





# B R E V I O R A

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### STATIONS OF THE THAYER EXPEDITION TO BRAZIL 1865 — 1866

MYVANWY M. DICK<sup>1</sup>

**ABSTRACT.** In April of 1865, a group of scientists from the Museum of Comparative Zoology led by Louis Agassiz embarked for Brazil. The purpose of this expedition was to study, *in situ*, the fauna and flora of that country. Members of the expedition, divided into three groups, explored the major part of Brazil from the Rio Tocantins eastward to the coast. Although the major part of the work was done on the distribution and relationships of the fresh water fishes (Agassiz's prime interest) many superb collections were made of plants, invertebrates and vertebrates. Thorough geological surveys provided much information on the structure of Brazil. This paper traces and maps the numerous stations where specimens were collected. Based on modern and nineteenth century maps, and on notes and papers recording the routes followed and collections made by the expedition, it represents a compilation of all this information into a single, indexed directory. This directory should facilitate the future labors of individuals working with the Thayer Expedition material.

### INTRODUCTION

Louis Agassiz had for many years wanted to observe *in situ* the fauna and flora of Brazil, a study that he knew would be substantially encouraged by the Brazilian government. The opportunity to do so, however, had never presented itself. This cherished dream became a reality in 1865 through the understanding and generosity of Nathaniel Thayer, a Boston businessman keenly interested in science. Thayer assumed the expenses of Professor and Mrs. Agassiz and six assistants for an expedition to Brazil lasting several months.

The scientific staff from the Museum of Comparative Zoology

<sup>1</sup>Museum of Comparative Zoology



included John G. Anthony, Assistant Curator of Molluscs (who was with Agassiz in Rio de Janeiro and made extensive collections in this area before illness forced his return to Cambridge); Joel Asaph Allen, Assistant Curator of Birds (later the noted Curator of Birds at the American Museum of Natural History); Frederick C. Hartt and Orestes St. John, geologists trained by Agassiz; George Sceva, Preparator and collector primarily of fossil material; and James Burkhardt, an artist who had worked for many years with Agassiz. In spite of poor health, Burkhardt was an indefatigable worker and made, according to Agassiz, over eight hundred illustrations during the expedition. Most of these unfortunately have disappeared, but the remaining examples, which are in the Museum of Comparative Zoology, indicate the high quality of his draftsmanship.

Agassiz also had extremely able and enthusiastic young volunteers in his party: Edward Copeland, who accompanied Hartt from Rio de Janeiro to Bahia; Newton Dexter; Walter Hunnewell; William James, the future great professor of philosophy at Harvard University; Stephen Thayer, the son of Nathaniel Thayer; and Thomas Ward.

On 2 April 1865 the group left Boston aboard the S.S. Colorado, guests of the Pacific Mail Steamship Company. While at sea, Agassiz gave a series of lectures giving background for the work planned for the months ahead. On 23 April 1865 the S.S. Colorado docked in Rio de Janeiro. Agassiz had arrived at the threshold of his longed-for goal.

The area covered by the members of the expedition was extensive. They divided into three groups and explored the major part of Brazil from the Rio Tocantins eastward to the coast; they also explored some of its tributaries, to the borders of Colombia and Peru. Although the major part of the work was done on the distribution and relationships of the fresh water fishes (Agassiz's prime interest), many superb collections were made of plants, invertebrates and vertebrates. Thorough geological surveys provided much information on the structure of Brazil.

The numerous stations where specimens were collected have been difficult to locate because several were small villages or clusters of dwellings on the edge of a river or lake. Many no longer exist and some have names other than those used in 1865. Rivers and



lakes that were recognized a hundred years ago are frequently overlooked in recent atlases. Researchers involved with the Thayer Expedition have devoted many hours to tracing these stations and collections. Using both modern and nineteenth century maps, it has been possible to locate them fairly accurately. Information concerning the routes followed and the collections made by members and associates of the expedition was obtained from publications listed in the bibliography. The locality names used in the text and on the maps are almost always those employed during the period of the Thayer Expedition. Subsequent changes in locality names or spelling are italicized in the index. Having this information incorporated in a single directory should facilitate the future labors of individuals working with the Thayer Expedition material.

Much work needs to be done with the material collected by Agassiz and his corps, especially with the collections of fishes. Many other groups, both plant and animal, also need comprehensive study and evaluation to complete the survey of Brazil envisaged by Louis Agassiz so long ago.

## MEMBERS OF THE THAYER EXPEDITION

1865 — 1866

### MUSEUM STAFF:

Louis Agassiz

Elizabeth Cary Agassiz

Joel A. Allen

John G. Anthony

James Burkhardt

Frederick C. Hartt

George Sceva

Orestes St. John

Ornithologist

Malacologist

Artist

Geologist

Preparator

Geologist

### VOLUNTEERS:

Edward Copeland

Newton Dexter

Walter Hunnewell

William James

Stephen Van R. Thayer

Thomas Ward

## MEMBERS ADDED IN BRAZIL

Major M. Coutinho	Brazilian Government Corps of Engineers
Monsieur D. Bourget	French naturalist residing in Rio de Janeiro
Mr. Talisman	Officer, Amazonian Steamship Company

## COLLECTIONS ALSO MADE BY:

Captain Anacleto	Fishes, Amazon River
Senhor Augustinho	Fishes, Amazon River
Senhor Barrosa	Miscellaneous, Amazon River
Colonel Bentos	Fishes, Rio Trombetas
Senhor S. E. Pimento Bueno	Forest and river fishes, Amazon River
Dr. Pacheco de Silva	Fishes, Rio de Janeiro
Major Estolano	Fishes, Amazon River
Senhor Felice	Geological observations, miscellaneous, Ceará
Senhor Joao Baptista da Fonseca	Fishes, mammals, environs of Rio de Janeiro
Senhor Glaziou	Plants, palms, Organ Mountains
Senhor Honorio	Miscellaneous, Amazon River
Dr. Justa	Fishes, Rio Parahyba do Norte
Mr. Kaulfuss	Andean fossils
Senhor Antonio de Lacerda	Miscellaneous, Bahia
Senhor Mariano P. F. Lage	Plants, animals, fishes, Rio Novo, basin Rio Parahyba
Senhor Cicero de Lima	Fishes, insects, interior Brazil
Dr. Couto de Magalhaes	Miscellaneous, at his direction, upper Amazon River
Dr. Malcher	Birds, Amazon River
Dr. Mendes	Miscellaneous, Ceará
Senhor Penna	Fishes, Amazon River
Senhor Joachim Rodriguez	Fishes, Santarém
Senhor Sepeda	Miscellaneous, Amazon River
Mr. Charles Taylor	Drawings and collections of fishes and insects, Posse
Father Torquata	Fishes, Amazon River
Senhor Vinhas	Fishes, Rio Xingú



The Emperor, Dom Pedro II, had extensive collections of fishes made for Professor Agassiz from several rivers in southern Brazil.

Thomas G. Cary, Mrs. Agassiz's brother, though not connected with the expedition, contributed material from Montevideo, Buenos Aires and other localities.

### ACKNOWLEDGMENTS

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### THE THAYER EXPEDITION

Louis Agassiz established a laboratory in Rio de Janeiro which the members of the expedition used as a base for their work during the weeks prior to their departure for other areas of Brazil. Numerous brief trips were made at this time, including one over the route of Dom Pedro II Railroad, which Agassiz believed would be of great future value for the transportation of large geological and zoological specimens. Zoologists and geologists thoroughly investigated the railroad from its origin in Rio de Janeiro to its terminus in Parahyba, a distance of one hundred miles. On 27 April Professor and Mrs. Agassiz enjoyed their first journey on the railroad as guests of Major Ellison, chief engineer. Two specimens from the fresh waters of Brazil were collected at this time, inaugurating what was to be an outstanding assemblage of Brazilian fishes.

