sight.
4.12 Opp. foot of I. das Abazaras.

Barro Alto.

4.35 Opp. head of I. das Abazaras.

Barro Alto is about head of island with land and Basso and other islands, with R.B. Side not clearly visible.

Sunday Nov 15 - L. 144.

4.52 We are running in the Channel between the R. B. and the islands - first to I. de Barra Alto - and next the Mangabeira.

L.B.

4.56 We are running along the Channel.

Most curious topography!

2nd View up River.

[Sketch of Mountains and River]

Water want.

L. 143

5.05 Reading off towards L.B.

I suppose that we have passed the

5.05

L. 143

5.15 High, clean white sandbank with higher intervening between us and the largest island de Sido ou da Boa Vista which is on our right.

5.20 Now heaving for the R.B. Shore to stop for the night.

Antunes Verra $1000.

5.39 Anchored in front of Roca, nearly Opp. head of I. de Sido ou da Boa Vista.

About at lower end of L. 142.

Heming II leagues.

Our Exit climb on.

All good navigation - with a good breeze cleaner. I could have run the whole distance in 4 hours - instead of 1/2.

Nothing whatever is to be done along here by the Government. If any, it may be kept in the first Roman steamer.
Sunday Nov 16, ROCADO

Lower end I. 142.

New House - arched windows.

Cork, cloudy morning, some wind.

Strong (on S. W.)


(Young men may have seen)

Morning noon - before, on our right, and behind.

5.45 Start - and pass 100m. off R.B. side. River a peculiar chocolate - make pretty dress.

5.55 Opp. Est. up. end bar at head of I. de SIBO

6.00 The curious, pointed masts interlaced with each other, grow now to our right on the R.B. side. Valley are closed - shelters.

6.03 Buildings still at the R.B. side. Barra de Pouca, on L.B. opp. head of Small island. We head for L.B. side. To Wind.

6.14 The larger bar on L.B. or mess is not visible. In fact we run one point of the place when shown.

6.16 Within 100m. of L.B. - heave to Point.

6.25 From L.B. Douro, and where the bar is shown.

6.30 When nearly up to Point on L.B. we head off other, towards mid river.

6.39 Sea is left behind. Island is now only a little way above said Pt. Channel 200f. In front.

The Island Casinibo has lengthened down.

6.31 Opp. Lower foot of Mountain, on R.B. side.

1/10th mile, to river.

6.32 Island Casinibo is cultivated.

Sunday - Nov 16.

6.40 Opp. Upper foot of Mountain - two shades of green - on R.B. side - 1/3 mile from River. Mountain is 1/2 mile long - nearly parallel with river - on map it is a dot, roughly.

6.46 Opp. Upper end I. do Caximbo.

Sandy bar near from the head of the - (on L.B. Channel to another island, named Riachos.) Riachos on L.B.

Now grounds on R.B. now, for a league or more to the Mountain, which now appears.

I. 141.

7.02 Upper and island, now connected with the island, Caximbo, a sand bar as -

There is water behind island of Sandy as on R.B.

7.03 The interesting object, Morro da imagem on L.B. is a large mass of rock - Xedement large 4 mile back from the river, near its up stream head.100f above the place. Then patchy ground etc.

There is another mass nearby, quite high a half mile behind it. Connected at the base - of its similar character.

Clear water now, for half a mile until.

We steer to pass on the old channel on L.B. side of the LARGE ISLAND

Pedra Grande.

7.10 Opp. a Point on R.B. Called Ponta da Ilha da Pedra Grande. - we are near L.B.

9.15 Opp. Lower end I. da PEDRA GRAND.

Channel 100o off here.

7.18 Opp. decided Point on L.B. above Pt. of I.d.

The bar (on map) near lower end, of island. In fact, in north within 1/4 mile, of island of a half mile from lower end. Tied. Channel 1000 f.

The cultivation on hill SERRA FURADA.

Time Mountain Range on L.B. side.

Range about 10° S.W. S. E. X 10° N. W. S.S.W.
Sunday - Nov. 16. I. Pedra Grande.

7:33 Opp. low prime on open island on channel, on the I.B. side. On map there is a continent of large sand bars and small islands. The sand bars are not now visible.

7:36 We now turn away from Pedra Grande I. to R.B.

[...] large, projecting bars from I.G.I. which form the channel over to the islands and L.B. side. When the wind is strong, and is from the I.G.I. on the channel, we are running. It is something like the Map.

7:44 The wind is easterly now on the sandy island to its head, so on to our R.B.

Water now running down behind this island through a channel about 100 meters wide. Much water running through.

7:47 Opp. first island 200 meters above the flat island - some water bound on it. This second island is partly cultivated.

7:48

I. 140

7:55 Opp. the large bar projecting from Pedra Grande.

7:57 Opp. a break, or "opening," in the island, water coming from the island. Island cultivated to the "opening."

8:01 Opp. up end of this island - which is on the windward island. The wind is lighter. Clouds with rain, squalls on the island. We head away from island toward I.P.G. Channel about as on Map - Clear river to the eye. Opp. a break out of water edge R.B., black rocks in Map. Marked "Reef." No cultivation now in view. We have dropped anchor on the windward side - four masts.

8:10 Opp. rocks, eastern looking, stranded here on I.B., at a good bank - 15 ft. above mean tide - a move.

8:13 We keep away from I. Pedra Grande than map shows, but just here we vicinity a little away toward windward.

8:15 This part of the Island curves to the left - island sandy. (Clayey banks all along on I.B. side.)

8:18 No cultivation now in view.
Bom Jardim.

We all went over and visited the town. It has two and a half streets (or vacant spaces between rows of the very usual houses). The highest points are now covered by the floods.

There may be 20 houses and a little church, and a few, quite small, orange and marigold flowers.

Women seem to predominate.

There is a very small cliff of sandstone rock at the upper end of the town edge.

The people look better than their houses, or their town. It is beautifully situated; commanding a view of the wonderful river, for two leagues below and nearly a league above.

The ground behind the town is about a little higher, so that it is an excellent situation for a large town; but what is to make it a large town...

Doctor is building a fine new house on the opposite side of the river.

(The question or query of the people here is that the river has been about 3 feet above the normal low level; which is my conclusion.)

Goodbye, Jardim!

11.25 Start on Calm river - see the people on the bank.

The stream is broad but not deep (200 feet wide)

11.28 Opp. The little church.

11.28.5 A high ledge or low bluff.

11.32 In main river, opp. the Doctor's new house.

We pass several - in response with the dipping of the steam and their salutations.

The Doctor has a charming situation, on a

Nice looking house.

We are cutting across the bend - all on old channel.

See cultivation on top of the bank or L.B. Side.