An excursion of several days duration was made by the Agassizes in May, 1865; it was the first extending any distance from Rio de Janeiro. They went by ferry to Mauá then by railroad and post coach to Petrópolis. From Petrópolis they continued along the valley of the Rio Piabanha to Posse, crossed the Rio Parahyba at



Entre Rios, soon reached the Rio Parahybuna, then went on to Juiz de Fora. This trip provided an excellent opportunity to study the plant life and geological formations and to collect numerous specimens of fishes and other vertebrates.

Examples of the peculiarities of Brazilian geological formations were observed in Tijuca, about eight miles from Rio de Janeiro, 26–27 May. On 21 June the Agassizes again went to Juiz de Fora, arrived there 22 June, then continued thirty miles farther where they were guests of Senhor Lage at his fazenda. Senhor Lage accompanied the Agassizes to the Serra da Babylonia. On 27 June they returned to Rio de Janeiro.

In June the party divided into units to facilitate the exploration of Brazil. St. John, Allen, Ward and Sceva left for the interior the first week of June and Hartt and Copeland left to explore the coast from the Rio Parahyba to Bahia the following week. On 25 July, the Agassizes, Major Coutinho, Burkhardt, Monsieur Bourget (a French naturalist residing in Rio de Janeiro engaged by Agassiz as a collector and preparator), Hunnewell and James left Rio de Janeiro on the "Cruzeiro do Sul" for Bahia, where they arrived 28 July. In Bahia they were joined by Dexter and Thayer, who had preceded them. Antonio de Lacerda, their host, had greatly assisted Dexter and Thayer in their collecting. The next collecting station was Maceió on 30 July, then Pernambuco 31 July and on 2 August the Parahyba do Norte as far as the town of Parahyba. They arrived at Ceará 5 August, the guests of Dr. Mendes, and were at Maranhão 6 August. They arrived at Pará 10 August, where Mr. Pimenta Bueno arranged living and working quarters from 10 August to 19 August, and the use of a steamer, the "Icambiaba", for a month between Pará and Manáos. In Pará, Mr. Talisman, a young Brazilian officer of the Amazonian Steamship Company, joined the group. Breves, 20 August, was the first station in Amazonas. Leaving Aturia, they passed into the Rio Tajapurú and stopped at the village of Tajapurú.

On 21 August, after two days spent skirting the island of Marajó, they left the Pará River and turned into the mainstream of the Amazon. They went to Gurupá, 22 August, where a collection of forest fishes was made, and on to Porto de Moz on the Rio Xingu, 23 August. A brief non-collecting halt was made at Prainha on 24 August, and they were at Monte Alégre, at the mouth of the Rio Gurupatuba on 25 August.



From Santarém, at the mouth of the Rio Tapajoz, Dexter, James and Talisman left, 26 August, to explore the Rio Tapajoz. Bourget and Hunnewell remained in Santarém, Bourget to make collections, Hunnewell to repair his photographic equipment. Agassiz, Burkhardt, Thayer and Coutinho continued on to Obydos. Before leaving the Rio Tapajoz to join the Amazon, the "Icambiaba" detoured through a narrow channel, Igarapé-Assú. A brief stop was made at Obydos, 26 August. On 27 August they landed at Villa Bella, at the mouth of the Rio Tupinambaranas. By canoe, the group left Villa Bella to explore Lago José Assú until 30 August, proceeding from there to a branch of the Rio Ramos, which connects the Amazon to the Rio Madeira. They returned to Villa Bella on 2 September.

A rest period was taken from 4 to 11 September at Manáos, on the Rio Negro. There they were joined by Dexter, James and Talisman. A brief halt was made at Barreira das Cudajas on 12 September and on 13 September they made another short halt at Coarí. Teffé stands beside a small lake formed by the Rio Teffé before it joins the Amazon. This site was visited on 14 September, then Fonte Boa, 15 September and São Paulo de Olivença, 17 September. Here James and Talisman left the group to continue from there to the Rios Iça and Hyutahy by canoe. The farthest point reached by Agassiz was Tabatinga, 19 September. Bourget remained in Tabatinga for a month, collecting there and in the surrounding country. Agassiz and the rest of the party returned to Teffé, remaining there until 22 October. Agassiz and Coutinho were at a station on a branch of the Rio Solimões from 4 October to 6 October. James and Talisman rejoined them at Teffé, 16 October and Bourget boarded the "Icambiaba" 22 October.

While in Teffé, Dexter made an extensive collection of birds and, with the assistance of Hunnewell, Thayer and local sportsmen, added to the reptile and animal specimens. Agassiz also purchased a large collection of insects at this station.

Manáos was reached on 23 October. While at this station, Agassiz, Coutinho, Burkhardt, Dexter and James, preceded by their host, Senhor Honorio, had a two day, 27 October to 29 October, collecting excursion to Lago Hyanuary on the western side of the Rio Negro. Talisman and Dexter explored the Branco and Negro rivers for six weeks, returning to Manáos 10 December. Thayer and Bourget were at Lago Cudajas for ten days, 27 November to



6 December (Thayer also collected at Lago Alexo), and James went to Manacapuru for ten days.

The Agassizes, Coutinho and Burkhardt left Manáos 10 December to spend ten days at Mauhes. They proceeded down the Rio Ramos to the Rio Mauhes, which runs almost parallel with the Amazon, to the Rio Madeira (which joins the Amazon opposite Serpa). The land encircled by these rivers is the island of Tupinambaranas. Mucaja-Tuba and another small settlement on the Rio Mauhes were visited 13–15 December, and on 21 December the group returned to Manáos.

On 26 December the party left Manáos and went up the Rio Negro as far as Pedreira on the "Ibicuhy," arriving there 28 December. A collection of palms had been made at Taua Péassu and they were picked up on the return to Manáos 31 December.

The stay at Manáos ended about 12 January 1866 and the party returned to Villa Bella 16 January. Collections were made 18 January at Lago Maximo, a short walk overland from Villa Bella. A narrow outlet connects this lake to the Rio Ramos. On 21 January the party was again at Obydos, and 22 January at Santarém, which is situated on a point of land separating the Rio Tapajos and the Amazon. They left Santarém 24 January for Monte Alégre, where they stayed until 29 January. Agassiz, Coutinho and a few friends went to the Serra d'Ererê, northwest of Monte Alégre, to see the geological formations. Coutinho went by horseback and Agassiz by canoe, along the Rio Gurupatuba, up a narrow stream known as the Rio Ererê to a point on a line with the Serra and from there proceeded on foot.

Senhor Vinhas, a resident of Porto de Moz, had a collection of fishes from the Rio Xingu ready for Agassiz upon his arrival 29 January, so the group quickly continued on to Gurupá, arriving 30 January. They reached Tajapuru 31 January and spent two days there.

From 4–27 February they were at Pará. On 28 February they left on the steamer "Tabatinga" to explore the great island of Marajó. They visited Soures, then, 29 February to 4 March, Vigia, Baia do Sul and the small island of Tatuatuba. They returned to Pará 5 March.

On 26 March the party left Pará for Ceará where they arrived 31 March. A stop was made en route at Maranhão so that Agassiz and Coutinho might examine the coastal geology with more care



than on their previous visit. An excursion to Pacatuba and the Serra da Aratanha, 6–12 April, included the Agassizes, Coutinho and Senhor Pompeo, Government Engineer of the Province. Collections were made in the vicinity of Ceará by various people including Senhor Felice and Senhor Cicero de Lima. They left Ceará 16 April and continued, with a brief stop at Pernambuco, to Rio de Janeiro, where they arrived 25 April.

During the time in Rio de Janeiro, 25 April to 2 July, collections were packed and shipped to Cambridge. A few short trips were made, to Petrópolis and again along the Dom Pedro II Railroad. The last excursion made by Agassiz was 9–12 June, to the Organ Mountains, accompanied by Mrs. Agassiz, Mr. Glaziou and Dr. Nageli. The group went by boat to Piedade, then walked from there to Theresopolis, collecting along the way.