11.37 Island on R.B. side, is well cultivated. It is longer and wider than it was when Map was made. The large bay on mark is not now visible. It may be submerged, but of that I am not sure.

Sunday, Nov. 16th

11.50 At corner of P.R. - go straight on main road.

12.00 Off R.B. side on little canal away.

12.05 Reading for lower end of island ahead - at the mouth.

12.12 Opp. lower end Ilha de Barreiro -

12.18 The trees on this island are more abundant and tree line more abundant on map.

No boats on river near lower end of island.

12.18 Opp. lower end Ilha de Barreiro.

Barreiro - opp. clay bank on L.B. Side - mud bank about the same as 25 years ago - a number of houses on the island, as seen on map - About the same.

On the L.B. the houses look dark, whereas on the river, the houses look bright, and reflect the high flood, I suppose.

Not the higher main level.

This channel is 1000 feet wide.

In the lower end of Ilha de Barreiro - opp.

12.50 A large bay on the R.B. side - marks the island.

The stream is broad and deep, and the island is cut off.

1.00 River here not over 140 feet - Bar on L.B. side.

We are about in the old channel.

Note: Some of the handwriting appears to be in pencil, indicating possible corrections or additions.
Sunday - Nov. 16 - I. 137.

1.12. Cross 1000 feet wider between L.B. and S. Barre in R.B.

1.13. I now see the far end of the long Mountain range ahead - or close it. Then begin to the right - fifteen miles of barren land - coming almost due south - perhaps 5-10 W.

# According to the map - that would strike the range about 15 miles abeam here - and the map does show a bend there to the R.B.

1.23. [Cannot read this page]


We take the L.B. side - within 400 meters of it.

The old Channel is on the R.B. side.

Channel now 700 feet wide.

Island cultivated - and cutting on this side.

No cultivation on L.B.

1.27. About here Island shows no cutting, at this time.

1.30. From 800 feet here - L.B. is a long, gentle curve.

1.32. The Island is not exactly parallel, as nearly a bar project from the island abeam from the current to the L.B. (It seems to by curve - or the would have cut much more). Cut slowly. 900 ft.

There are a good many people in the island -

1.36. Bar cuts out from island, and more river to 600 ft. This bar does not appear on the Map; but then 2's projection above which remains with a grain.

No cultivation on L.B. The whole length of island.

1.57. Not far from it, in head enclosing head of Island in fact in near parallel to its unique upper end.

2.00. Opp. L.B. end of Ilha do Sacco - on L.B. side now running parallel with up and 40 meters of it.

My Channel, comes cuts come along head of Island -

It seems to bear about 15 miles of it - cutting but it is still going on at this time. Cultivate it, look up end.

1.39. Fresh look in the water - the cutting between it - some sand bottom - upper half clayey bottom -

the cut head of this island a null, half a mile.


50 meters out from it an we are clearing.

We now 12 minutes along - parallel with.

We now head towards L.B. - an immovable Food, White birds.

Sunday - Nov. 16 - Saco de Militar - I. 137.


A bar in front of this town or headland of 1200 feet.

Which extends abeam on the town for half a mile or more.

Looking down (back) the R.B. side of the island - I see a large bar on the R.B. side of the river - occupying the balance of it's channel now. It appears on the Map - and makes deep water near the island.

2.20. The river appears clear abeam here for a league.

No cultivation in near - either side 2000 ft.

I went 15 minutes from one side - to the other at head of island.

2.27. [Cannot read this page]

2.40. Within 40 miles of R.B. running parallel now.

River seems to be many meters for a mile or so.

Last season it cut some on R.B. side here.

2.50. Opp. L.B. end of what is marked on Map as Coroa da Vargem. It is a low sandy piece of land.

Covered with bushes and last season it cut some.

3.07. Opp. Island clay projection point (70 meters from it) on L.B. - it looks, and seems, the same like almost - the projection at least 40 meters out from where the Island clay has been washed away by the river.

Shades of hard clay show under the red clay, cut along for half a mile, almost this point - up to the RIACHO - Hamlet.

3.19. Opp. 6 (thatched) houses on L.B. I believe this is the lower part of the RIACHO.

3.22. Opp. Little water.


3.27. - - I. 134.

3.28. We are heading away from the L.B. about the old channel. We pass nearly parallel with the upper end of the Coroa da Vargem.

The entire end, portion has a bar or it, and a strip of cultivation.

Make it 200 meters at our left, as in go.
Sunday Nov. 16.  

3.37 Opp. foot of a new hill on L.B. side - This is probably the ending out of what appears on Map as Coroa da Serra Branca - since becoming an Island. There is water behind at the low tide.

3.40 Opp. about what I would call the extreme upper end of the Map - Coroa da Vargem - where the Eagle comes into the main. R.B. We now make off from the Conceito Shoal on the R.B. side. This Conceito has probably been considerably in 25 years.

5.00 The beach on this Conceito is cutting out - although it is clay blown in with sand. The Bay is 2000 ft. or more, but width of the map is only 1500 in the narrow place.

(4 P.M. Dinner Bell)

4.10 Opp. Melenciras - a few houses.

4.20 Placi sailing up a good run between the Coroa da Serra Branca of the Map and the R.B. Shoal. A good windless navigation.

4.41 Opp. lower part of a grass or land Concave Shore - on our side - 100 miles from R.B. Only the beach is sloped out of water. This seems to be the end of a very large bay.

The cultivation on either side along here.

The foregoing bar appears to continue up to the fore of Ilha da Serra Branca.

5.07 The island now curves gradually to left - Structure on Map.

5.15 Opp. the regular head of Ilha da Serra Branca. But in a high sand bar clean away to another island - Ilha da Mandacaru. This lages the Ilha da Serra Branca - and head - away from Map.

We are now heading made up past East end, but as I write it is partly cloudy to the right - into the old channel or other coasts in the north. Now he is turning toward the R.B. Shoal on north's channel. Magnificent River! L. 132

5.28 About Opp. old head of Ilha da Mandacaru but now a long sand island and then a steep sand bar extending above it. 1500 ft. Opp. head of same bar. Opp. bar cultivation on R.B. Let us must from here cultivation again on other side of river.

*MANDACARU - 1 island (on map)

5.25 Faral Moutain - on both sides of river - only about 2 leagues off - approaching further Opp.

5.28 I met Capt. Mark and his house - no place to anchor. He said he would like to run out another channel to another Leage. So which I am in no wise others.

"The scene was a more beautiful far to my eye - it is perfectly lovely. The scene just above the high Mountain on our right - shining and brilliant under the sun - making the waves of the River dance higher, feel the light - the Colored clay banks, the River from' Maggie etching with its vast volume, with its dark mountains with water surface, a Handsome speed island a mud for this ahead. The Sandy shore, top of the blue in the present scene - light of blue shining. Now the sun begins to set behind the Mountain. The sun's rays are dimmed, and evening begins to throw its mantle over the scene. What a wonderful change. The sky is barely from the Mountain over the entire valley and his loss 5.
Monday - Nov. 17th - on L. 130

9:47 - the same place as the report made.

8:52 - Opp. New house - near where the nose - on R.B. Side.

Wood and land off - along here.

The land near is quite high. At the high places - mountains are along on R.B. side of the river.

9:04 - a small spot of R.B. cultivation - 200 yards long.

9:53 - The range of landing, undulating mountains, which have been close to the river, now more in the middle.

And both sides - contain cultivation.

The navigation is splendid.

Halford's map does not give a correct idea of the range.

Which is somewhat like this sketch.

500 ft. high.

10:10 - Opp. - 2½ miles away - I suppose the Barro on L. 129.

10:15 - Opp. - a cleaning half mile long on R.B. Side.

On slope slopes and on top. Island only a little back.

There is a bar on that side at on L. 129.

Very small population. Along river on L. 131, 132.

Sandy and cultivation.

10:30 - 7½ miles from R.B. Lower about 2½ miles. Good

Is about 2½ miles distant. (de Carabia)


Gravel clay banks - Cut some new, vertical. Riv. 1½ miles.

10:40 - Riv. is over 3,000 ft. wide & undulating.

Cultivation continues along R.B.

10:45 - Heading to the north of the island. - The Point at L. 128.

10:49 - Opp. Lower end - close to I.a. do URUBU

We run right own where bay is on map. on L. 128.
Affair on board Steamer P. Daniea
Nov 17 - 1879

Hearing that there is a poor affair at Trumbull, when we will arrive this morning, I take advantage of the opportunity to continue my correspondence.

The navigation is perfect, good, and easy. I cannot imagine a better situation from the point where I last wrote. In fact, it is a magnificent scene.

The current is from us, as we advance. The trees are reenforced by abundant and several branches with verdure.

The islands are numerous and have cultivated, verdant formations, to these further down.

The banks of the main current are not so generally cultivated as they are lower down the valley; every attention to the fact that they are steeped and more subject to being cut away by floods.

The general character and arrangement of the population continues the same.

It has rained a little nearly every day for some time, but last night it cleared up, and now we have all kinds of winds. The sky of the steamer is very cloudy, and in fact have yet succeeded in getting to good the sky is clearing up, as more of the

This is the first time I have been below deck, when the steamer has been little. I turn my foot to escape the noise from the deck of the

We made 23 leagues in two days, which is probably as well as the steamer can do, as we steam.
Monday Nov. 17th

10.55
10.55
Fourth mile above Courrend I. I. 128
Urubu

We run the Channel between the Island
and R.B. Side - some breasted by Halls.
We do this in order to get to Urubu, which
is on R.B. side. One league above 2 of
Island and 1/2 league below the Head of

Channel at lower end about 800 ft. under

The Channel on R.B. side of Island 1200 to 1800 ft.

11.08

This large Island Urubu, lies low, subject to
heavily inundation and is all Cultivated at
the lower end, where it is only a short mile
inside. The R.B. Side is not Cultivated only the

11.18
Opp. bar on R.B. side of Channel near map 5550.

11.26
Above the bar Channel wider to 1000 ft.

11.36

We oblige our course. The R.B. There is now
a large bar on Island side, above here,
not shown on Map. We run near R.B.

11.37
Water now on bar and are 1200 ft. wide.

11.43
Furnace at R.B. bank.

11.45
Remains of another Furnace. We are near to Mid Pt.

11.50

I. 127 - Down end, q.f.

11.54
Near mid channel, Opp. a tile end bar.

12.00

Main R.B. Clay banks cut away, concave.

Approaching. Landing of Villa do Urubu.

12.06
Charter leeward side. Clay bank near the
side passing under the Villa stands, back on higher ground.

12.07

Charette, point on island, not very

12.05

Anchored.

There were only a few persons at the landing - the Villa is i a

1/2 mile from river on higher ground.
The only bank here is about 18 to 20 ft. above low
water, I judge. The Villa is a pleasant place
to live in, the large crop in front of the church.

Halls had made the survey 18 to 20 ft. above low water,

Noon-post.

Soon after landing, we all walked
toward the town, which is nearly half a mile
from the river - met the Padre - a tall col-

160 years old - went quite recently to Nisia.

The Padre told us of the Church - 160
years old - Welling quite recently the steeple
in the Church. Asked me wooden stel
in the Church.

In 1871:

It was a fine church once, but nothing
has been done to help it appear to
many years. There is another church
or chapel here in use. Both are used.

There is also a large Church Building
from - perhaps it is an unfurnished
structure, and not one that has been

12.15

We found the place deserted - all the
people & note had gone down to the
Attegia. The rain held up during
the time of our visit.

The P.M. was away; but several females
of the family informed us that the man had
left a day or two ago - and that it was
very ten days when it arrived.

The Corrento said it took 20 to 30 days
13.00.

I concluded to carry my letter up the
river to some other point. I had pre-

sented a letter to Mr. Primo, Col. Emma, and
daughter Lizzie.

Later in the day I met the Corrento, and some
of the chief men of the place, before
to bargain for wood to be ready on our
return. They asked 10% for large stones.

They finally offered 8% which is 27% more
than we paid below, but they stuck to the 10%
Tuesday. Nov. 18 - Urubu

Raining.

Overcast has been prolonged here unintentionally.

They are on a wood plank 2 leagues below here - belonging to Col. There is another, on the opp. side of the river. 3 leagues above, but the wood is that the steamer cannot go up the place. There is still another 7 leagues above and the engineer tells he has wood enough to carry us there.

I say he must go some week with the machinery, but that he can manage to run the 7 leagues.

It is still raining, but the steam is ready with coal, so that I hope we may soon depart from Urubu. 6:45 A.M.

Now comes another trouble, with Piranhas - he wants to stay here. I have ordered that he be paid off and informed that he cannot go back with us on the steamer. This is the third or fourth time this foolish man has made trouble; but I am not going to allow him to stay.

They come with their water pan all the way to the river for water. I saw no sign of a well in the town. Water arrangements, generally, along the river are entirely primitive; and there is no town of sufficient importance to be able to support water tanks. The river water is as good as the water of the Minisipi - and it compares, clear half the year.

Hides and horn for about 3% to 3-1/2% an arroba, and a hide weighs from 1/2 an arroba up to 3/4 or 5/8 - Hiemi in Buenos Aires 1.5 to 1.75 for the smaller hides, and 2% 250 to 2,8750 each. Say about 2,000 average hides.

7:30 I am more informed that "We are waiting for a man who was on there to get something for us." At 7:45 came a man with better goods.
Tuesday - Nov. 18 - I. 125 - Unread.