On 2 July Burkhardt, Hartt, Copeland, Sceva, Dexter, James, Hunnewell and Thayer embarked for the United States.

Allen, Ward and Sceva left Rio de Janeiro 9 June 1865 under the leadership of Orestes St. John. Their route led to Juiz de Fora, then across the Serra da Mantiqueira to Barbacena (where Ward left the group) through Lagoa Dourada, across the Rio Carandahy and the Rio Paraopeba just above the water gap of the Serras da Piedade and Itatiaiaassú, to the village of Morro Velho. They traversed the basins of the Rio Parahyba, Rio Grande (Rio de La Plata) and Rio São Francisco. By way of Saburá, Santa Luzia, Lagoa Sancta and Sette Lagoas they reached Gequitiba.

Sceva remained in Lagoa Santa to search for fossils in the caves of the region, but a previous collector had taken most of the material. He did, nonetheless, prepare an excellent series of mammals before returning to Rio de Janeiro. After a few days in Rio de Janeiro, devoted to preparing and packing specimens collected by other members of the expedition, Sceva went to Cantagallo to collect until he rejoined Agassiz in Rio de Janeiro to return to the United States.

St. John and Allen left Gequitiba 31 July 1865 and travelled by canoe down the Rio das Velhas, arriving at the junction of the Rio São Francisco 28 August. After three days here they continued by boat to Januária, reaching there 9 September and remaining until 19 September.

Allen, in ill health, decided at this point to continue on alone to Bahia, taking with him the material so far collected. Still trav-



elling by boat he followed the Rio São Francisco past Urubú to Chique-Chique, where he arrived 8 October and stayed for several weeks. From Chique-Chique his route led overland to the coast by way of Engenho Velho, Jacaré and Olhos d'Água, across an arid plain, to Taboleiro de Jacobina, down the "Tombador" (a precipitous defile) to Jacobina valley. From Jacobina he went to the Serra da Terra Dura, Arraial do Riacho do Jacuhype, Feira de Sta. Anna, Espelto (Espelho?) and Cachoeira, then to Bahia, a journey of many weeks. He did not reach Bahia until the end of November. On 15 December Allen left Bahia for Cambridge.

St. John followed the Rio São Francisco to Barra, then went along the valley of the Rio Grande to the Rio Prêto, Santa Rita and Paranaguá. Several days were spent at Paranaguá before continuing on along the valley of the Rio Gurgueia to Manga. The party followed the Rio Parnahyba to São Gonçallo where many specimens (primarily birds, reptiles and insects) were taken. Therezina, capitol of the state of Piauí, was the next station and excellent collections of fishes were made from the Rio Poty, a tributary of the Rio Parnahyba. From Therezina St. John continued on to Caxias, proceeded to Maranhão by way of the Rio Itapicuru and arrived at Maranhão 8 January 1866. Illness kept St. John in Maranhão until February, when he left to join Agassiz in Pará. His geological observations were as careful and as valuable as his zoological collections.

After Ward separated from his associates at Barbacena he continued on to Ouro-Prêto, Mariana and Santa Bárbara, then down the Rio Piracicaba to the Rio Doce. He followed the river almost to the point where it meets the Rio Antonio. Crossing the Serra das Esmeraldas he arrived at the basin of the Rio Jequitinhonha and explored several branches of the river after passing Diamantina. He proceeded cross-country to the town of Rio Pardo and the Rio Pardo. He crossed the Rio São Francisco at Januária, then continued northwestward until he reached the Rio Tocantins, which he followed to Pará. From Pará Ward returned to the United States.

Hartt visited Brazil twice, first as a member of the Thayer Expedition, and, later, on a private expedition. Although he and Cope-land made extensive collections, particularly of marine invertebrates and fishes, their major interest was the geology of Brazil. This has been comprehensively treated by Hartt, both from per-



sonal observation and from the work of other geologists, in his book, *The Scientific Results of a Journey in Brazil*, 1870. Considerable information is also included on the common species of plants and animals and areas of fossil beds.

Hartt and Copeland did not go directly from Rio de Janeiro to Bahia as planned. Their first attempt took them as far as Nova Almeida north of Victoria, but they were forced to return to Rio de Janeiro for lack of mules and money. After again working near Rio de Janeiro they embarked on a sailing vessel for São Matheos, stopping wherever possible along the coast. From São Matheos they went to the Rio Doce, returned to its mouth and then back to São Matheos. They proceeded north to Belmonte via the Rio Jequitinhonha and then returned to Porto Alegre, then north to Bahia.

Rather than complicate the survey of the area covered by Hartt and Copeland the following route description is given (with the exception of their return to Porto Alegre) in direct sequence.

The environs of Rio de Janeiro were thoroughly explored by Hartt and Copeland. They examined the area of the Serra do Mar, which borders the coast from the state of São Paola to the state of Rio de Janeiro, and also the Serra da Mantiqueira, partly separated from the Serra do Mar by the valley of the Rio Parahyba do Sul. Within the bay of Rio de Janeiro the Ilha de Paquetá, Ilha das Cobras, Ilha das Enxadas and Ilha do Governador were explored. They visited several places near Rio de Janeiro, including the hills that run westward to Lagoa de Freitas, separated from Corcovado by the valley of Botafogo. They also explored Três Irmãos, southwest of Corcovado, the Gaira to the west and the Tijuca range to the north, which is separated from Corcovado by the pass of Boa Vista. They covered the entire length of the Dom Pedro II railroad. The Rio Macacu was followed to Porto Villa Nova, then along the Cantagallo Railway to Porto das Caixas and the terminus at Cachoeria.

Between Rio Janeiro and Cabo Frio observations were made at Maricá, Lagoa de Maricá, Lagoa de Saquarema (east of Porto Negra) and Lagoa de Araruama. After Cabo Frio they stopped at Os Búzios, Cabo de São Thomé, Macahé, the Ilhas de Santa Ana (which are a few miles offshore from Macahé) and Campos on the Rio Parahyba do Sul. Just south of Campos is the Lagoa Feia into which the Rio Macacu empties. Several lagoons have formed



along this coast, including large ones such as Rio Iguassu and Lagoa do Campello.

They followed the Rio Muriahé, a tributary of the Rio Parahyba, for several miles then followed the Rio Parahyba from Campos to São Fidélis. From here they travelled northward through the valley of Vallão Grande to Bom Jesus on the Rio Itabapua, which divides the states of Rio de Janeiro and Espírito Santo. They went down the Rio Itabapua, past Porto da Limeira, to the mouth of the river.

Hartt and Copeland continued northward to Lago Marobá, then along the coast to the town and river of Itapémirim and the surrounding area, then on to Piuma, the Rio Benevente and Guarapary. Stops were made at Ponta da Fructa and Ponta de Jecú en route to the bay of Espírito Santo, Villa Telha (on the bay of Espírito Santo) and Victoria. Fifty miles northwest of Victoria they explored the Rio Santa Maria and São Leopoldina then went on to Carapina, Santa Cruz and the Rio Doce, which they traversed from its mouth to Porto do Souza. They went down the river to Linhares and Lagoa Juparanã (connected to the Rio Doce by a deep channel called the Rio Juparanã).

Returning to the coast they continued northward, stayed briefly during November 1865 in the vicinity of Barra Secca, then passed the Lagoa Marircu and the Rio Azeites at As Azeites on the way to São Matheos. Hartt journeyed to the Fazenda do Capitão Grande on the Rio Braço do Norte, which joins with the Braço do Sul to form the Rio São Matheos. On the return trip he mapped the river as far as São Matheos. Further north along the coast they noted the Rio Itahunas.