Rain continues - but not hard.

7.50

Start at last. She moved 3 miles an hour against the wind & heavy rain. Back along on the bank - in the rain - up to the bank.

7.57

Rain - 15% a matter.

8.00

Pendle buildings - 2 barns, 2 small.

8.08

Opp. flood water came over - thus high water Cut channel - info. 60 ft. wide. L. B. head of large island - Uruguay.

8.20

This entire island - perhaps 1500 ac - appears to be cultivated.

8.25

Opp. Pernambucus L. B. Morro do Pernambuco just behind it - 500 to 600 ft. high.

8.27

Rain hard.

8.37

Opp. st. of L. B. also app. up foot of Morro da Pernambuco.

8.42

Opp. lower end of small island. More sober.

On the map, it's a small island now from the large - off the map.

8.50

App. town and 5th of Cavalleros - Cultivated.

8.52

Channel to L. B. and 5th of Cavalleros - 1200 ft.

9.05

App. at 11/2 mile NW of L. B. foot of Morro.

9.14

Opp. up - p.r. said bar - [Still rain some]

9.15

I. 125. Below head of Island.

9.17

Opp. head of 1st of Cavalleros.

There is now a mid-channel bar between these two islands. Not on map. The bar on maps on the head of 1st of Cavalleros for Cut away. Have one now foot the up on the island Seca - not on map - extending 1/3 length of island.

9.25

Rain 2000 ft. - side. We are running within 2000 ft. of L. B. Nothing to do. Very wet.

9.47

Also to give pilot and steersman a chance to eat breakfast.

10.13

Start.

10.25

Just below lower end - Ilha da Mangal.

10.25

The lever handle jumped the track - brought the steam up to a red. Gave - tightened the engines. The smoke then filled the car. The row boat came after us. Rain still.

10.33

Start again near foot of I. da Mangal.

10.34

Opp. lower end of Ilha da Mangal.

10.42

Opp. up on the L. B. side - L. B. Channel.

11.08

App. head of Island - Cl. MANGAL.

11.15

A small island 1506 ac. L. B. foot Cl. MANGAL.

11.30

Opp. MANGAL on L. B. shown on map.

11.30

The island is shown on map.

11.51

A small island 1506 ac. L. B. foot Cl. MANGAL.

12.04

A small island 1506 ac. L. B. foot Cl. MANGAL.
Tuesday Nov. 18 - I. 123+½

Conclude to make this Woodying place MANGAL, on J. B.

The rain stops from the S. East. It continues all day, so that there are but few dry spots left on the Steamer. Many of the Maps are soaking wet; but there is chance to dry them till it ceases raining.

Write a long letter to Conni - Bet.

Halfway - gives a chapel and 8 horses.

Mangal has a fine situation.

Write a long letter to Conni - Bet.

9.06 Opp. point on J. B. 8 houses on the hill - on Mas's farms.

9.36 Opp. Point on J. B. Deacon 25 years. 8 houses on the hill - on Mas's farms.

9.37 Long island, long J. B. Side, Cultivated.

9.38 Long island, long J. B. Side, Cultivated.

9.40 Long island, long J. B. Side, Cultivated.

9.47 Long island, long J. B. Side, Cultivated.

9.57 Long island, long J. B. Side, Cultivated.

10.00 Opp. on J. B. Side, Cultivated.

10.10 Steamer turns to right - head of Isla de Barrosa.

10.15 Head of Isla de Barrosa. 12.30 - cloudy. Cores not in action.

12.30 Head of J. B. Side. 8 houses. 12.35 P.M. - on Maps. 8 houses.

1.20 Barrosa on J. B. Decades 35 years. 8 houses. 1.23 P.M. - on Maps. 8 houses.

3.15 Head of J. B. Side. 3.30 P.M. - on Maps. 8 houses.

3.45 Head of J. B. Side. 4.30 P.M. - on Maps. 8 houses.

4.30 Head of J. B. Side. 5.15 P.M. - on Maps. 8 houses.
Wed. Nov. 19. 1. 120.


12.10 Opp. Lower end of Ilha de Barros. Rough, wooded, with a few growths. The channel here and L.B. is now 800 ft. wide. We run this channel. Map line of the chart is here.

12.25 Heading toward L.B.,

10.15 Within 200 miles of L.B. Thus approaching.

12.40 Within 30 miles of L.B. Nearing it.

12.43 Opp. Land on a small islet; a few growths. Small trees, hanging from limbs.

12.45 Preparing to land from there. Small trees, either small or none. A small grassy slope from edge of wooded formation.
Wed. Nov. 19 - Bandeira Island

12.50 Bandeira seems to be lost. According to the Map, my notes, and the Clearman, morning, we should have been at 13 Bandeira a quarter of an hour ago.

1.12 Off lower end of bar crossing bay from island.

1.13 Off lower end of Bandeira. Nice situation.

1.14 20 Meters from shore, 5 Meters deep.

1.17 Stop found up end of Bandeira - Parties about 300 yards place, and anchor.

Every long league instead of 1.118. After a porter taking in much water, we

1.55 Steer from upper end of Bandeira.

The channel behind the island Bandeira, where the pilot has not been seen.
It is from 5 to 7 Meters deep, as far as we have 2.00 seen in the chart.

Note that the lower end of island is below.

The upper end of the channel which contains all the water, there are clay
banks at the R.B. side and they do not cut much.

The banks in the immediate front of Bandeira are quite rocky with a wooded
slope, clothed with a sort of natural

quarry granite. ^Wood is not here.

Said to be wood at sitio de Matto

- 2 1/2 leagues above here.
We think we have wood enough to

take us there, so we are on the way.

The bars shown on the map in this channel at the lower end of the island, are gone. We found from

4 to 5 Meters are along then. 5 3/4.

No. 11 Channel, 200 Meters wide. Banks backing

Bandeira Island is partially Cultivated.

I have not seen any huts or people, and

2.17 in the R.B. there is a House 2 wms & children.

2.18 Main course place between bar and L.B. 500 ft.

It has a good depth to 1000 ft and near the L.B. side, low recently burned
Cultivation on R.B. Side. Land company.

2.22 In the R.B. we are, it is cutting some more

900 foot wide and cuts widening.

2.25 Opp. Head of high sand point of island - Some flats,

about this it is low, covered with a small growth forming a new head to an old island. Though at the extreme upper end, it is higher, and cultivation.

2.28 We are now inclining to the R.B. forming out of this new channel (one to 117) into the main river.

2.30 Opp. Southern head of island opposite La
delely, abounds in a bar - a small water channel
between the island and the bar 200 Meters wide.

2.33 Opp. Upper jet of this island bays.

also opp. Lower end of very large bar on R.B.

This bar serves to contract the river and maintain a good depth in the Channel. 13 3/4 3/4 when not in the channel.

2.38 Woods on both sides of the river. No cultivar.

We have nearly lost the Mountains only.

A distant view of those in left behind us.

The Pilot says "No more Mountains,

Only some hills." This will take down

Our scenery very much, but perhaps in shade

we shall find something else of interest.


There is a large bar or Mop in L.B. Side

which has disappeared. If any remains it is now submerged.

I. 117

2.43 In the R.B. there is a 1000 ft.

Somewhat above 2 1/2 leagues above.

We have had no idea of this until now.

2.46
Wed. Nov. 19 - on L. 117.

3.00 Threw line up - off one end of the big bar along which we have been unmooring.

3.05 We are just below "Cachoeira" marked on Map. Some rocks in the river; these at present a good channel on the R.B. side where we are now steering. creek there.

3.10 The rocks are marked as A. R. B. side. creek (east) about N.W. E. 5 S. W. N. W. (Other creek.) The rocks are well marked, a few only, the current rips are visible, and the water shallow. As said of the map, with its one house, I did not see.

3.20 No cult. on either side but low bar on L.B. On map - above the reef of rocks - it is marked "Poco," which means pool, and Guadalupe had about 30 ft. depth sounding.

3.23 We incline toward L.B. on R.B. side but little cultivation this far. a day.

3.30 Opp. the middle town lot - a large bar on R.B. side. It is shown on map at Cohn. The island is half a mile or more wide. It has that appearance even in the present stage of low - some 5 ft. above low water, say.

3.34 There is a beach on L.B. side. It looks a little gravelly. There are certainly some stones. As it is about 200 miles long, varying in length into a clayey bank of such shape.

3.36 Run 1800 ft. but marked above for the bar.

3.40 about L. 116 - Near L.B.

Run about 1000 ft. wide to bar.

3.45 12½ meter, II. deeper, as far as now seen. (Other.)

3.49 Opp. Hua (Other) on R.B. behind the big bar.

3.53 Dinner bell - I think my watch stopped twice for a few minutes.

W. Nov. 19 - on L. 116.

4.00 Run line - off one end of the big bar along which we have been unmooring.

4.13 P.M. a small island on hand on R.B. side. It appears on Map as a little bar.

4.18 - 4½ - 4½ - 4½ - 4½ - 4½ - 4 Fault 10 meters from L.B.

4.19 A large house on L.B. - 100 meters back. Another.

We are approaching Sibico de Matteo.

4.20 Opp. Cultivation on L.B. on Top 18 ft. at least above present water.

A bar in middle north opp. here and for some distance above.

4.22 Big hump of Clay along bank on L.B. 50 meters to right. Whisk - 4½ - 4½ -

4.28 Opp. clay humps.

4.29 Loop of island - opp. on L.B.

4.35 Converge down - at Sibico de Matteo.

# Here we stop to get wood. #

This appears to be quite a considerable place - numerous houses and abode inhabitants.

On the map, the town of the island is rather above the bank, or Op. The town is on the other end of the town or island, but now the town of the island is below the town end of the town.

There is also a bar now in middle in below the island, not shown on map.

The Pilot says it is too shallow to go across from the town to the island, but when shallower than 2 meters, it is the way over.

Report -

Good navigation to here.
We remained here all day. Any man, and others lodging here, either
when in bargained, getting wood at 5 60c. miles, for 1000 sticks.
During the day we saw number of
Bamurda, female largely in the majority.
About 35% to the pine woods on.

The opposite side from the river and 35% to the

We saw 4 of these odd trees within a small
area not over 200 meters. Faintest about
about one mile from the river back of the

Situ do Matallo. They occur in the

mass of light woods, on a bramble level.

Dundee plateau elevated a great deal above
the highest floods. 10 feet or more.

I should think, acquiring from the nat-
urals. Growth that agricultural might ex-
ceed here without irrigation. In planting
at once at or toward the end of the rainy
season—April to April—getting the crop

July. Prof. Derby is of opinion that this place
a mile from the river has formerly been culti-
ved; because it is carobing clean as if
it had been cleared. I leave now;
however, that it has not been cultivated or
that it was cleared by man. The river does not
reach it.

The other trees in the woods were
comparatively small. Bamurda grows
among them indicating, once the ground
has matured growth of this time. Many of
wood under and diminishing the small and
larger trees. The wood for stems is cut a
little farther out than when we were.
Friday Nov. 21. — Sitio do Matto.

During the night it rained, but in such a manner that it did not get into the cabins as before. The top covering must have been better fixed.

The river has now nearly half a meter deeper than before, and we still missed this. There must have been again 1,000 or 1,500

RIVER Rose 0.685

METERS = 2.25 ft. in 44 hr.

The river has been rising for 44 hours, at the rate of 0.05 ft. per hour. 3 inch

0.685 METERS = 2.25 ft in 44 hr.

Ilha Sitio do Matto is cultivated.

[We have now on board fully 4,000 shiels.]

That during summer 30 days of rising or 3 days.

A Ferry here used to carry cattle across the river. It was here in Halford's time.
Fri. Nov. 21
12.34 1500 miles from R.B. Heading S.W. toward it.

12.37
This R.B. side along here is a mixture of virgin forest and cultivated and some cultivated land where it appears subject to outflow.

12.40 The next island and sand bars on N. side Ilha S/te de Mataio, still new from R.B.
Some of the Marajoas of within 1/2 mile now of the mouth. This channel is 1800 feet wide.

12.43 feet wide from R.B. to Santa Barbara Island. The irregular terrain on the shore between the town and the forest along here are cultivation.

12.44 We are near the L.B. side now.

12.48 The same general character of streams and shores for the last half league—little to no cultivation occasionally—along I. da Canabrava.

12.50 Opp. Island Ilha de Itapiraca—which stands behind J. da Canabrava and the small island Ilha de Itapiraca. 1200 ft. wide.

This was part of the estate (many years ago) of the Conde da Ponte, when the boundary was on the R.B. side (back) below the lower end of the large islands.

I. 113

5.00 Opp. up river of Ilha da Canabrava. Ilha de Santa Barbara.
Now we see the Ilha de Itapiraca—larger.

5.08 Opp. the west end of Small Ilha de Itapiraca!

5.15 The Mount or summit at Lapa is now funny ahead—we are about mid-morning—scheming official appointments toward head of island.

5.20 Head of Ilha de Itapiraca—small isle about a knif edge.

5.27 The head of large island—-which is (1100 miles to 1/2) now a 1/4 mile above head of smaller island.

5.32 Heading obliquely for R.B. The Lapa Mount standing up clear and stark, but in my distance a little to R.B. you cannot see.