From Porto Alégre they went up the Rio Mucury to Santa Clara and from that point travelled westward, using the Minas road, to the headwaters of the Rio Mucury near Poté. Farther west they passed the watershed dividing the Rio Mucury and the Rio Jequitinhonha. They arrived at the valley of Jequitinhonha in April 1866 via the Rio Setubal. A detour was made from the Rio Setubal to Alto do Bois before they proceeded cross-country to Calháo. After arriving at Calháo, Hartt made a visit to Minas Novas, returned to Calháo, and with Copeland, went down the Rio Arasuahy and the Rio Jequitinhonha to Belmonte. From Belmonte, Hartt and Copeland returned to Porto Alégre, before again following the coast north.

Observations were made of the terrain between the Mucury and Peruhype rivers. They visited São Leopoldina, about ten miles upstream, and Villa Viçosa, four miles below. The route continued northward along the coast to the Rio Caravellas, Prado, the Rio Jucurucú, Porto Seguro and Santa Cruz. After again reaching Belmonte they went on to Cannavieiras and the Rio Pardo. They ascended the river to the head of navigation, passing Cachoeirinha do Rio Pardo and the fazenda of Sisterio.

They stopped briefly in Ilhéos on the Rio Cachoeira and in Camamu, en route to Bahia. From Bahia they ascended the Rio Paraguassú as far as Cachoeira, passing the valley of Iguapé. The area surrounding Bahia received close attention before Hartt and Copeland returned to Rio de Janeiro, where they joined Agassiz and other members of the expedition for departure to the United States.



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Hyavary, (Javary) ( <i>Javari</i> ), Rio	10
Iça, Rio	10
Igarapé-Assu (Açu)	9
Igarapé Grande	9
Iguapé, Rio	3A
Iguassu ( <i>Iguaçu</i> ), Rio	3B
Ilha das Cobras	1
Ilha das Enxadas	1
Ilha de Marajo	9
Ilha do Governador	1
Ilha Grande do Jutai	8
Ilha Paqueta	1
Ilhas de Santa Ana ( <i>Santana</i> ) (Anna)	3B
Ilhéos ( <i>Ilhéus</i> )	3A, 6
<i>Itabapoana</i> (Barra)	3B
Itabapuana ( <i>Itabapoana</i> ), Rio	3B
<i>Itacoatiare</i> (Serpa)	9
Itapémerim ( <i>Itapemirim</i> ), Rio	3B
Itapicuru, Rio	5, 11
Itatiaiaassú ( <i>Itatiaiuçu</i> ), Serra do	4, 6
<i>Itaúnas</i> (Guaxindiba or Itahunas), Rio	3B



Name	Map
Itim, Rio	5
Jacaré, Rio	6
Jacobina	6
<i>Jacuípe</i> (Jacuhype), Rio	3A
Januária	4, 6, 7
<i>Japurá</i> (Hyapura), Rio	10
Jatuarana	9
Javary ( <i>Javari</i> ) (Hyavary), Rio	10
<i>Jequitibá</i> (Gequitiba)	4, 6
<i>Jequitinhonha</i> (Belmonte), Rio	3A, 7
José Assú ( <i>Açu</i> ), Lago	9
José Fernandez, Lago	10
Jucurucu, Rio	3A
Juiz de Fora	3B, 4, 6, 7
Juparanãa, Rio ( <i>Lagoa Juparanã</i> )	3B
Jutahy ( <i>Jutaí</i> ), Rio	10
Lagoa de Araruama	2
Lagoa de Freitas ( <i>Lagoa Rodrigo de Freitas</i> )	1
Lagoa de Maricá	2
Lagoa de Saquarema	2
Lagoa do Campello ( <i>Campelo</i> )	3B
<i>Lagoa do Máximo</i> (Lago Maximo)	9
Lagoa Dourada	4, 6
Lagoa Feia	3B
<i>Lagoa Juparanã</i> (Rio Juparanãa)	3B
Lagoa Maricu	3B
Lagoa Sancta ( <i>Santa</i> )	4, 6
Lago Cudajas ( <i>Codajás</i> )	10
Lago Curupira	9
Lago do Bota	10
Lago Hyanuary ( <i>January</i> )	10
Lago Irandubo	10
Lago <i>January</i> (Hyanuary)	10
Lago José Assú ( <i>Açu</i> )	9
Lago José Fernandes	10
Lago Manacapuru	10
Lago Marobá	3B
Lago Saracá	9



Name	Map
La Plata ( <i>Grande?</i> ), Rio	6
Linhares	3B
Macacos, Rio dos	9
Macacu, Rio	2
Macahé ( <i>Macaê</i> )	3B
Maceió	11
Madeira, Rio	9
<i>Mamuru</i> (Tupinambaranas), Rio	9
Manacapuru	10
Manáos ( <i>Manaus</i> )	9, 10
Manga	5
Manhuassú ( <i>Manhuaçu</i> ), Rio	3B
<i>Mantena</i> (Braço do Sul), Rio	3A
Marajó, Ilha de	9
Maranhão ( <i>São Luís</i> )	11
Marañon, Rio	10
Mariana	7
Maricá, Lagoa do, Ilhas	3B
Mateus, Rio	3A
Mauá ( <i>Barão de Mauá</i> )	2
Mauhes ( <i>Maués</i> ), Rio	9
Minas Novas	3A
Monte Alegre	9
Morro Velho	4, 6
<i>Moura</i> (Pedreira)	10
Mucaja-Tuba ( <i>Mucajá</i> )	9
Mucury ( <i>Mucuri</i> ), Rio	3A
Mucury Pequeno, Rio	3A
Mugiquisaba ( <i>Mogiquiçaba</i> )	3A
Muriache (Muriahé) ( <i>Muriaê</i> ), Rio	3B
Mutum, Rio	3B
Nazareth	9
Negro, Rio	10
Novo, Rio	3B
Obydos ( <i>Óbidos</i> )	9
Olhos d'Água	6
Organ Mountains ( <i>Serra dos Órgãos</i> )	2
Os Búzios ( <i>Cabo dos Búzios</i> )	3B

Name	Map
Ouro-Prêto ( <i>Ouro Prêto</i> )	7
Pacatuba	11
Paquetá, Ilha de	1, 3
Pará ( <i>Belém</i> )	8, 9
Parahyba ( <i>Paraíba</i> ) do Norte, Rio	11
Parahyba ( <i>Paraíba</i> ) do Sul, Rio	3B, 4
Parahybuna ( <i>Paraibuna</i> ), Rio	3B
Paramirim, Rio	6
Paranaguá	5
Paraopeba, Rio	6
Parcel dos Abrolhos	3A
Pardo	3A, 7
Pardo, Rio	3A, 7
Parguassú ( <i>Parguaçu</i> ), Rio	3A
<i>Parintins</i> (Villa Bella)	9
<i>Parnaíba</i> (Parnahyba), Rio	5
Pedreira ( <i>Moura</i> )	10
Pernambuco ( <i>Recife</i> )	11
Peruhype ( <i>Peruípe</i> ), Rio	3A
Petrópolis	2, 6
Philadelphia ( <i>Teófilo Otoni</i> )	3A
Piabanha, Rio	2, 3B
Piauihy ( <i>Piauí</i> ), Rio	3A
Piedade	1
Piracicaba, Rio	7
Pirahy ( <i>Piraí</i> ), Rio	2
Po-Assú ( <i>Canal de Poaçu</i> )	3A
Ponta da Fructa ( <i>Fruta</i> )	3B
Ponta de Jecú	3B
Ponta Negra	2
Porto Alegre	3A
Porto da Limeira	3B
Porto das Caixas	2
Porto de Moz	9
Porto do Souza	3B
Porto Nacional	7, 8
Porto Seguro	3A
Posse	3B