5.35 Now running along R.B. 40 to 50 miles out.

5.43 Earnest about opp. town and Ilha de S.B. Bom Jesus.

5.47 200 miles from R.B. This shore appears to have been cut away considerably since Halle's map was made. The mouth of new Inlet (now of Inlet to Marajo) on R.B. side.

5.54 Somewhere about opp. town and Ilha de S.B. Bom Jesus.

6.02 Opp. head of Ilha de S.B. Bom Jesus, at low Water it is all sand behind—buts at this stage—at least 2 miles above—some water runs from behind.

6.06 Opp., the Pequeno—I am in L.B. side.

6.30 Anchor—

**Sen. Bom Jesus de Lapa**

**Capella na Pedra Calcarea**
Saturday - Nov. 22nd

10.45 Start from Lapa.

11.03 Land of present extreme low end of Pto do Medo. It has extended down stream. Entire Atlantic borne a long distance below the old foreshore and the point is now one of a few feet above present water. Though it is cultivated. Some is (low)

11.15 At first opp. white island formerly existed. The Channel we are in between Island and J.B.

11.20 We run now near J.B. 3 3 3/4 - (Ch. 270)

11.27 Opp. up end of Island de Medo. Low sand bar extends 500 miles above island (lowland) Island ov a mile long

11.37 Opp. up end of bar extending above island. Channel is now on which side where the bar was. The river has been cutting the J.B. side of lowland.

11.43 Now on 200 miles above J.B.

11.45 Opp. Lower end of Bar, 250 miles to our left. It is partly submerged (Bar) some Island (fig. growth)

11.51 Opp. up end of sand bar. This is not on Map. 250 miles on R.B. Side


11.54 Opp. near L.B. Down to level of present water in neighborhood of Pambí on J.B.

12.04 Opp. Up end of small island near Pambí on R.B. The Island ov about 1/2 mile long and cultivated. Did not exist in Hadfield's time.

12.10 Sand bar - partly submerged before mid river and over low land. Pambí and L.B. all cultivated unless back out of sight

12.22 Tagenda do Pambí. on Map. about here

12.29 Some little cultivation to edge of cutting bank. Exam L.B.

12.30 Opp. Depression in J.B. Marked on a chart as such.

12.34 Opp. some flat lands in Pambí. L.B. - near L. 110.

12.36 About Opp. Foot of the long sand bar.
Saturday, Nov. 22, about Lower end I. 110

12.37 We are obliquing across, passing above the head of the long sandbar on the other side, with a white emblem on it that has about kept pace with us for half an hour.

12.42 The bars have all changed, and the houses are so immense that it is difficult to land marks, but the island "do Pambui" is about 1/2 mile above here.  Resumed 2:30 P.M.

12.45 Some of the maps bar remain, but I cannot place them accurately.  The water is very up about 2 meters, so might soon run over them, if they are low.

12.50 Opp. Lower end Ilha do Pambui.

12.55 About 15 meters from R.B. Cutting, sand, Learn.

1.00 About Opp. Lower end of Ilha do Pambui.

1.05 Heading away from R.B., Oblique to right.

1.10 Cult. corn, on R.B. (worth above below)

1.12 Upper end of lower side of I do Pambui.

1.20 We have run over it (30 meters at) 9, 35

1.25 Island rises not past above this now do not a spot sandy only 1/2 meters above present water.

1.28 Gap, upper point of Ilha do Pambui. 4, 3 3/4

1.31 Opp. Lower end of a bay on our right - I'm watching something at the lower end.

1.31 Opp. Lower end of island bar on upper end.

1.38 Opp. Upper end of island bar on upper end.

1.41 Opp. Lower end Ilha do Campo Largo (40 m. 30)

We run on J.B. Side of the island on a channel 1200 ft. wide.  This island has many small trees, but it is cultivated, in part.

1.52 Within 30 meters of J.B. which is not cutting.

1.58 Opp. Upper end of Ilha do Campo Largo.

2.02 We are at mid. channel only 800 ft. wide running up.

2.06 A little bar, close to oursight.  Mostly submerged bar, then becomes an Island.

2.07 Opp. Upper point of the "low island" just above referred on a continuation of I. do Campo Largo.

2.08 Island above now close on our right in a new one - not on map.  It is cultivated.  At this lower end it is only a Meter above normal level in corn, which looks green and healthy, but the flood may come before it receives any.

We run between this Nameless Island and the R.B. Heading new island R.B.

The channel is now 1200 ft. wide.
Saturday Nov 22. on I. 108.
2.24 Opp. Upper end of New Island - and running toward R.B. Strong Current on this shore, but it is not cutting, or carriers any
Cultivation sprinkled with woods. There are over
30 miles from here.
There is a bar on L.B. side, the other side
of the new island.
But, not known in connection with the
River-1400 ft. but widening, up stream.
There is on the map an unnamed island
Close along this R.B. shore - I think that
The land next to the main here may be this island,
but I cannot have begun or ending.

2.31 Reading away from R.B. - when near beach
Put down my head for a while but the general
Steering is somewhat along the side river
[If the Pilot would make me eat cane sugar in which
top barn, cutting but sometimes I suppose then
the bees in the way]

2.42 We are opp. The point of an island which
is only a bar at the lighthouse
There is another island (after a channel by 400
Miles wide) immediately above the other.
These islands are not on the map; also there
are my large barns along this point of the
Main island on the map on the L.B. shore.

2.42 I. 108 - somewhere along.
2.47 I think that the large barn shown on the
map behind the large cultivated lands
2.47 We are now heading away toward R.B. but
gradually inclining up main mid river.
2.55 Now in True heading up toward the island, a
mile or more ahead. [I. da Volta]
2.58 Pretty view above, seeing the water opening
to the right of the island and the picturesque
Show on this night, with the moon's reflection
Shine ahead on our left, with redeemable and
beautiful scenery above and a clear, blue sky above the clouds.

3.05 We are running better now than in the
Wrong hours back. We are running to run
To the L.B. side of the Island (Halford Channel)
3.06 Their is the other side - now it is very
Gray with fog along I do not know what
Happened got mad now and then.
Upon the whole we head for the island and
On both sides of it.

3.15 Opp. Campo do Isalo.
3.21 Opp Volta leBaixo - when we are
To stop or let off our passengers

3.22 Stop at Point da Volta,
3.24
3.46 I let it again - as 3°, 140.

I find that we have invited our guests -
Commandant and Sub-Delegado
To dine at 4 1/2 - and after that to send
The men in our sleep - So I think we
Will remain here for the night.

As promised, it was past 5 before dinner was
 overflowing, and half past 5 by the time our
Lanterns. I had pressing sent
Down to the engineer that we could go no
Further at day. He was to do something
With one of the cylinders.