Name	Map
Poté	3A
Poty (Puty) ( <i>Poti</i> ), Rio	5
Prado	3A
Prados	4
Prainha	9
Prêto, Rio	2, 4
Puty ( <i>Poti</i> ), (Poty), Rio	5
Ramos, Rio ( <i>Paraná do Ramos</i> )	9
<i>Recife</i> (Pernambuco)	11
Rio Antonio ( <i>Santo Antônio</i> )	7
Rio Arupuana	9
Rio Arassuahy ( <i>Araçuaí</i> )	3A
Rio Azeites	3B
Rio Aturiá ( <i>Furo do Aturiá</i> )	9
Rio Belmonte ( <i>Jequitinhonha</i> )	3A, 7
Rio Benevente	3B
Rio Braço do Norte	3A
Rio Braço do Sul ( <i>Rio Mantena</i> )	3A
Rio Branco	10
Rio Caninde	5
Rio Carandahy ( <i>Carandaí</i> )	4
Rio Caravellas ( <i>Caravelas</i> )	3A
Rio Caxoeira	3A
Rio Coeira	3A
Rio das Velhas	3A, 4, 6, 7
Rio de Contas	3A
Rio de Janeiro	1, 3, 4, 6, 7
Rio Doce	3B, 7
Rio dos Macacos	9
Rio Ererê	9
Rio Gongogi	3A
Rio Grande	6
Rio Grande (La Plata?)	4
Rio Guaxindiba or Itahunas ( <i>Itaúnas</i> )	3B
Rio <i>Gurgueia</i> (Gurugueia)	5
Rio Gurupatuba ( <i>Parieutuba</i> )	9
Rio Hyapura ( <i>Japurá</i> )	10
Rio Hyavary (Javary) ( <i>Javari</i> )	10

Name	Map
Rio Hyutahy	10
Rio Iça	10
Rio Iguapé	3A
Rio Iguassú	3B
Rio Itabapuana ( <i>Itabapoana</i> )	3B
Rio Itanheim	3A
Rio Itapemérím	3B
Rio Itapicurú	5, 11
Rio <i>Itaúnas</i> (Itahunas or Guaxindiba)	3B
Rio Itim	5
Rio Jacaré	6
Rio <i>Jacuípe</i> (Jacuhype)	3A
Rio <i>Japurá</i> (Hyapura)	10
Rio Javary (Hyavary) ( <i>Javari</i> )	10
Rio <i>Jequitinhonha</i> (Belmonte)	3A, 7
Rio Jucururú	3A
Rio Juparanãa ( <i>Lagoa Juparanã</i> )	3B
Rio Jutahy ( <i>Jutaí</i> )	10
Rio Macacu	2
Rio Madeira	9
Rio <i>Manhuaçu</i> (Manhuassú)	3B
Rio <i>Mantena</i> (Braço do Sul)	3A
Rio Marañon	10
Rio Mateus	3B
Rio Mauhes ( <i>Maués</i> )	9
Rio Mucury ( <i>Mucuri</i> )	3A
Rio Mucury Pequeno	3A
Rio Muriahé ( <i>Muriae</i> ) (Muriache)	3B
Rio Mutum	3B
Rio Negro	10
Rio Novo	3B
Rio Paraguassú	3A
Rio Parahyba ( <i>Paraíba</i> ) do Norte	11
Rio Parahyba ( <i>Paraíba</i> ) do Sul	2, 3B, 4
Rio Parahybuna ( <i>Paraibuna</i> )	3B
Rio Paramirim	6
Rio Parnahyba ( <i>Parnaíba</i> )	11
Rio Paraopeba	6



Name	Map
Rio Pardo	3A
Rio <i>Parnaíba</i> (Parnahyba)	5
Rio Peruhype ( <i>Peruípe</i> )	3A
Rio Piabanha	2, 3A
Rio Piauhy	3A, 5
Rio Piracicaba	7,
Rio Pirahy	2
Rio Piuma	3B
Rio Poty ( <i>Poti</i> ) (Puty)	5
Rio Prêto	2, 3A, 4
Rio Ramos ( <i>Paraná de Ramos</i> )	9
Rio <i>Samambaia</i> (Sambaia)	2
Rio <i>Santo Antônio</i> (Antonio)	7
Rio São Francisco	3A, 4, 5, 6, 7
Rio São Matheos ( <i>São Mateus</i> )	3B
Rio Setubal	3A
Rio Solimoens ( <i>Solimões</i> )	10
Rio Tajipurú ( <i>Furo do Tajipurú</i> )	9
Rio Tapajoz ( <i>Tapajós</i> )	9
Rio Tocantins	7, 8
Rio Trombetas	9
Rio Tupinambaranas ( <i>Mamuru</i> )	9
Rio Una	3B
Rio Vacaria	7
Rio Xingu	9
Saburá ( <i>Sabará</i> )	4
Salvaterra	9
<i>Samambaia</i> (Sambaia), Rio	2
San Gonçallo ( <i>Amarante</i> )	5
<i>San Luiz</i> (Maranhão)	11
San Mateo ( <i>São Mateus</i> ) (Matheos)	3B
San Paolo ( <i>São Paulo de Olivença</i> )	10
Santa Anna Islands ( <i>Ilhas de Santana</i> )	3B
Santa Bárbara	3A, 3B, 7
<i>Santa Caterina</i> (Catherina)	3B
Santa Clara	3A
Santa Cruz ( <i>Cabralia</i> )	3B
Santa Luzia	4, 6

Name	Map
Santarém	9
<i>Santa Rita de Cassia</i> (Villa da Santa Rita)	4
<i>Santo Antônio</i> (Antonio), Rio	7
São Fidélis	3B
São Francisco, Rio	3A, 4, 5, 6, 7
<i>São Leopoldina</i> (Colônia Leopoldina)	3B
São Matheos ( <i>São Mateus</i> )	3B
<i>São Paulo de Olivença</i> (San Paola)	10
São Tomé, Cabo de	3B
Serpa ( <i>Itacoatiare</i> )	9
Serra da Aratanha	11
Serra da Babilônia ( <i>Babilonia</i> )	3B
Serra da Mantiqueira	3B, 4, 7
Serra da Piedade	4, 6
Serra das Esmaraldas	7
Serra da Terra Dura	6
Serra de Cupati	10
Serra de Monguba	11
Serra d'Ereré ( <i>Ererê</i> )	9
Serra do Itatiaiaassú ( <i>Itatiaiuçu</i> )	4, 6
Serra do Mar	3B
<i>Serra dos Orgãos</i> (Organ Mountains)	3B
Sette Lasso	4, 6
Setúbal, Rio	3A
Silva	9
Sisterio	3A
Solimoens ( <i>Solimões</i> ), Rio	10
Soures ( <i>Soure</i> )	9
Tabatinga	10
Taboleiro de Jacobina	6
Tajipuru, Rio ( <i>Furo do Tajipuru</i> )	9
Tapajóz ( <i>Tapajós</i> ), Rio	9
Tatuatuba	9
Taua Péassu ( <i>Tauapeçu</i> )	10
Teffé (Êga) ( <i>Tefé</i> )	10
<i>Teófilo Otoni</i> (Philadelphia)	3A
<i>Teresopolis</i> (Theresopolis)	3B
Therezina ( <i>Teresina</i> )	5