Report good navigation.
To the point on Line 108.
Sunday - Nov. 23 - L. da Volta

5:43 Start.
36.2 km between L. da Volta and L. B. 8:00 to 9:00 AM.

5:54 About L. 1.107.

The L. B. appears to have cut some of the main channels, but not the 1000 ft course. The current here at the channel mouth is 8-10 ft.

5:56 It is a grand navigation now.

Pilots' report of running is somewhat different from the map. I would run the channel but avoid the 5-6 ft shoal area in case there is an almost any wind.

6:03 "Scopador" on L. B. No houses, but appearances about the same.

Note: Our channels along here will show less than half the obstructions seen. We are running mid now, and the channel is on L. B. side.

6:24 Opp. Head of Ilha da Volta. The depth at head on map is not now visible.

43 minutes running length of island. This would make the island about 1/2 mile. If so on map we steamed directly over the head of the island, head depth 6-9 meters.

6:34 We are now 100 miles from L. B. Run 8:00 AM.

6:42 Opp. Lower end Ia. do Bebedor.

BOA VISTA (on L. B.) Tegenda do Assassinho Guimarães (a number of the people gathered on the bank."

The large house, a little above fore-driving.

6:45 Opp. The large, new plantation, tiled house.

6:50 Opp. Lower end Ia. da Batalha, which cake and hides Ia. do Bebedor."

The channel between the islands is filling up."

This island Batalha also hides the Ilha do Cateira - which is close to the R. B. side of the map.

6:52 R. B. side of R. B. not now visible.

6:56 about 1.106 course, and 1/4 M. abay.

6:57 Channel is against wind - cutting - very low.

7:07 Opp. Lower end of Ia. da Batalha. The little island is not shown on map."

7:12 Opp. Lower end of Ia. da Palma. Chan. 1/4 M. 90°

7:15 Opp. Upper end of Ia. da Batalha. There are 2 small.

A tiny island just above Ia. da Batalha.

The Rio Das Ráas, water in L. B.

7:27 Opp. Lower end of Ia. da Palma. The little island is just above Ia. da Palma."

7:39 Opp. a water channel on Ia. da Palma. The wind runs across the channel."

7:47 Opp. Upper end of Ia. da Palma. The little island is just above Ia. da Palma."

7:51 Opp. Palma (one good house, tile roof, 50-60 ft.)

8:05 Opp. Lower end of unnamed island on R. B. There is a small island right above the head of the island as the map shows.

8:10 Opp. Lower end of unnamed island, on R. B. There is a small island right above the head of the island as the map shows.

9:05 Opp. Lower edge of one island. Water channel behind the island."

9:18 Opp. Lower end of another island, on R. B. There is a small island right above the head of the island as the map shows.

9:18 Wet drum of one island. Water channel behind the island.
Sunday Nov. 23

11 minutes slow watch (9.20 - Change to 9.31) and
9.31 Star again - new sun comes up. 103 1/2

9.36 RRV1500 ft wide, but it may be an island (R.B.
and I see that it is another sand bar
Greenland)

9.36 Opp. head of sand bar, Greenland, or R.B.
(Even the land above that may still be a land)

9.47 Pilot says it is all land along here in
front of the right bank of river. I suppose
that the bar and islands have run
together and half of the land is gone. Some of
the island, has probably once become island:
I see a regular old island ahead,
about mile above - which I take to
be If. da Pituba.

10.03 The "Cora de Barreiro", or L.B. on Mag.
can't be distinguished. Perhaps gone. Past may
have become land.

10.12 Opp. lower end of Ilha da Pituba,
In 10 1/2 miles. 105 - [above 1/6 mile below
Ilha da Pituba:
I see that the R.B. Channel is new, full of Green
sand bar islands - partly submerged. On the
banks they are sand bars. This shows that
the R.B. Channel has been closing.
The river flows high over these island bars,
and no one can say what shape the river
may have here. Often a very high flood, or
even after the ordinary flood of 14 feet high.
The bank of the river seems to flow on the L.B.

10.20 This channel is new, only 200 miles wide. It
must be deep, but we are running in the sand.
Here the corvis side - through the current
10.25 gentle - 8 to 10 miles deep - mean medium
600 ft. wide only

10.27 200 miles wide - Warded L.B.

10.32 Opp. Pituba - 1/2 hour on high bank 3 1/2
a dragoon operated Taken - Then may be
other house behind the trees - 600 B. Channel.
I made an hour current -
an elegant navigation.
Observações.

Depois de Concluído os primeiros cálculos chegou-me a mão o último trabalho de Dím Munchek pelo qual a leg. de Macaé e com referência ao R. de Janeiro Sera 29 41.30 (em 29 43.16 como tomou em) e a de Observ. Imperial de Rio de Janeiro 31 2 0.1 de Paris ao 2 52.39.5 de Greenwich.

Acertando a correção relativa a Macaé por ser o resultado do maior número ou então Chro-ométricas de que assistira a meu calculo deveriam diminuir-se as Mesmas longitudes com refer. ao R. de Janeiro. A fajão de 1.86 E (long. E de Rio de Janeiro) = 2 52 26.36 - longitude do relaco presente ou (- cdem) 43 06.38.4 (- cdem) Krasov.
Astronomical Positions Eng.
Determined by Sr. Carlos Kreues.

1. Margin of Rivi S. Francisco
   Lat. 28° 42' 9.06.8
   Long. 47° 2.45.8
   S. 30° 40' 06.8
2. Toazeiro - matriz 9° 24' 36' 2.41.51.4
3. As Pedras - beirado do rio 9° 09' 39' 2.40.05.5
4. Vilim do Capim Grosso 8° 59' 2.39.32.5
5. Margin of Riv. opp Caraca 8° 40' 19' 2.38 51.0
6. N. S. B. B. de Rodelles 8° 50' 11' 2.34 59.3
7. Margin esq. of Riv. opp Riachao 8° 57' 36' 2.33 44.6
8. Atalho Caso de Jose M. de Souza 8° 59' 22' 2.33 13.1
9. Bresinho de Tora 9° 05' 46' 2.33 56.4
10. [Page 41] "Cultivation extended to the Waterside"
"We have spent three days on the
fourth to fifteen leagues which separate us
from Vara da Redinha. Thus
this section can probably be named the most
interesting part of the voyage."

Nov. 3. We found the Unidade
...[Page 42]

Now, all the cultivation, that
there is, or has ever been, on the fourth
or fifteen leagues, is confined to
the river bank, where the
cultivation begins at the edge of low land and
extends twenty, or thirty yards in
some places more, to about high
water, and that is all there is of
it. The hedges, or brush fences, are
sometimes planted higher, separate the little
plantations; many of which are
less than an eighth of a mile long.
A plantation 660 feet long by 66 feet
wide (many are smaller), contains
just one acre. The acre is
an eighth of a mile long,
in some places, when the river is flat.
and in low islands, there is
much more in a mile. But there
are many stretches of miles (or
shoals) where the river
travels 660 feet, when there is no
cultivation along the river, where the banks are
too steep, and where the river cuts.