Name	Map
Tijuca	1
Tocantins, Rio	7, 8
Tombador	6
Tonantins	10
Três Irmãos	1
<i>Três Rios</i> (Estação d'Entre Rios)	2
Trombetas, Rio	9
Tupinambaranas ( <i>Tupinambarama</i> )	9
Tupinambaranas ( <i>Mamuru</i> ), Rio	9
Una, Rio	3B
Urubú	6
Vacaria, Rio	7
Vallão Grande ( <i>Valão Grande</i> )	3B
Velhas, Rio das	3A, 4, 6, 7
<i>Vereda do Mocambo</i> (Mocambo)	4
Victoria ( <i>Vitória</i> )	6
Vigia	9
Villa Bella ( <i>Parintins</i> )	9
Villa da Santa Rita ( <i>Santa Rita de Cassia</i> )	4
Villa do Barra ( <i>Barra</i> )	4, 6
Villa ( <i>Vila</i> ) Velha	3B
Villa ( <i>Vila</i> ) Viçosa	3A
<i>Vitória</i> (Victoria)	6
Xingú, Rio	9
<i>Xique Xique</i> (Chique Chique)	4, 5, 6
Ypiranga ( <i>Ipiranga</i> )	2

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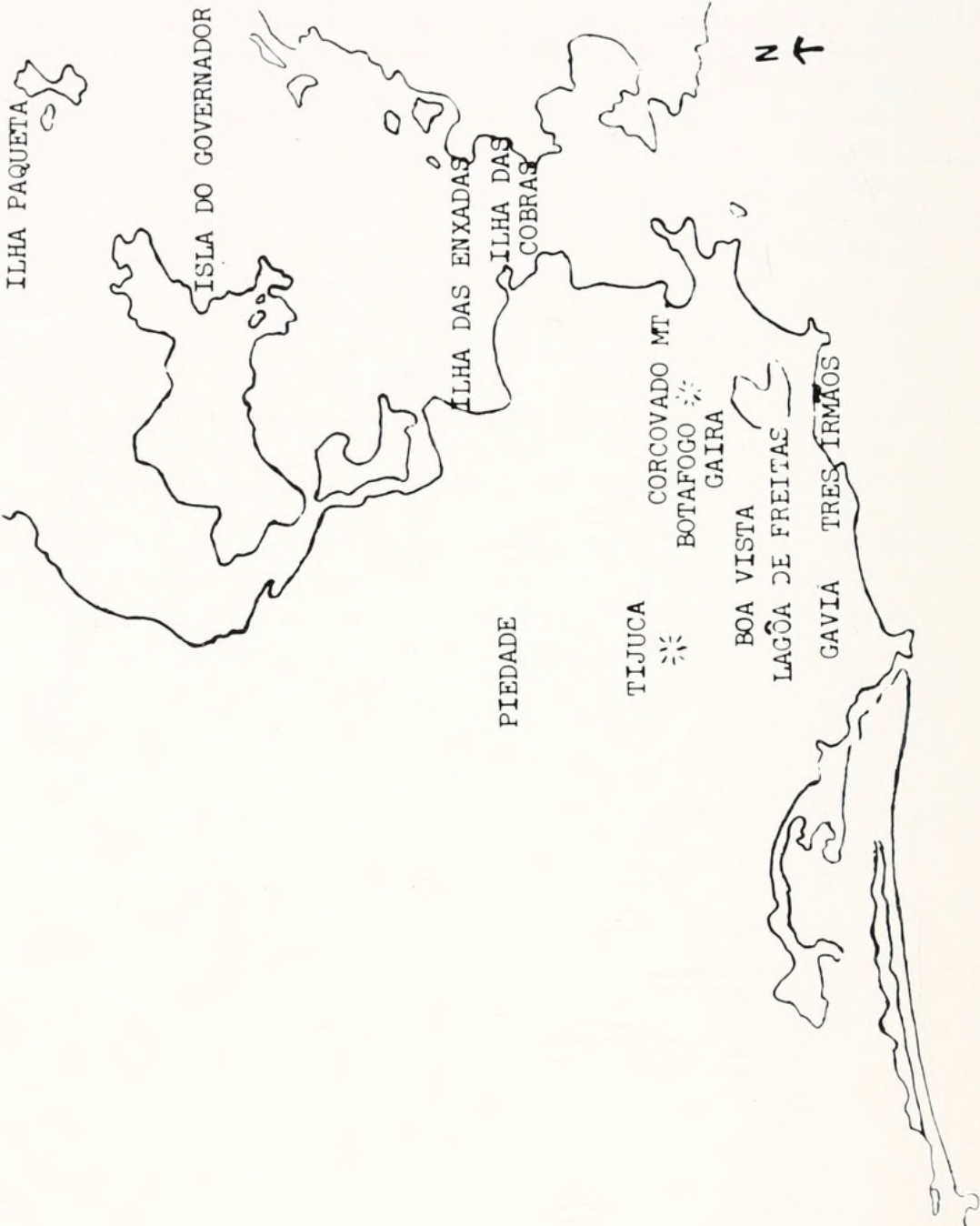


Figure 1. Rio de Janeiro

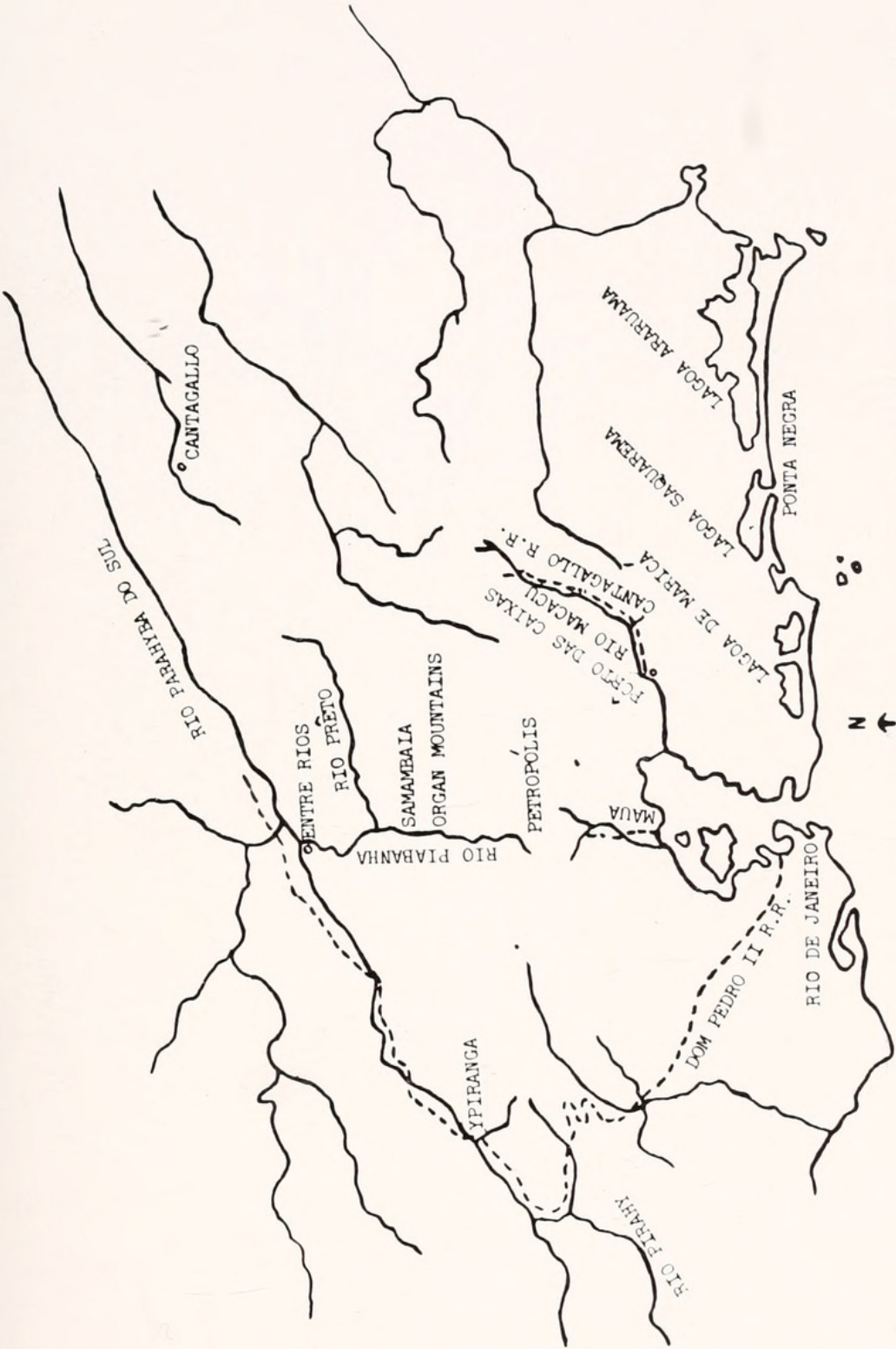


Figure 2. Dom Pedro II Railroad (after Hart, 1870)





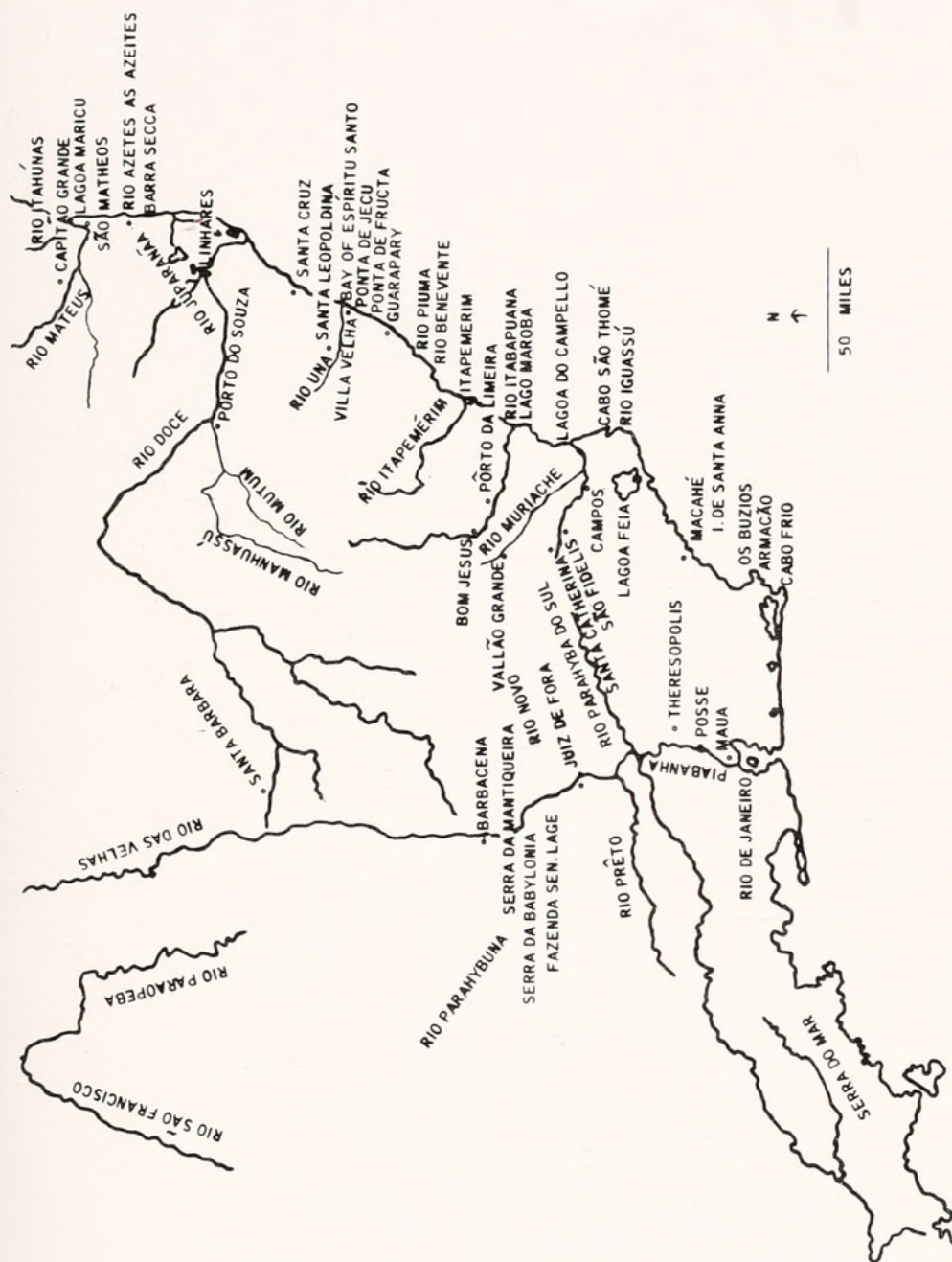


Figure 3 B. Coast from Rio Itahunas to Rio de Janeiro — Hartt and Copeland



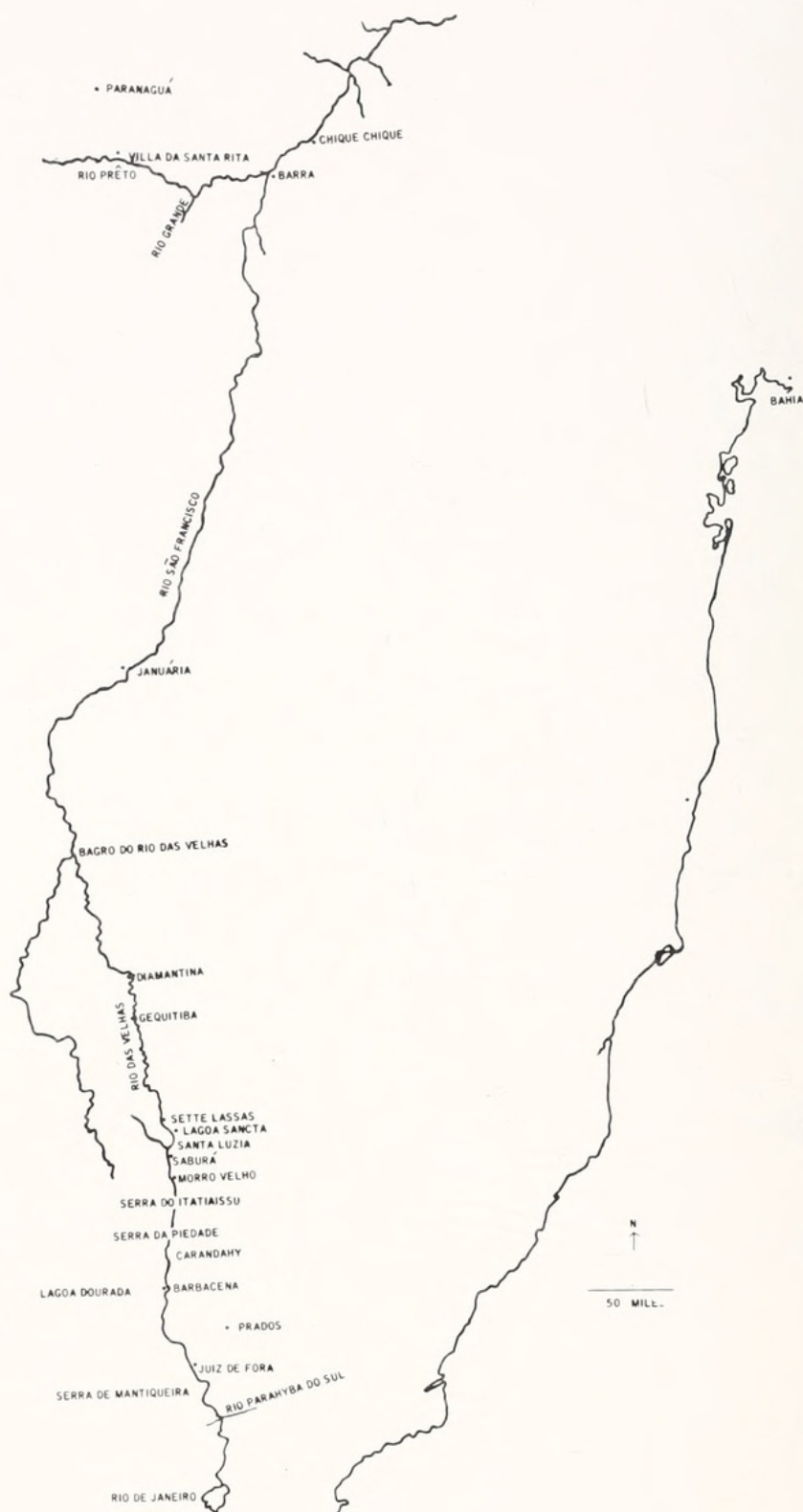


Figure 4. Rio de Janeiro to Paranaguá — St. John

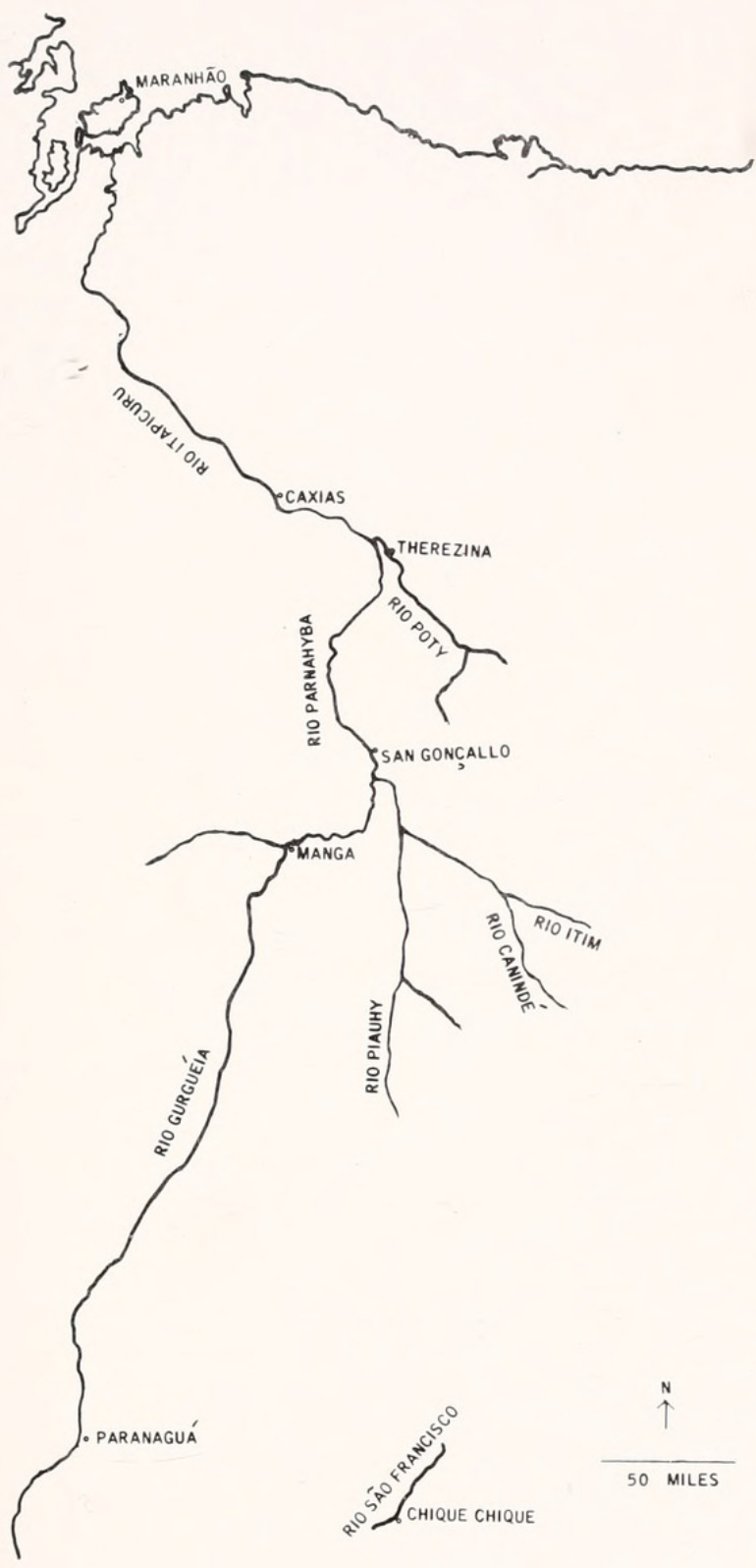