No where that I have seen has
Capt. Burton shown the plant to
make their Maths clear to readers.
Perhaps it was not clear to him.
Page 439. Brunn - on the Hepanica Falls

"The materials of the shore in connecting line and broken, with large and small water-worn quartz boulders, often firm's clay though not all. On the banks are from ten to twenty large blocks of lumpy, yellow, and brown Conglomerates. The base is a fine, compact grout, like that of Addicoe Castleton, where the violence of the water extends the stone in an oiled, white, and gray Conglomerate. On the other side of the river, there is a large, gray, broken, and broken Conglomerate. On the opposite side, there is a large, gray, brokenConglomerate. On the other side of the river, there is a large, gray, broken Conglomerate. On the opposite side, there is a large, gray, broken Conglomerate."

On the right, as Buhrein approaches, the Channel has a prominent fall, and the Conglomerate boulders and clayey Conglomerate, running between the North and the Central Channels. The Central Channel is divided by a small, narrow, sandy beach breaking off the river and forming a lagoon. During the day, the sun's rays fall upon the mountains, and the water flows in a glistening stream. The river is deep and swift.

XX. Nowhere have I seen such giant Conglomerate or black Conglomerate. There are deep, narrow, and swift streams, and the water flows in a glistening stream. The river is deep and swift.

Page 184. "Lands that are fertile and rich in

The Buhrein is on the left of the Vale, and the Buhrein, a large, "straight, deep, and blue," as it approaches the sea."

Vol. II - Buhrein. Quoted from an ancient Champaigne, dated 1799.

Page 184. "Lands that are fertile and rich in

The Buhrein is on the left of the Vale, and the Buhrein, a large, "straight, deep, and blue," as it approaches the sea."

Page 184. "Lands that are fertile and rich in

The Buhrein is on the left of the Vale, and the Buhrein, a large, "straight, deep, and blue," as it approaches the sea.

Page 439. Captain Buhrein's Hypothesis. "In some

The Buhrein is on the left of the Vale, and the Buhrein, a large, "straight, deep, and blue," as it approaches the sea."

As soon as I find a place of my own, I will put this hypothesis in practice, for, I am sure, the place is so much better than the captain's.
Dimensions of "Paráque Jáquara".

Built of hard Viniatico and Cambeira woods - with ribs of Palá d'Arco 10.5 ft long and iron plated bottoms.

24 n. broad, 24 inches deep, greatest point.

Weight 32,000 lbs.

Unloaded draught 14 inches, increases 1 inch per 4 tons.

Came in 72 tons, 22 inches deep.

Between Macabubás & Jáquara.

Makes Sabará in 12 days from Jáquara - returning in 2 or 3.

According to M. Liao, the run at Sabará stands 695 meters above sea level and at the confluence 432.3 meters.

56 - 666,089 = 36.128 miles in 120.83 geographical leagues; and thus the general declivity is 0.3941 m per kilometer.

The Slope of the upper São Francisco between the Pará de Béia River and the lighthouses of Paráporé - 8,4890

"The Paráporé is a serious obstacle. It is not incrustable, but it costs a great many dollars to remove. The most serious obstacle upon the Rio das Velhas.

No work could be carried on in the rainy seasons and the inundations would damage the labor done during the dry season. As above it also the Rio de São Francisco becomes a mass of rapids, and when you clean one you are within hearing of another. Canoes astern with difficulty to the mouth of the Abaeté. M. Liao accurately surveyed as far as the embouchure of the Pará de Béia, and by force the chavão cannot clean from the 70 leagues."

Capt. Bentin writes:

"The Paráporé is a serious obstacle. It is not incrustable, but it costs a great many dollars. The total cost of removal is 870,000.

Say 4,500,000 dollars."
Extract from Capt. Beaufort "The Highlands of Brazil" vol. II - Page 422

"The land is good, producing in abundance maize and manioc, beans, and ground-nuts, sugar-cane and rice, in the places where it is not flooded by the stream, whilst Cotton rotted, as usual, on the uplands."

This was written of the land not far from Varzea Redinda.
It conveys a remarkable erroneous view of the facts. The maize and manioc, beans and ground-nuts, sugar-cane and rice, are produced only where the land has been flooded by the stream, and the few, scattered, wild cotton trees, that the stream, and not the flood, found on the uplands in ordinary seasons. Nor will any thing else grow near such large cactus, and thin-stemmed trees, making what is known as Serras, growing with the aid of irrigation.

Page 216.

"The shores of the Paranoába the breadth of the United stream is 140 Metres, and the max. depth 3.25 Metres, with a discharge of 180 c (130) c. m. per second. Referring to the Rio Velhas River, 7,500 cubic metres per minute, or 2 1/2 times the extreme low water flow of the Ohio River.

<table>
<thead>
<tr>
<th>Grains</th>
<th>Diamond, 12 t 18 p. Carats = 75</th>
<th>Shift</th>
</tr>
</thead>
<tbody>
<tr>
<td>6 t 7</td>
<td>107</td>
<td>96 francs = 110</td>
</tr>
<tr>
<td>8 - 9</td>
<td>126</td>
<td>140</td>
</tr>
<tr>
<td>10 - 11</td>
<td>148</td>
<td>160</td>
</tr>
<tr>
<td>12 - 13</td>
<td>160</td>
<td>180</td>
</tr>
<tr>
<td>14 - 15</td>
<td>185</td>
<td>200</td>
</tr>
<tr>
<td>16 - 17</td>
<td>200</td>
<td>220</td>
</tr>
<tr>
<td>18 - 19</td>
<td>220</td>
<td>250</td>
</tr>
<tr>
<td>20</td>
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<td>285</td>
</tr>
<tr>
<td>10</td>
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<tr>
<td>12</td>
<td>465</td>
<td>6,700</td>
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<tr>
<td>16</td>
<td>7,600</td>
<td>8,000</td>
</tr>
<tr>
<td>20</td>
<td>12,500</td>
<td>8,000</td>
</tr>
</tbody>
</table>

The Paranoába Table March 1853 gives

| Horse power, 18.5 to 30 to 1 t. Carat per horse | 78 |
| Horse power, 18.5 to 30 to Carat, per cent 72  |
| Horse power, 18.5 to 30 to 1 t. Carat, per cent 78 |
| Horse power, 18.5 to 30 to Carat, per cent 78    |
| Horse power, 18.5 to 30 to 1 t. Carat, per cent 78 |
| Horse power, 18.5 to 30 to Carat, per cent 78    |