Figure 5. Paranaguá to Maranhão — St. John





Figure 6. Rio de Janeiro, Chique Chique, to Bahia — Allen





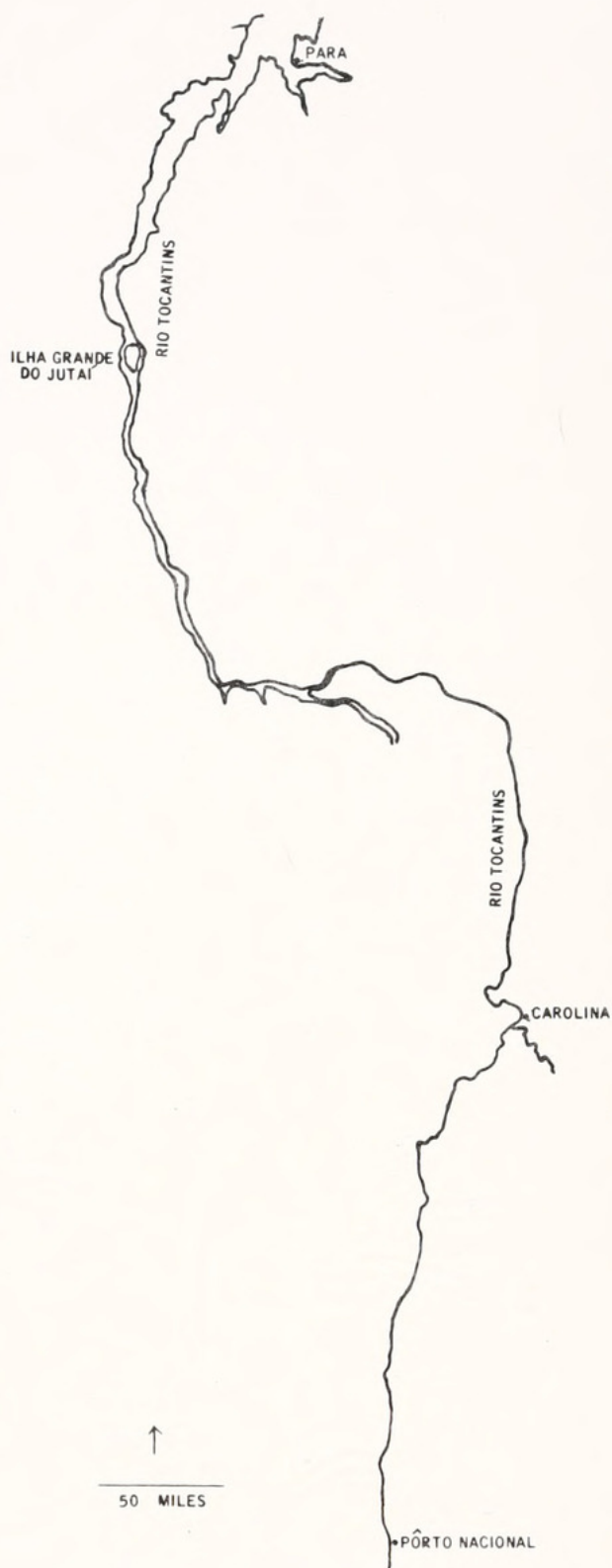


Figure 8. Rio Tocantins to Pára — Ward







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